

COMMONWEALTH BUREAU OF CENSUS AND STATISTICS
WESTERN AUSTRALIAN OFFICE

WESTERN AUSTRALIAN YEAR BOOK

No. 8 - 1969



F. W. SAYER

Deputy Commonwealth Statistician and Government Statistician

This page was added on 11 January 2013 to include the Disclaimer below.

No other amendments were made to this product.

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KING'S PARK, PERTH

Botanic Garden and Pool

A feature of the Garden, whose cultivated area covers 67 of the Park's 996 acres, is the illuminated fountain and statue in the pool dedicated to the pioneer women of the State.



*Registered at the General Post Office, Perth
for transmission through the post
as a book*

Printed in Australia by ALEX. B. DAVIES, Government Printer, Western Australia

PREFACE

This issue of the *Western Australian Year Book* is the eighth of a new series. The old series, originally published for the year 1886 and discontinued in 1905, developed from the Blue Books of the Colonial Office, London, which contain the early statistical records of Western Australia.

The aim of the Year Book is to provide a general description of the State of Western Australia and its development, in terms of its geography, climate and geology, the plants and trees which grow on its surface, its animal life, and the activities and social patterns of its people in relation to this physical environment. Ample use has been made of statistical tables to supplement the descriptive text and to give a numerical account of what has been happening in the several fields of production, trade and commerce, population and social condition, the functions of government, and so on. A list of illustrations, in the form of plates, graphs and maps, and a synopsis of the contents are given in the opening pages.

The statistical tables in this issue relate in the main to periods ended 30 June, or 31 December 1967 and, in general, were the latest available at the time the manuscript was prepared. Because of the time required for editing and printing the Year Book, later data on a particular topic will often be available in mimeographed publications or on request from the appropriate section of this Office. The descriptive text has been taken forward, wherever possible, to 31 December 1968 and incorporates the effect of 1968 Commonwealth and State legislation or administrative decisions. In some instances, the most recent developments have been included in the *Appendix*.

Among new or revised material included in this issue, the following items may be especially mentioned.

- Chapter II, Part 1. Inclusion of a section on current geological investigations in Western Australia.
- Chapter II, Part 3. Insertion of an article on the poisonous plants of Western Australia.
- Chapter III. Addition of a section on overseas representation in Western Australia.
- Chapter V, Part 4. Inclusion of 1966 Census material on dwellings, expanded tables on building operations, and a section on the Housing Loan Guarantee Act.
- Chapter VI, Part 1. Insertion of a section on State taxation showing rates of tax and relevant legislation.
- Chapter VI, Part 2. Addition of a section on instalment credit for retail sales.
- Chapter VII, Part 1. Re-insertion of a revised section on methods of leasing Crown lands.
- Chapter VII, Part 2. Inclusion of sections on water resources investigation and measurement, and sewerage schemes.
- Chapter VIII, Part 1. Insertion of sections on machinery on rural holdings, the Farm Management Service Laboratory, and salt and potash production.
- Chapter IX, Part 2. Addition of a new Part covering Internal Trade with sections dealing with the Census and Survey of Retail Establishments, deliveries of new agricultural machinery, sales of new tractors, and wholesale sales and stocks of wine and brandy.
- Chapter X, Part 1. Inclusion of sections on trade unions, industrial disputes, hours of work and leave provisions, workers' compensation and industrial accidents.
- Appendix. Insertion of an article on the Computer Service Centre in the Western Australian Office, and details of articles and maps included in previous issues.

This issue of the Year Book has been completely reset in Times Roman type and the size used for the text was increased from 8 point to 10 point for greater ease in reading. Owing to considerations of space, however, the tables have continued to be set in 6 point. The added size of the printed text accounts largely for the increased size of the Book.

A wide range of current statistics is available in the periodical publications produced by this Office in printed or mimeographed form, and listed at the back of the Book, as well as in the various publications issued by the Commonwealth Statistician, Canberra and by the Deputy Commonwealth Statisticians in other States. Many of the statistical tables in the Year Book have been adapted from information appearing in the several Parts of the *Statistical Register of Western Australia*, to which reference should be made if more detail is required.

The reader's attention is drawn to the information service and library facilities provided by this Office, where all publications of the Bureau of Census and Statistics are available for reference. Business men, manufacturers, primary producers, government authorities, students and the public generally are invited to make full use of these services.

My thanks are again expressed to the many government officials and others who willingly collaborated in the preparation of letterpress or in the review of existing matter, to BP in Western Australia, The Broken Hill Proprietary Company Limited, Hamersley Iron Pty. Limited, the Petroleum Information Bureau (Australia), The Swan Brewery Company Limited, Western Mining Corporation Limited, the Department of Industrial Development, the Forests Department, the Fremantle Port Authority, the Metropolitan Water Supply, Sewerage, and Drainage Board, the Department of Mines, the Department of Public Works and Water Supply, the State Electricity Commission and the Western Australian Tourist Development Authority for the loan of blocks used in some of the illustrations, to Mt Newman Mining Co. Pty. Limited, Western Mining Corporation Limited, the Department of Industrial Development and the Postmaster-General's Department for the use of photographs, and to the Government Printer and his staff for their continuing interest in the work and for assistance and advice freely given at all times.

The authors of the articles appearing in Chapters I and II are especially thanked for contributions of new material and for their ready co-operation in revising the earlier text.

I wish to pay particular tribute to the Editor of Publications, Mr. J. E. Gowdy, B.Ec. (Hons.), who prepared various sections of the Year Book and edited the remainder.

In the preparation of the Year Book, every care has been taken to ensure that the statistical and other material is free from error. Limitations of space restrict the range of contents or amount of detail that can be included in this publication but I shall be grateful to those who will be kind enough to make suggestions for improvement.

Readers requiring the main statistical information of the Year Book in a concise form are referred to the *Western Australian Pocket Year Book*.

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and
Government Statistician

Commonwealth Bureau of Census and Statistics,
Western Australian Office,
PERTH, W.A.
30 April 1969

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FLORAL EMBLEM OF WESTERN AUSTRALIA
(Mangles' Kangaroo Paw)



By a proclamation published in the *Government Gazette of Western Australia* of 18 November 1960, the flower of the plant *Anigosanthos Manglesii* D.Don was declared to be Western Australia's floral emblem.

A description of the plant, its habit and distribution appeared in the *Official Year Book of Western Australia*, No. 2—1960.

ROUNDING OF FIGURES

Many of the figures appearing in the tables have been rounded (to thousands or, in some cases, millions), without making those adjustments which would be needed to make the rounded figures add to the rounded total. It is for this reason that figures do not always add to the totals shown in the tables.

Percentages appearing in the tables have been corrected to the second place of decimals without making those adjustments which would be necessary to make the percentages so expressed add to precisely 100.

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GENERAL MAP OF WESTERN AUSTRALIA (inside back cover)

Including: Local Government Areas
Statistical Divisions
Principal Air Routes
Isohyets

CHAPTER I—DISCOVERY, COLONISATION AND DEVELOPMENT

Western Australia—A Historical Survey

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The earliest inhabitants of Western Australia were the people now known as the Australian Aborigines, a brown-skinned people of medium height and slender build, who migrated to Australia from Southern Asia at least 20,000 years ago. In the absence of animals suitable for domestication or grasses suitable for cultivation, the Aborigines remained a nomadic people dependent on hunting and food collecting and with simple but effective implements made of stone, bone or wood. Nevertheless they had achieved a delicate balance with an extremely harsh environment, and the limitations of their technology were compensated for by an extremely complex and satisfying religious and cultural life.

For many thousands of years the Aborigines occupied Australia in tranquil isolation from the rest of the world. It is likely that Indonesian fishermen and traders, and perhaps some Malays and Chinese, occasionally visited some parts of the continent including the Kimberley coast, but their influence cannot have penetrated far inland. To the developing civilisation in Europe, Australia remained a complete mystery; a hypothetical Great South Land was often drawn in at the bottom of maps of the world, but there was no real evidence for its existence. By the sixteenth century, however, the improvement of shipbuilding and navigational techniques enabled Portuguese and Spanish sailors to explore the Pacific and come close to the north-east coast of Australia. The long period of isolation was nearing an end.

The first Europeans definitely known to have visited the shores of Western Australia were the crew of the tiny Dutch sailing ship, 'Eendracht', which in October 1616 explored the area now called Shark Bay. We can speak with certainty about the visit of the 'Eendracht' because its skipper, Dirk Hartog, left behind a pewter dish fixed to a pole and inscribed with the details of the incident. It is possible that other European sailors had reached Western Australia before 1616; indeed there are tantalising fragments of evidence which suggest this, but Hartog and the 'Eendracht' remain the earliest authenticated visitors.

From 1616 onwards, however, Dutch vessels touched on the Western Australian coastline in rapid succession, some, such as the 'Batavia' in 1629 and the 'Vergulden Draeck' in 1656, being wrecked there. All of these visits were largely accidental, being brought about by the strong westerly winds which blew ships engaged in the thriving trade between Holland and the East Indies off their course. One exception to this rule was the visit in 1644 of Abel Tasman, who was sent by the authorities of the Dutch East India Company to explore the north and north-west coasts of the new land about which reports were constantly being received. Tasman named the western end of the continent 'New Holland', but like all the other early visitors he was not very impressed by what he saw of the arid terrain and its aboriginal inhabitants. Thus, although the Dutch had pieced together quite a lot of information about Western Australia by the mid-seventeenth century, they showed no interest in further exploration or settlement.

The first British ship to reach Western Australia was almost certainly the 'Trial', which in May 1621 was wrecked in the vicinity of the Montebello Islands. Two boatloads of the survivors made their way to Batavia. There was no further British activity in the area until 1688 when a group of buccaneers in the 'Cygnet' spent some time on the north-west coast, beaching their vessels for repairs in King Sound. One of these men was William

Dampier, who subsequently published an account of 'New Holland' in a volume called *New Voyage Around the World* which attracted a great deal of attention. The British Government was stirred into outfitting the 'Roebuck' and commissioning Dampier to make a further voyage of exploration. In 1699 Dampier again visited the north-west coast of Australia, from Shark Bay to the Dampier Archipelago, and kept a careful record of all that he saw. On both occasions Dampier, like the Dutch, formed an unfavourable impression of 'New Holland', which he described as dry, sandy, and unsuitable for agriculture. 'The inhabitants of this country' Dampier described as 'the miserablest people in the world', and he held out little hope of profitable trade with them. Such comments did not encourage governments to spend further money on investigation, and for another one hundred years there was little activity off the west coast.

In the meantime, Captain James Cook in the 'Endeavour' had in 1770 discovered the east coast of Australia, and his reports about it were much more favourable than those of earlier sailors about the north and west coasts. Cook formally claimed the eastern portion of 'New Holland' for the British Crown and named it 'New South Wales'. Thus it came about a few years later that the British Government, no longer able to send convicts to a newly-independent America and with gaols bursting at the seams, decided to make New South Wales the site for a new penal colony.

In January 1788, Captain Arthur Phillip arrived at Sydney Cove with a party of convicts and marines and the European occupation of Australia had begun, though it was some time yet before Western Australia was colonised, for Phillip's commission as first Governor of New South Wales gave him authority over little more than half the continent. In 1825 Governor Darling's commission was extended beyond that of his predecessors to cover two-thirds of the country, but the western third remained unclaimed territory. However, the colonisation of New South Wales had provided a base for more detailed exploration of Australian coastal waters and by the 1820s the western coast had been extensively charted by two enterprising British naval officers, Matthew Flinders and Philip Parker King, and by French navigators such as Baudin, Hamelin, and Freycinet.

The interest being shown in 'New Holland' by the French alarmed the British Government slightly, and although the area was still not formally claimed for Britain a small military garrison under the command of Major Edmund Lockyer was sent from Sydney to keep out 'trespassers'. On Christmas Day 1826 Lockyer and his party arrived at the majestic anchorage of King George Sound; the tiny and isolated outpost they established there was the first British settlement in Western Australia. This was not intended to be a permanent settlement, but before its abandonment in 1831 a full-scale colony was established several hundred miles up the west coast.

THE SWAN RIVER COLONY

The British authorities were reluctant to add the trouble and expense of a new and remote colony to their already vast imperial responsibilities, but their hand was forced by a combination of pressures. A naval officer named James Stirling, who was in Australian waters in 1826-27 in command of H.M.S. 'Success', secured permission from Governor Darling to visit the west coast. In March 1827 Stirling spent a fortnight examining the Swan River area, hitherto better known to the Dutch and French than to the British. His report, and that of the New South Wales Government Botanist who accompanied him, spoke in glowing terms about the desirability of establishing a permanent settlement on the Swan, and Stirling offered to lead a party for this purpose. Governor Darling was easily persuaded to endorse the proposal but the British Government firmly rejected it and the scheme might well have ended there had Stirling not been invalided back to London in 1828. Once he had recovered from his illness Stirling lost no time in seeking support for his plan for a Swan River Colony, and he soon aroused the interest of a syndicate of capitalists who were prepared to invest large sums there. Stirling's frequent visits to the Colonial Office, together with his evidence that there was considerable public support for a new colony and recurrent rumours that the French still had designs upon 'New Holland', at last overcame official reluctance.

In November 1828 Captain Fremantle was despatched in H.M.S. 'Challenger' to take formal possession of the western third of the Australian continent, and this he did on 2 May 1829. In the meantime the Colonial Office had announced that a colony was to be established at the Swan River with Captain Stirling as its first Lieutenant-Governor and that all settlers who arrived there before the end of 1830 would be granted one acre of land for every one and sixpence worth of capital, stock or equipment they took with them, with a further two hundred acres for every labourer they took. These grants were to be absolutely free provided that the land was developed within ten years of arrival, though the settlers had of course to meet the expense of transporting themselves, their families and their servants to the Colony.

These were remarkably favourable terms and they caused a great deal of excitement in an England where social status was still largely dependent on landownership and where land was increasingly difficult to obtain. The Colonial Office was bombarded with enquiries about the proposed colony and there were references in the press to 'Swan River Mania'. Many of the enquirers ultimately stayed at home, or went elsewhere but there was no shortage of those who decided to throw in their lot with the new Colony. Perhaps the most famous of the early colonists was Thomas Peel, son of a wealthy Manchester manufacturer and merchant, and cousin of the Tory Prime Minister, Sir Robert Peel. Peel was promised no less than 250,000 acres of land on the south bank of the Swan in return for taking out 450 workmen and sinking his fortune of at least £20,000 in the Colony. Many of the other colonists were ex-naval or military men who could not afford to bring up families in England on the half-pay to which they had been retired after the Napoleonic wars. Others were younger children of the minor gentry and clergy with small expectations at home, or merchants who had amassed a modest fortune and wished to take up land. Such people were attracted to the Swan River scheme not only by the cheap land but because, unlike New South Wales, this was to be a colony for free men and free men only.

Captain Stirling set sail for the Colony in the transport ship 'Parmelia', which was accompanied by H.M.S. 'Sulphur' bearing a detachment of troops under the command of Captain F. C. Irwin. Other officials in the party were J. S. Roe, who was to be Surveyor-General and Peter Brown, the Colonial Secretary. The Colonial Chaplain, Rev. J. B. Wittenoom, followed a few months later. The 'Parmelia' arrived off Rottnest Island on 1 June 1829, followed by the 'Sulphur' a week later, and on 18 June 1829 a Proclamation was read and the Colony officially came into being. However, wet and wintry weather conditions kept the shiploads of settlers who began to arrive, huddled in tents on Garden Island. The name 'Fremantle' was bestowed on a site at the mouth of the Swan River and this was then proclaimed to be the port of the Colony. The choice of a capital was more difficult and several sites were toyed with before a spot at the foot of Mount Eliza, twelve miles up river, was selected. The name 'Perth' was given to the capital, this being the shire represented in the House of Commons by the Secretary of State for Colonies, and the new town was founded on 12 August 1829, with the ceremonial felling of a tree.

The colonists now began to move up to Perth from Garden Island, and by the end of 1829 most of the central blocks had been allocated and occupied. The number of settlers built up with embarrassing speed for twenty-five ships had arrived between June and December and by the end of 1831 the permanent population had reached 1,500. The surveyors could not keep pace with the spate of new arrivals clamouring for immediate land grants, so that the land was occupied most haphazardly and grants allocated with little knowledge of its quality.

In the first instance exploration and settlement was to the south of Perth. Once the land up the river to Guildford had been taken, small settlements were made down the coast at Bunbury and Augusta and on the Vasse River. A party from Perth visited the military outpost at King George Sound, and after that garrison was withdrawn to Sydney in 1831 the area was renamed the Plantagenet District with Albany as its town, and settled by intending farmers. Albany was also important to the infant colony as a port, for it

had a much better harbour than Fremantle and it was also closer to the main shipping route to Sydney. For much of the nineteenth century therefore, most overseas vessels called at Albany and goods and mail were then carried to Perth either overland or in small coastal packets. Another party led by Ensign Dale at length crossed the Darling Range and found good land in the York-Northam-Beverley district and after Stirling had verified this for himself settlement was allowed to spread in this direction also.

Unfortunately the rate of agricultural development was much slower than had been hoped and the first few years of the Swan River Colony were just such a struggle for subsistence as they had been in New South Wales. Few of the colonists were experienced practical farmers. Few had any conception of what Australia would be like or of the difficulties in bringing virgin bush under cultivation. Few had any idea what implements would be needed in the Colony, or how little use they would have for their fine carriages, their pianos and their gracious furniture. Few indeed were accustomed to, or capable of, the manual labour which the shortage of workmen in the Colony soon made imperative. Moreover many of the workmen who did come to the Colony were little more suited to the pioneering life than their masters, having been recruited from among the paupers of London and other big towns in the south of England.

The delays which occurred in surveying and granting land in the early years added to the problem, as did the poor quality of the soil near Perth and along the coast. Further south where the soil was richer there were dense hardwood forests which were difficult to clear. The best agricultural and pastoral lands of Western Australia lay further inland and to the north and were not opened up for some years. In the meantime many settlers became discouraged and left the Colony. Rumours reached England that the Swan River Colony was a stagnant backwater, a place better avoided, and this discouraged further investment and migration.

It was particularly unfortunate that Thomas Peel's grandiose plan did not succeed, for this might have given the Colony the boost it needed. Peel fulfilled his undertaking to bring out 450 immigrants but he arrived too late to qualify for his original grant on the south bank of the Swan and had to be content with a quarter of a million acres of coastal sandplain and swamp between Armadale and Pinjarra. He proved incapable of running his vast estate, his men deserted him, his partner failed to send essential equipment and supplies, and the whole scheme collapsed. A land settlement scheme at Australind organised by the Western Australian Company, a few years later, was also unsuccessful.

For those who remained in the Colony and settled down to adapt themselves to the hard conditions and make the best of their new home, life was relatively uneventful through the 1830s and 1840s. Even after the establishment of colonies in South Australia and Victoria in the mid 1830s the Swan River settlers were still isolated by many hundreds of miles from other settlements of Europeans, and visitors were few. The Aborigines did not offer any real resistance to the white men who displaced them from their ancestral lands, though in 1834 thirteen Aborigines and one white policeman died as a result of the 'Battle of Pinjarra', the only serious clash between the two peoples.

The colonists were too scattered and too absorbed in wresting a living from the soil for there to be much social and cultural life, though in Perth itself there were regular balls, picnics, race meetings, and musical evenings, with Government House the centre of polite society. From the beginning the Swan River settlers emphasised the fact that theirs was a 'gentleman's colony' as opposed to the 'pick-pocket colonies' of New South Wales and Van Diemen's Land, and for many years Western Australia remained the most 'English' of the antipodean colonies. Divisions between classes were naturally more fluid and more informal than in Britain, but an elite group of wealthy land-owning families quickly established a monopoly, first of social prestige and later of political influence. There were few facilities for education in the early years. Those who could afford to do so imported governesses for their children until they were old enough to be sent to English boarding schools, but most children received scarcely any schooling. There were few clergymen in the Colony but devoted lay people saw to it that religion was not entirely

neglected. From 1840 onwards the Colonial Government subsidised the main denominations and Anglican, Wesleyan and Congregational churches were built. Catholic priests arrived from Ireland in the 1840s, and in 1846 a party of Spanish Benedictine monks founded a monastery and mission to the Aborigines at New Norcia.

Until 1838 Captain Stirling remained Governor of Western Australia, as the Swan River Colony came to be known following the suggestion by Matthew Flinders that the continent as a whole should be called Australia. He was succeeded by John Hutt, who held the office from 1839 until 1846. For the first few years Stirling wielded absolute and undivided authority. In 1832 Legislative and Executive Councils were created, composed of a handful of government officials and later a few wealthy colonists nominated by the Governor, but in practice for more than half a century the Governor remained the supreme power in the Colony.

THE CONVICT ERA

By the late 1840s, two decades after the Colony's foundation, the population of Western Australia was still less than 5,000 strong and the rate of economic development remained painfully slow. An impasse had been reached. The Colony could not attract the labour and capital it needed until it showed signs of more dynamic progress, but without additional labour and capital, progress was impossible. In desperation the leading colonists swallowed their pride and asked the British Government to send out convicts to Western Australia. Their request was acceded to with embarrassing speed, for by this time New South Wales had refused to accept any more convicts and Britain was once again facing its old problem of overcrowded gaols. In June 1850 the first boatload of convicts arrived, before any preparations had been made for their reception and deployment. Convicts continued to be transported to the Colony for a period of eighteen years, the total number sent being 9,668, all of whom were men. The last party arrived in 1868 and thereafter the number of convicts gradually dwindled, though it was not until 1886 that the convict system was finally disbanded.

Each convict spent an initial period under direct government control, usually employed on public works, and then was given a ticket-of-leave to work for a private employer in one of the country districts. A man with a ticket-of-leave remained under the supervision of police and magistrates and could be re-arrested for even the most trivial of offences, but he had a choice of employers and had to be paid wages. In due course a well-behaved ticket-of-leave holder could apply for a conditional pardon, which made him a free man provided that he did not return to the United Kingdom before the expiration of the full term of his sentence. This scheme differed considerably from the haphazard assignment system of New South Wales, and the treatment of convicts in Western Australia was also less brutal than had been the case in the eastern colonies. Chain gangs, solitary confinement, and the cat-o'-nine-tails were still used, but they were used less frequently and less indiscriminately.

One of the most obvious ways in which the convicts made an impact on Western Australia was that their labour gave the Colony its first good roads, bridges, and public buildings. Before 1849 there had been neither the money nor the labour for public works; even between Perth and Fremantle most of the traffic had been by river because the road was so bad. The availability of convict labour changed this and though for the first few years the convicts were used mainly for the construction of buildings for themselves and their gaolers, later the benefits of their work were spread around the Colony. The streets of Perth and Fremantle were levelled and improved; a main road to Albany was cleared; scores of bridges were built including a new causeway at Perth; jetties were constructed at Bunbury and Busselton; and courthouses were built in all the major country towns. In Perth itself the convicts were solely or partially responsible for such buildings as the old Perth Boys' and Bishop Hale's schools, the Town Hall, the Pensioners' Barracks, and a new Government House. By 1870 Perth gave an appearance of solidity and prosperity and looked like a town rather than an untidy village.

Convict labour also gave a boost to agriculture and other industry, for the settlers now had a much larger work force on which to draw. Moreover there were more people to be fed, clothed, and housed, and there was a more reliable flow of shipping to and from the Colony, so that both the internal and external market for colonial produce was expanded. The introduction of convict transportation also injected much needed capital into the Colony, for the British Government had necessarily to spend a great deal of money on feeding, clothing, and guarding the convicts.

As a result of these and other factors the Colony developed much more rapidly in the 1850s and 1860s, the convict decades, than it had done in its first twenty years. The population soared from 5,886 in December 1850 to 22,915 in December 1869, and clearly the arrival of nearly ten thousand convicts and five and a half thousand assisted migrants, sent out as part of the Colony's bargain with the British Government, had a lot to do with this. The total area of land under cultivation increased sixfold in the same period and the number of sheep, cattle and other livestock kept pace with this rate of expansion. Wool-growing boomed just as it had done in the eastern colonies thirty years before, and this was particularly valuable because it provided the Colony with an export industry, most of the clip going straight to Britain. Other useful exports were hardwood timber to South Australia, sandalwood to China and horses to India.

With so much progress being made, some colonists began to feel that the Colony was ready to stand on its own feet again. At much the same time the British Government came around to the view that transportation was an expensive and inefficient method of dealing with the penal problem and in 1865 it announced that no further convicts would be sent to Western Australia after 1868. The eastern Australian colonies were jubilant at the news, for they had long objected to the steady trickle of ex-convicts making their way across the continent, and most Western Australians were also pleased with the decision. However, in the 1870s and 1880s it became apparent that the Colony had been more dependent on the convict system than most people had realised. In the twenty years after the end of transportation the rate of population growth dropped back to only half that of the previous twenty years, and for a time the agricultural industries actually lost ground. A series of bad seasons aggravated the problem and food supplies had once again to be imported. Fortunately the export of sandalwood and hardwoods continued to prosper and the pastoral industry also flourished, the total number of sheep in the Colony being in excess of one and a half million by the mid-1880s. Another bright feature of the period was the dramatic rise of the pearling industry off the north-west coast to become a valuable export-earner.

As time passed, the search for minerals, timber, and better farming land, plus curiosity and adventurousness, led the colonists to explore their vast territory more widely and the frontiers of settlement spread. In the 1850s and 1860s the South-West was extensively occupied as far south as Albany and Kojonup, and to the north the Greenough district was opened up and quickly became the principal wheat-producing region. In the 1870s the pastoralists pushed further north to occupy the De Grey, Gascoyne and Murchison districts, and by the 1880s even the Kimberley districts were beginning to be settled. The completion in 1877 of the Overland Telegraph line connecting Perth with Adelaide and Darwin and thence with the outside world did much to reduce the isolation of the Colony, and railway building in the late 1870s and the 1880s improved communication and transport within the Colony. However, the scope of such works was limited by the impoverishment of the colonial treasury in the post-transportation period.

Part of the price which the colonists paid for their convict labour was that political development was very slow. Throughout the convict era Western Australia was ruled by semi-autocratic Governors sent from Britain, with the aid of their paid officials and a few prominent settlers chosen by themselves. Once transportation ended the colonists lost no time in agitating for a greater voice in the conduct of affairs, and in response to their demands a new constitution was introduced in 1870 embodying the principle of representative government. Thereafter the Legislative Council consisted of eighteen members, twelve of whom were elected by the colonists, and was presided over by its own Speaker rather than by the Governor. However, the powers of the Council were very restricted and when the Governor and the Council clashed, the former always prevailed.

The introduction of ten thousand convicts changed the character of Western Australian society much less than many people feared. Naturally there was a slight increase in lawlessness but few of the convicts committed further serious crimes in the Colony and bush-ranging was less common than it had been in eastern Australia. The Colony was so isolated that few convicts attempted to escape from it, though a party of sixty Irish Fenians who arrived on the last convict ship caused some trouble. One of them, John Boyle O'Reilly, escaped by stowing away on an American whaler in 1869 and seven years later he successfully arranged for a group of his friends to abscond from Fremantle Gaol to another American ship, the 'Catalpa', which escaped because the local authorities were afraid to fire on the American flag. Such incidents were rare, however. Most of the convicts gave no trouble at all, and the policy of dispersing them around the agricultural districts enabled them to be absorbed so easily that they soon became indistinguishable from the rest of the working-class population. Since all of the convicts were men and few of their wives were prepared to accompany them, even when offered a free passage, the ratio of men to women in the Colony rose as high as two to one for a time. However, the Government saw to it that most of the assisted migrants brought out to the Colony were young single women, mostly Irish, and this helped to redress the balance of the sexes. Fortunately there was little prejudice against the convicts once they had served their sentence, and marriages between ex-convicts and free women were common. At the other end of the social ladder, the grip of the old-established land-owning families on the affairs of the Colony remained unchallenged during and immediately after the transportation period. Western Australia was a quiet and conservative Colony and retained its quaintly 'English' flavour well into the 1880s. Though no longer the stagnant backwater of the 1830s and 1840s, it was still very much the 'Cinderella' of the Australian group of colonies when compared with its brash and prosperous neighbours. However, before the end of the century the state of the Colony was altered dramatically by the discovery of gold.

THE GOLD RUSHES OF THE 'NINETIES

The Western Australian colonists had always hoped that one day gold would be found in their Colony, just as it had been in most of the others, and in 1885 their dream began to come true. The first goldfield to be proclaimed as such was situated at Halls Creek in the Kimberley district, a remote spot some 300 miles east of Derby and 250 miles south of Wyndham. Despite its extreme inaccessibility and the scarcity of food and water there, several thousand men flocked to it as soon as the strike was announced. The Kimberley gold was exhausted within a few years but the experienced prospectors it had attracted to the Colony soon began to find payable gold elsewhere. From the Yilgarn and Pilbara fields, which were both proclaimed in 1888, the golden trail led through the Ashburton and Murchison finds in 1890 and 1891, to the fabulous discoveries of Bayley and Ford at Coolgardie in 1892 and of Hannan, Flanigan and O'Shea at Kalgoorlie in 1893. Suddenly Western Australia came to life and began to reduce the lead of the eastern colonies with giant strides.

While the gold rushes were at their height thousands of men streamed towards the 'fields on foot, on bicycles, on camels and horses, across hundreds of miles of arid scrub and desert. Settlements rose and fell almost overnight as rumours of new finds lured diggers from one area to another. Even on the established fields conditions were very tough in the early years, with makeshift huts or tents for shelter, a continual shortage of food and water, high temperatures, choking red dust, and little or no sanitation. The death toll was high from thirst, dysentery and typhoid, but by and large the diggers were law-abiding and there was little of the violence of the Californian gold rushes or the bush-ranging of the Victorian diggings.

In the early days most of the diggers prospected for alluvial gold by dry-blowing, or sank shallow shafts in search of gold-bearing reefs. Each man worked his own small claim, or joined together with a few mates to do so. Alluvial mining of this kind reached its peak in 1897 and then fell away rapidly. As early as 1894 it had become apparent

that the richest deposits lay underground and required expensive machinery and large-scale operations. By the end of the 'nineties the average digger had reluctantly abandoned his hopes of easy wealth and turned to working for wages in deep-shaft mines operated by large companies. The decline of alluvial digging brought to a close the colourful pioneering phase of the gold boom, but the value of gold production continued to rise yearly until 1903 when it reached a record of more than 2 million ounces. The bigger centres such as Kalgoorlie gradually took on a more permanent appearance with hotels, theatres, hospitals and schools being constructed. With the arrival of the wives and children of miners in increasing numbers, the goldfields had begun to settle down.

One indication of the startling impact which the discovery of gold made on the Colony was that the population leapt from 35,000 in 1885 to 101,000 in 1895, and by 1904 had reached 239,000. In other words the number of people in Western Australia increased almost sevenfold in the space of twenty years. Most of the new arrivals came from eastern Australia, which was suffering from a severe depression and a series of prolonged strikes in the early 1890s. Quite a large number migrated direct from Britain and there was a sprinkling from Europe and North America. By 1901 the 'old colonists', those who had been born in Western Australia or had lived there before the gold rushes began, were in a distinct minority in their own Colony.

The gold boom attracted capital as well as people to the Colony; British investors lost confidence in the other Australian colonies in the late nineteenth century but they vied with each other for opportunities to invest in Western Australia. More than 600 companies were floated in London for mining operations in Western Australia and shares changed hands feverishly in London, Perth, and Kalgoorlie, often at inflated prices. Large sums of money were thrown away on speculative or bogus ventures, but the more successful mines returned rich dividends to their shareholders.

From 1890 onwards the Colonial Government boldly embarked on a programme of large-scale developmental works financed by extensive borrowing on the London money market. The Eastern Railway was extended to Southern Cross in 1894 and then on to Coolgardie and Kalgoorlie. At the same time a new South-Western line was constructed and the Government encouraged private investors to build the Great Southern line to Albany and the Midland Railway line into the northern wheatbelt. Fremantle Harbour was dredged and moles were built to make it a deepwater port, and ships were encouraged to make Fremantle rather than Albany their main port of call. Not least among the government works, most of which were presided over by C. Y. O'Connor, the Colony's brilliant Engineer-in-Chief, was the Eastern Goldfields Water Scheme. This ambitious project, which was completed in 1903, piped fresh water 350 miles from Mundaring Weir to Kalgoorlie and also supplied the agricultural districts along its route.

Not all of these projects were for the benefit of the goldfields; indeed it was the policy of the Government to channel much of its revenue and loan money into agricultural and pastoral development so that the Colony would have a solid base to fall back on when the gold began to peter out. Thus the Homestead Act of 1893 allowed *bona fide* settlers to take up small holdings free of charge provided they made specified improvements. An Agricultural Bank was founded in 1894 to finance new farmers, and the Bureau of Agriculture was opened to give them advice. Moreover, the Government placed tariffs on imported livestock and foodstuffs to give the farmers further encouragement. With all these incentives and a vastly expanded local market as well, the agricultural industries could scarcely fail to prosper, and despite some bad seasons the acreage under cultivation soared. The pastoral industry experienced a lean period in the early 'nineties but recovered around the turn of the century, with wool remaining a valuable source of export income. Other established industries such as pearling and timber shared in the general prosperity and various forms of light manufacturing industry sprang up around Perth and its metropolitan area.

The changed economic circumstances of the Colony were gradually reflected in its politics. In 1890 a new constitution conferred upon Western Australia the same kind of responsible self-government which the other colonies had enjoyed for thirty years.

The old Legislative Council was abolished and in its place there was to be an elected Legislative Assembly of thirty members and a nominated Legislative Council of fifteen members; executive government was to be entrusted to a Premier and Cabinet responsible to the Assembly.

When the new Parliament met in 1891, Sir John Forrest was appointed as the first Premier of Western Australia, a position which he retained for a decade. A native-born Western Australian and a former explorer and Surveyor-General, Forrest gave the Colony the strong leadership it required. There were no political parties at this stage and all members prided themselves on their independence, but Forrest's ministry could always muster the support of a majority in the Assembly.

The miners had little to do with the movement to secure responsible government and after it was granted, the restricted franchise meant that few of them were eligible to vote, and the electoral boundaries left the mining districts practically unrepresented. At first the miners were too preoccupied with the search for gold to pay much attention to their political rights, but as they became dissatisfied with the Government's mining regulations, high tariffs and freight charges, and emphasis on agricultural development, they began to agitate for reform. The protests of the mining community strengthened the hand of the more liberal representatives from metropolitan and agricultural constituencies and by 1901 all adult men and women had been granted the right to vote in elections for the Legislative Assembly, which was increased in size to give reasonable representation to the goldfields. The Legislative Council had been enlarged and made elective, and payment of Members of Parliament introduced. For the time being the old colonial elite remained in control of the government but it was obvious that their days were numbered, for the transfusion of men and ideas which it had received had changed the character of the Colony and brought it much more into line with the rest of Australia.

This trend was at once demonstrated and reinforced by the Colony's reaction to the movement for the federation of the Australian colonies. Forrest himself favoured federation but most of his colleagues and supporters were reluctant to relinquish to a central Government the powers which they had only just received, and feared that Western Australia would suffer from being yoked with areas which were economically more advanced. On the other hand, the miners were solidly in favour of federation, partly because so many of them had come from the eastern colonies and partly because they hoped that a central Government would be more sympathetic to their needs than the local Government was. When the Government refused to allow a referendum on the subject, the goldfields petitioned the British Government for separation from Western Australia and the creation of a new colony which could then federate in its own right. Although Britain did not take this request seriously, the agitation on the goldfields helped to force the Government's hand. A hasty referendum showed a heavy majority in favour of federation, and the Colony of Western Australia was just in time to become an original State of the Australian Commonwealth when it was proclaimed on 1 January 1901.

CONSOLIDATION 1901-1929

The impetus of the gold rushes naturally carried over into the first decade of the twentieth century; indeed gold production did not reach its peak until 1903. But after the turn of the century gold no longer dominated the Colony as it had done in the 1890s. The mining population dwindled steadily and agriculture took up the slack, just as the Government had hoped and planned. The thirty-year period between federation and the onset of the great depression was for Western Australia a time of consolidation of the gains made during the gold boom, through the development of primary resources.

The incentives to agricultural expansion which Forrest had introduced in the 1890s were continued and supplemented by all the governments of this period. Newton Moore and James Mitchell were perhaps the principal architects of the expansion of the wheatbelt but Labour Premiers in John Scaddan and Phillip Collier ably seconded their efforts. All the land along existing railway routes was surveyed and thrown open on generous terms and more than 2,500 miles of new line was constructed, most of it between 1904 and 1919,

to give access to hitherto unsettled areas. Settlers were enabled by the experimental work of the Department of Agriculture (formerly the Bureau of Agriculture) to push out in an easterly direction into districts which earlier generations had considered too dry for farming. Most significant in this respect was the development of two new strains of wheat, Nabawa and Bencubbin, which were particularly suited to local conditions. Through its Agricultural Bank the Government made money available to almost anyone who was prepared to try his hand on the land. Moreover, once the torrent of gold-seekers tapered off the Government began to bring out assisted migrants from Great Britain in considerable numbers. Thirty-three thousand people arrived in this way before the outbreak of the Great War in 1914, with a further forty-three thousand in the 'twenties, and many of the 'new chums' were turned into farmers.

These policies soon produced results. The acreage under cultivation trebled between 1905 and 1911, and trebled again between 1911 and 1916. The war gave a slight check to development, but in the 'twenties wheat production trebled again to reach a record of thirty-nine million bushels in the 1929-30 season. Long before then Western Australia had been transformed from an importer of grain and flour to a large-scale exporter; indeed wheat had displaced gold and wool as the State's principal export commodity.

Of course not all government policies succeeded as well as this, the most notorious failure being Sir James Mitchell's attempt in the 1920s to found a dairying industry. Under a plan known as the Group Settlement Scheme, British migrants and others were sent in small groups to various spots in the south-west corner of the State and set to work in teams at clearing the heavily-timbered land. Once this had been done each man was allocated a block and equipped with a home and stock. Unfortunately the inexperience of the men, their difficulties in clearing the land, and the poor prices obtained when their farms did begin to produce, meant that many of the 'groupies' gave up in despair. The State did receive some benefits from the scheme but scarcely in proportion to the money outlaid. At the other end of the State the Kimberley beef cattle industry also made little progress, due to transport difficulties and the paucity of markets.

Most other primary industries flourished, however. The increasing popularity of mixed farming in the southern wheatbelt kept sheep numbers and wool production on the rise despite a degree of stagnation in the northern pastoral areas. Fruit and vegetable growing expanded, with the Harvey irrigation scheme of 1916 and the introduction of banana growing near Carnarvon in the 'twenties being noteworthy developments. The Australia-wide wave of railway and telegraph construction and general building ensured the prosperity of the timber industry, and pearling reached its peak just before the outbreak of the war.

Secondary industry made much less progress in this period and was almost insignificant in the overall economy of the State. In this respect some of the fears of the anti-federationists may have proved justified, for the Commonwealth Government's twin policies of external tariff protection and interstate free trade made it almost impossible for infant Western Australian industries to compete with established industries in the eastern States. Apart from this the new Commonwealth Parliament and Government did not make much impact on the lives of most Western Australians. Even after the completion in 1917 of the Trans Australian Railway Line, part of Western Australia's price for federating, Melbourne and later Canberra still seemed remote and irrelevant to the citizens of the West, though in fact the financial supremacy of the Commonwealth over the States was growing rapidly in this period.

In the political sphere Western Australia experienced several important developments in the first three decades of the twentieth century. In 1901 Sir John Forrest left State politics to enter the first Federal Cabinet and with his departure the State was plunged into a period of unstable Ministries, which culminated in the formation of a party system. Among the gold seekers of the 1890s there had been some experienced trade unionists, who were largely responsible for organising Western Australia's first Trades and Labour Congress in 1899. This Congress decided upon the formation of a Political Labour Party—which at the State elections of 1901 captured eight seats in the Legislative Assembly.

Only three years later the State had its first taste of Labour rule when a minority government led by Henry Daglish held office for twelve months. The rapid rise of the Labour Party as a parliamentary force compelled the existing independents and liberal and conservative factions to come together to form a Liberal Party, which governed from 1906 until 1911. In the latter year Labour won a resounding electoral victory which enabled it to enjoy five years of office and to experiment with State socialism of a mild kind. Nation-wide controversy about conscription for war service led to a serious split in the Labour Party in 1917, however, and its leader, John Scaddan, and some of his followers joined a Nationalist coalition with the Liberals. For a few years political instability returned, but in the 'twenties the State experienced the regular alternation of Nationalist and Labour Ministries. One complicating factor was the Country Party, which had appeared on the scene in 1914 to represent the interests of the farming community. The Country Party normally supported the Nationalists, but not without periodic tensions and disagreements within the non-Labour camp.

Western Australia loyally backed-up the Commonwealth Government's decision to enter the 1914-1918 war in support of Britain, by providing more volunteers for military service overseas, in proportion to its population, than any other State. The absence of so many able-bodied men caused difficulties in some industries, as did the disruption of shipping to overseas markets, but the war did not otherwise change the tempo of life very much for those who remained in the State.

By 1929, the centenary of its foundation, Perth had grown into quite a large city for, despite the State's reliance on primary industries, more than fifty per cent of its population lived in the metropolitan area. Though there were fresh challenges and fresh opportunities for every generation, the introduction of modern amenities had made Western Australia a more comfortable place to live in than it had been during the pioneering years. Most parts of the State were well supplied with fresh water, and Perth, at least, had electricity. In addition to its railways, the State had an improving network of main roads and almost forty thousand licensed motor vehicles to use them. In the city these were supplemented by a tram service, which had begun around the turn of the century, and several private bus companies. As befitted a State of vast distances and dispersed population, Western Australia was also well to the fore in the development of civil aviation. W.A. Airways, which was founded by Major Norman Brearley in 1921 for operations in the North-West, was Australia's first commercial airline, and by 1929 there was also a regular Perth-Adelaide service. In 1913 the University of Western Australia received its first students, and its establishment crowned a system of free and secular State education which catered for the needs of children all over the State.

In its centenary year of 1929 the State was able to look back over one hundred years of progress with a great deal of satisfaction. Few people had any inkling of the dark days which lay just around the corner.

DEPRESSION AND WAR

The world-wide economic depression of the early 1930s affected Western Australia severely. There were several reasons for this, one of the most important being the State's over-dependence on a few primary industries, which left it vulnerable to fluctuations in prices. Then again, the Government had financed its ambitious development schemes, many of which had not yet begun to pay for themselves, by raising large and frequent overseas loans. When the sources of overseas capital dried up, not only did the public works programme come to an abrupt halt, but the Government had great difficulty in meeting interest payments. To make matters worse, the financial crisis was intensified by a series of poor seasons.

The onset of the depression first attracted attention in Western Australia through a steep fall in the world prices of wheat and wool in 1930. As the situation worsened many farmers were forced off the land, and there was a general withdrawal from the marginal areas which had been brought under cultivation during the optimistic years of prosperity. When the Government cut back its public works, and commercial activity of all kinds

slowed to a walk, thousands of men found themselves out of work. Even those who kept their jobs had to accept wage cuts, the State basic wage being slashed from £4 7s. (\$8.70) to £3 9s. (\$6.90) per week. Oddly enough the only industry to benefit from the depression was gold mining. The financial difficulties of the 1930s led to an increased world demand for gold and induced the Commonwealth Government to offer a bonus to producers. This bonus plus a rise in the price of gold caused by devaluation of the currency, brought prosperity back to the goldfields and helped to draw off some of the unemployed.

Elsewhere in the State the picture was a gloomy one. Some men left their families in Perth and went out to the back-blocks in search of work, or lived in government camps whilst employed part-time on relief projects. Thousands of families were dependent on the 'dole' and on hand-outs from charitable organisations to keep them from starvation. Though few people actually starved, malnutrition was common. The widespread dismay at this turn of events resulted in an increase in lawlessness and violence; on many occasions the police were called in to control rowdy demonstrations by the unemployed.

The impotent discontent felt by so many Western Australians was further reflected in a move for the State to secede from the Australian Commonwealth. The old anti-Federal feeling of the 1890s had never entirely died out, and the social and economic dislocation of the 1930s gave it new life. Those who favoured secession argued variously that Western Australia would never be able to develop secondary industry until it could protect its manufacturers from competition from the other States; that the protective tariffs imposed by the Commonwealth for the benefit of manufacturers in the eastern States increased the costs of farm production to a level which was disastrous for a State dependent on primary industry; and that the Commonwealth Government had starved Western Australia of funds. So strong did the secession movement become that the State Government agreed to hold a referendum on the subject. The Commonwealth prepared a booklet and sent a deputation to argue the case for preserving the Federal union, but when the vote was taken, in April 1933, a two-to-one majority of voters favoured secession. A delegation was then dispatched to London to ask the British Parliament to pass legislation making Western Australia independent, only to be told that this was constitutionally impossible. Despite the overwhelming vote a few months earlier, the British rebuff was accepted and the secession movement died away, which lends credence to the view that many voters had realised that secession was impossible but had used the opportunity to express their dissatisfaction with the Commonwealth's failure to cope with the depression.

Apart from the secession episode, State politics were very dull during the 'thirties. Labour had the good fortune to be defeated at the polls in 1930, which meant that a Nationalist-Country Party government under Mitchell held office between 1930 and 1933 and incurred the ill-will of those adversely affected by the depression. On the same day as the secession referendum, Labour won an electoral victory and embarked on what was to prove to be a period of fourteen years unbroken Labour government, under Premiers Collier, Willcock, and Wise. Of course the real responsibility for dealing with the depression lay with the Commonwealth Government, which by this time had assumed far-reaching economic and financial powers. At first the Commonwealth did not handle the task very well. The Scullin Government was torn by internal divisions and handicapped by its lack of a majority in the Senate and a lack of co-operation from the Commonwealth Bank. Not until 1933 was a definite plan adopted for meeting the emergency and by that time conditions had in any case begun to improve. However, the Premiers' Plan of 1933 did assist the recovery by rallying the nation to a united course of action for the first time. By 1935 conditions were considerably better than they had been at the height of the depression, between 1931 and 1933, but even in 1939, on the eve of the World War, it is doubtful whether the State was back to normal.

Australia, and hence Western Australia, entered the war against Germany on 3 September 1939. Volunteers for overseas military service were called for, as they had been twenty-five years before, and once again the response was extraordinarily good. But for the first two years of the war the lives of those who remained at home differed little from peacetime. All this changed dramatically in December 1941, when Japan attacked the

United States base at Pearl Harbour and began her southward advance through South-East Asia and the Pacific in the direction of Australia. For a time it seemed likely that Australia would be invaded. Some towns in the North-West of Western Australia were bombed and the whole State was placed on a war footing. A total black-out was imposed and air-raid shelters were dug all round Perth and in country centres. Most able-bodied men were compulsorily called up for military service and other men and women were directed to work in strategic industries. Food, clothing, and petrol were rationed, and stringent price control introduced, as the nation channelled all its resources into a total war effort.

In response to Japan's entry into the war, Prime Minister Curtin recalled Australian troops from North Africa and the Mediterranean for defence of their homeland, and also turned to the United States for aid. Thousands of American servicemen passed through Australia, and fought side by side with Australians in the Pacific. Fremantle became for a time a major allied naval base for operations in the Indian Ocean and the South-West Pacific. By the end of 1942 the Japanese advance had been halted and the danger of invasion had passed, but the war continued for a further three years before cease-fire agreements were reached in both Europe and the Pacific. By then Western Australians had fought with distinction in practically every theatre of war.

Throughout the war years and the period of reconstruction immediately afterwards, the primary industries on which Western Australia was so dependent were subject to government control. Farmers were told what crops to grow and in what quantity, and their entire output was purchased at fixed prices. This meant that primary producers were protected from the price fluctuations of the 'thirties, at the cost of accepting organised marketing. The shortage of manpower led to further mechanisation and in many cases to improved efficiency. Industries located in the North-West and Kimberley regions suffered most from the war, through the closure of the Wyndham Meatworks and the disruption of transport facilities. Manufacturing industry experienced mixed fortunes. On the one hand the need to produce munitions, small arms, and other military supplies led to a growth in factory production, but on the other hand those factories which could not be converted to wartime uses were deprived of their manpower and forced to close. However, the vigorous programme of reconstruction after the cessation of hostilities gave secondary industry a valuable shot in the arm.

The highly centralised administration of the war and reconstruction years carried Western Australia a stage further towards complete integration with the rest of the Commonwealth. By the 1940s the expanded role of the Commonwealth in both raising and spending revenue, and its monopoly of power in such fields as foreign policy and defence, had made clear its paramountcy over the States. The vast increase in Commonwealth expenditure in Western Australia reconciled most people to this development, and in contrast to the secession movement of the 'thirties, Western Australia offered more support than any other State for further increases in Commonwealth powers at several referenda held in the 'forties.

A STATE ON THE MARCH

The years since the end of the Second World War have been good ones for Western Australia.

The vigorous immigration policy launched by the Commonwealth at the conclusion of the war received the full support of the State Government, and contributed to a rapid growth in population to reach a total in excess of 836,000 by the Census of 1966. In addition to the British migrants of earlier years, migrants from a wide range of European countries were now included in assisted-passage schemes and absorbed into the community without difficulty.

Most of the traditional primary industries enjoyed continued growth and prosperity. In the early 1950s wool prices soared to six times their pre-war level, largely due to stock-piling by nations involved in the Korean War, and a pastoral boom followed. For a time everyone who could lay their hands on grazing land and stock sought to grow wool, but the boom tapered off and by the 'sixties the wool industry had fallen back on an

expensive research and promotion campaign to stave off the competition from synthetic fibres. Whereas the woolgrowers returned to their pre-war auction system as soon as they were permitted to do so, wheatgrowers agreed to the continuation of organised marketing. The Australian Wheat Board proved very efficient at disposing of large harvests at satisfactory prices, and apart from slight seasonal fluctuations, Western Australian wheat farmers enjoyed a series of good years. Further mechanisation of rural industry and the application of scientific discoveries to combat disease and increase fertility led to improved yields from established farms and the opening up of additional lands. In particular the scientific innovations of the post-war years enabled large areas of 'light' land in the south-east of the State to be brought under cultivation. In addition to many individual holdings in this area, an American syndicate undertook to develop one and a half million acres in the vicinity of Esperance and has made good headway on the project. By 1967 Western Australia boasted of almost thirty-two million acres of arable land and a record wheat harvest of over one hundred and three million bushels. The production of other cereals, fruit, vegetables, pigs, and other primary produce also made excellent progress.

One of the features of post-war economic planning was a revived interest in northern development. Transport facilities for the northern pastoral industry were improved, firstly by the 'Air Beef' scheme of 1949, and later through substantial government expenditure on beef cattle roads. However, the pastoralists continued to suffer from marketing difficulties and the deterioration of their land through insufficient expenditure on improvements. In 1961 the State, with Commonwealth assistance, embarked on an imaginative scheme of water conservation and irrigation based on the Ord River in the East Kimberley region. By 1962 a diversion dam had been completed and in subsequent years increasing quantities of cotton, sorghum and other tropical crops were produced, though not until 1967 did the Commonwealth agree to a submission by the State in 1964 for funds for the construction of the main dam and irrigation works. The establishment of an American low frequency naval communications station at North West Cape also contributed to the opening up of the North, quite apart from the mineral boom which was perhaps the most exciting development of the 'sixties.

The search for oil in the north of Western Australia was renewed soon after the war and was quickly rewarded by a strike near Exmouth Gulf in 1953. Not until 1966 was oil found again, this time in commercial quantity, at Barrow Island. Several further finds of oil and natural gas were made subsequently, with a possibility of commercial exploitation in the future. However, the most startling progress has been made in the field of iron-ore extraction. In 1960 the Commonwealth Government was persuaded to lift a long-standing embargo on the export of iron ore and this gave a stimulus to exploration and survey which resulted in the location of thousands of millions of tons of ore reserves. With Japan providing a ready market for the ore, and British, American, Japanese and Australian capital available to finance its extraction, developments were very rapid. By 1967 contracts had been approved for the export of 320 million tons of ore, and shipments had well and truly begun; new townships, railways, and port facilities had sprung up in the Mount Goldsworthy, Mount Tom Price, and Mount Newman areas. Moreover, the mineral boom was not confined to iron. Bauxite extraction in the Darling Range was expanding and vast new bauxite reserves were being tested near Gingin and in the Kimberley. And a wild scramble for nickel shares occurred in 1967, following the successful operation of Australia's first nickel mine, at Kambalda, and the discovery of further deposits in the Eastern Goldfields region.

The two post-war decades witnessed significant progress in the field of manufacturing industry, beginning with the opening in 1955 and 1956 of an oil refinery and a steel rolling mill at Kwinana, on Cockburn Sound. By 1968, when a blast furnace was brought into operation, the conversion of the rolling mill into an integrated iron and steel complex was well under way. Other major industrial concerns were attracted to the Cockburn Sound area by the improved transport facilities and favourable terms offered by the Government, and by the late 1960s Western Australia had at last overcome the handicaps which had inhibited industrial development for so long.

Much of the credit for these achievements must be assigned to the State Governments of the period, all of which did their best to promote local industry and draw the attention of the Commonwealth to the needs of the State. In its term of office between 1953 and 1959 the Labour Party presided over the establishment of the oil refinery and steel rolling mill which subsequently became the symbols of a new era in the State's development. The Liberal-Country Party Government, which took over from Labour in 1959 and was still in office in 1968, was even more active in this respect. The Commonwealth was persuaded to make large sums available for beef cattle roads, the Ord River Scheme, and a standard gauge rail link between Perth and the eastern States, in addition to providing for expanding needs in the fields of housing, hospitals, education, transport, and social services. The Liberal-Country Party Government also attracted to the State the vast quantities of private investment capital needed to finance the development of mineral extraction and industrial diversification. Relations between the major political parties remained amicable, whichever was in office, and the differences between them were differences of means rather than ends. In the late 'fifties politics were enlivened by the birth of the Democratic Labor Party, but though this party influenced the outcome of subsequent elections, it was not able to win any seats.

The State's capital city, Perth, and the tempo of life in it, naturally reflected all these developments of the post-war years. The city skyline became higher and more modern as nineteenth century buildings gave way to multi-storeyed concrete and glass structures. The Narrows Bridge, spanning the Swan River just outside Perth, was opened in 1959 and progress was made on a freeway system to cater for increasingly heavy motor traffic. Trams were banished from the city in 1958, and a new Transport Trust took over the responsibility for all metropolitan bus services. The suburbs of Perth sprawled out in many directions to provide accommodation for the growing population. The influence of European migration made itself felt in changes in eating and recreational habits and modes of dress and a slightly more cosmopolitan atmosphere. Something of the characteristic rush and bustle of big cities began to manifest itself, but most Western Australians were determined that the price of progress should not be the erosion of the friendly informality on which they prided themselves.

CHAPTER II—PHYSICAL FEATURES, CLIMATE, FLORA AND FAUNA

Part 1—Physical Features and Geology

Contributed by

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The development of any country depends on its natural resources and the industry of its people, and there can be few more important investigations for any country than those dealing with the productive capacity of its territory. Natural resources—be they power, mineral, or soil resources—are dependent entirely on the climate, physical features and geology. Looking at the pattern of development of Western Australia we see that for nearly seventy years after the foundation of the Swan River Colony in 1829 agricultural production barely kept pace with the requirements of the small population. The discovery of gold in the 1890s, however, led to a period of rapid expansion, and Western Australia became one of the major gold-producing areas of the world, and with this increase in mining production there was a corresponding expansion of the agricultural and pastoral industries. We are now experiencing an expansion of our secondary industries. Moreover today, with the realisation of the extent of the iron-ore deposits of the State, particularly those of the Pilbara, and the discovery of important nickel, aluminium and oil deposits, we are entering another period of major development in this country. In each of these phases of development we can, if we look closely, see the dominating influence of the geological environment.

The nature of the rocks underlying any region is one of the major factors controlling topography, soil, and mineral resources. The latter is self-evident. The soil, on which we are so dependent, was formed by the weathering of the underlying rocks and many of its characters are due to the parent rock material. Much research has been carried out into trace element deficiencies in soils and the application of the new knowledge has produced astounding results as far as land utilisation is concerned. At first sight it would seem fantastic to think of the underlying rocks being in any way responsible for malnutrition of stock, but when it is demonstrated that the malnutrition is due to the lack of some minor element in the fodder which is due to its deficiency in the soil, a deficiency which, in its turn, is due to the absence or relative absence of such elements from the parent rocks from which the soil was derived, the significance of the geological environment becomes evident. Topography which is important in connection with land utilisation, water conservation, power (hydro-electric) resources, and in affecting climate, soil erosion, coastal erosion, transport routes, harbours, and so on is also dependent to a great extent on the nature and structure of the underlying rocks.

It is appropriate therefore that we should consider here the physical features and geology of Western Australia since they, together with the climate, are the primary controls of our soil, mineral, water and power resources, on which our existence and future development are entirely dependent.

PHYSICAL FEATURES

In the broadest way this State can be divided into two physical regions: (i) a tableland (the *Great Plateau*) in various stages of dissection occupying the whole of the interior of the State, (ii) a low-lying narrow strip (the *Coastal Plains*) running almost continuously along the coast from near Albany to Broome. A third physical region, the *Scarplands*, separating the Coastal Plains from the Great Plateau, may be distinguished. This,



WINJANA GORGE

Many rivers in the northern part of Western Australia, in common with those of the extreme south-west, are characterised by rather deeply-incised water-courses. This feature of the area of exterior drainage is well illustrated by Winjana Gorge where the Lennard River passes through the Napier Range in the Shire of West Kimberley. The gorge was previously known as ' Devil's Pass '.

although only a narrow belt, is a significant one in the southern part of the State because of its importance in connection with the water conservation schemes on which the metropolitan area, the major gold-mining field in the vicinity of Kalgoorlie, the intervening agricultural and pastoral districts, the irrigation areas on the coastal plains south of Perth, and more recently the wheat belt along the Great Southern Railway, are dependent.

The Great Plateau

The Great Plateau which occupies more than 90 per cent of the area of the State varies considerably in elevation. In its highest parts (in the North-West) it attains a height of approximately 4,000 feet above sea-level. The greater part is, however, below the 2,000-ft contour and its average elevation is of the order of 1,000 to 1,500 feet above sea-level. Although there is this considerable variation in level the changes are so gradual that the plateau character of the country is not obscured and for the most part it may be regarded as having a vast gently undulating surface. Occasional hills (monadnocks, which are remnants of a previous cycle of erosion) rise above the general surface of the plateau.

The Great Plateau may be conveniently subdivided into an area of exterior drainage (where there are definite rivers which flow to the sea), an area of interior drainage (where such water as flows passes into inland basins), and two areas of no surface drainage but which, if they had drainage, would belong to the exterior drainage system. The area of exterior drainage can be marked out by connecting the source of the streams which flow to the sea and if this is done it will be seen that the width of the exterior drainage belt varies considerably. Thus in the Kimberley and North-West Divisions some of the rivers are hundreds of miles long, but in the south-west part of the State many of them are comparatively short. The areas of no surface drainage are in the north North-West along the Eighty Mile Beach from the mouth of the De Grey River to the north of Broome, and on the Nullarbor Plain in the south-eastern corner of the State. The remainder of the country forms the interior drainage area.

In the area of exterior drainage the dominant feature of the extreme south-west and the northern part of the plateau is a reticulate pattern of rather deeply-incised water-courses. In the southern part of the State these deeply-incised watercourses where they pass from the plateau to the coastal plains are of great significance (as has already been mentioned) in connection with water supply schemes. Elsewhere in the State the marginal portion of the Plateau is drained by rivers that flow to the sea only at times of exceptional rainfall and, speaking in the most general way, have courses at right angles to the coast.

The area of interior drainage is arid and practically riverless. Small creeks run from the higher parts of the country but they either disappear on the extensive flats or reach the shallow basins which are termed salt or 'dry' lakes, the term 'dry' being used since these so-called lakes are free from water except after fairly heavy or long-continued rain. These 'lakes' are generally elongated, narrow, and often winding salt-encrusted flats arranged in long, more or less connected streams. After heavy rain they are covered with a thin layer of water and, after unusually heavy rain, water has been known to flow southwards from one to another of the 'lakes' of a string, except towards the western margin of the plateau where the drainage is to the west. It is evident that these elongated 'lakes' are the remnants of an old river system developed during a more humid period. The salt lakes are of some economic significance since, on the evaporation of the water, common salt and other substances such as gypsum are deposited on the floor of the lake. The gypsum, which crystallises earlier than the common salt, is generally blown from the damp surface of the dried-up lake and deposited as dunes of 'seed gypsum' on the leeward (eastern) side of the lake. These dunes are utilised, for example at Lake Seabrook north of Yellowdine, as a source of gypsum for plasters. Common salt, which separates later, forms a crust on the floor of the lake when it has been completely dried up and such salt deposits are exploited, for example at Lake Lefroy near Widgiemooltha. In a few of the Western Australian salt lakes significant deposits of alunitic clay have been discovered which have been worked as a source of potash.

Over a large portion of the interior drainage part of the Great Plateau there are extensive sand-plain soils overlying a hard laterite ('ironstone') layer, which is of the order of up to fifteen feet in thickness, below which lies an intensely weathered zone from which most of the nutrient elements so important for plant growth have been leached. These more recent geological formations will be discussed in the section of this Part dealing with geology, but we may note here the significance of this lateritic profile (sandy soils near the surface, 'ironstone' a few feet below, and completely kaolinised rocks still deeper) so far as soil fertility is concerned. This lateritic profile is the result of long-continued weathering processes which have resulted in almost complete leaching of the valuable nutrients and as a result soils developed in any part of this profile are generally very poor in character. It is only where erosion has cut through the lateritic profile and still younger soils have been formed by weathering of the underlying rocks that the better soils are found. As has been mentioned, however, with recent studies of trace element deficiencies much can be done with these 'light' soils by the addition of suitable nutrients.

The areas of no surface drainage include the Eucla Division and portions of the Eastern Division of the State. This area is occupied largely by horizontal or nearly horizontal limestones of the Nullarbor Plain and the drainage here is sub-surface in character through subterranean streams and caverns in the limestone. The Nullarbor Plain is an extensive monotonously level plain standing at a height of about 600 feet above sea-level. The Western Australian part of the Nullarbor Plain is bordered to the south by a narrow coastal plain but further east, at the head of the Great Australian Bight, in South Australia, this coastal plain is absent and the southern edge of the Plain is truncated by cliffs which rise almost sheer for 200 to 400 feet above sea-level.

The hills of the Great Plateau are of two kinds, ridged and table-topped. In the southern half of the State the ridged hills, a few of which rise as much as 1,500 feet above their surroundings, are generally elongated in a north-north-west direction, reflecting in their trend the structure of the underlying rocks. The table-topped hills are seldom more than 200 feet above the general level. They are capped with a subhorizontal layer of laterite ('ironstone') and bounded by low cliffs, in many places undercut, which are known in Western Australia as 'breakaways.' The table-topped hills are relics of erosion of a former laterite-covered peneplain (the *Darling Peneplain*) which was uplifted in Pliocene times to form the Darling Plateau and has subsequently been subjected to erosion under semi-arid conditions. The ridged hills on the other hand are elongated monad-nocks which, being cored by resistant rocks such as jasper bars, withstood erosion and so rise above the general level of the remnants of the laterite-covered Darling Plateau.

The Great Plateau slopes down very gradually to the south and west. The downward slope to the south is interrupted by a narrow broken chain of rugged hills, the Stirling and Mount Barren Ranges which rise to heights of from 1,000 to 3,600 feet above sea-level. The western margin of the Plateau is, in the south, formed by the 'Darling Range' which, being merely the dissected margin of the Plateau, is much better called the *Darling Scarp*. This Darling Scarp is clearly defined between latitudes 31° 30' S. and 33° 30' S., i.e. between Moora and Donnybrook, but it is difficult to recognise farther north or south. In the Kimberley Division the mountain ranges are the relics of erosion between the deeply-incised rivers and in this region the highlands of the plateau terminate abruptly along a steep, deeply-indented coastline.

The Coastal Plains

Bordering the Great Plateau are the Coastal Plains which vary in width. The *Swan Coastal Plain* which extends from the neighbourhood of Perth to near Busselton averages about fifteen miles in width and is divisible into the following belts: a narrow band of moving sand dunes along the coast; a zone, averaging three or four miles wide, of sandy limestone which rises in places to heights of 100 to 200 feet above sea-level; a zone three or four miles wide of loose sand fixed by vegetation; and, abutting against the Scarp which forms the western margin of the Plateau, a zone of clayey soils of about the same width. A strip of low plain extends along the coast at intervals as far north as King

Sound and coastal plains of some width occur near Port Hedland and Exmouth Gulf. A narrow plain fronts the cliffs of the Great Australian Bight for some distance and also occurs in other places along the south coast.

The coastline of Western Australia, some 4,350 miles in length, is broken by capes between Wyndham and Broome, between Port Hedland and Shark Bay, and between Cape Naturaliste and Israelite Bay. The intervening parts are comparatively featureless.

It has only been possible here to briefly outline the principal physical features of Western Australia and for a fuller description of the physiography of this State the reader should consult J. T. Jutson's 'Physiography (Geomorphology) of Western Australia' (*Geo. Surv. West. Aust. Bull.* 95).

GEOLOGY

More than two-thirds of Western Australia is occupied by the ancient Australian Precambrian shield which is composed of a complex of igneous, metamorphic and sedimentary rocks formed more than 600 million years ago. Most of our mineral deposits of economic importance, except coal, oil and water and superficial deposits such as lateritic iron and aluminium ore deposits and black sand and other alluvial accumulations, occur in these Precambrian rocks. The remainder of the State is occupied by sedimentary basins in which Palaeozoic and later sediments are developed. It is in these younger sedimentary basins that artesian water, coal, oil and natural gas are likely to occur. Finally there are the still younger superficial deposits—laterites, salt-lake deposits, and soils on which much of the economy of this country depends. It will be convenient therefore, in outlining the geology of the State, to consider it under the three main headings:

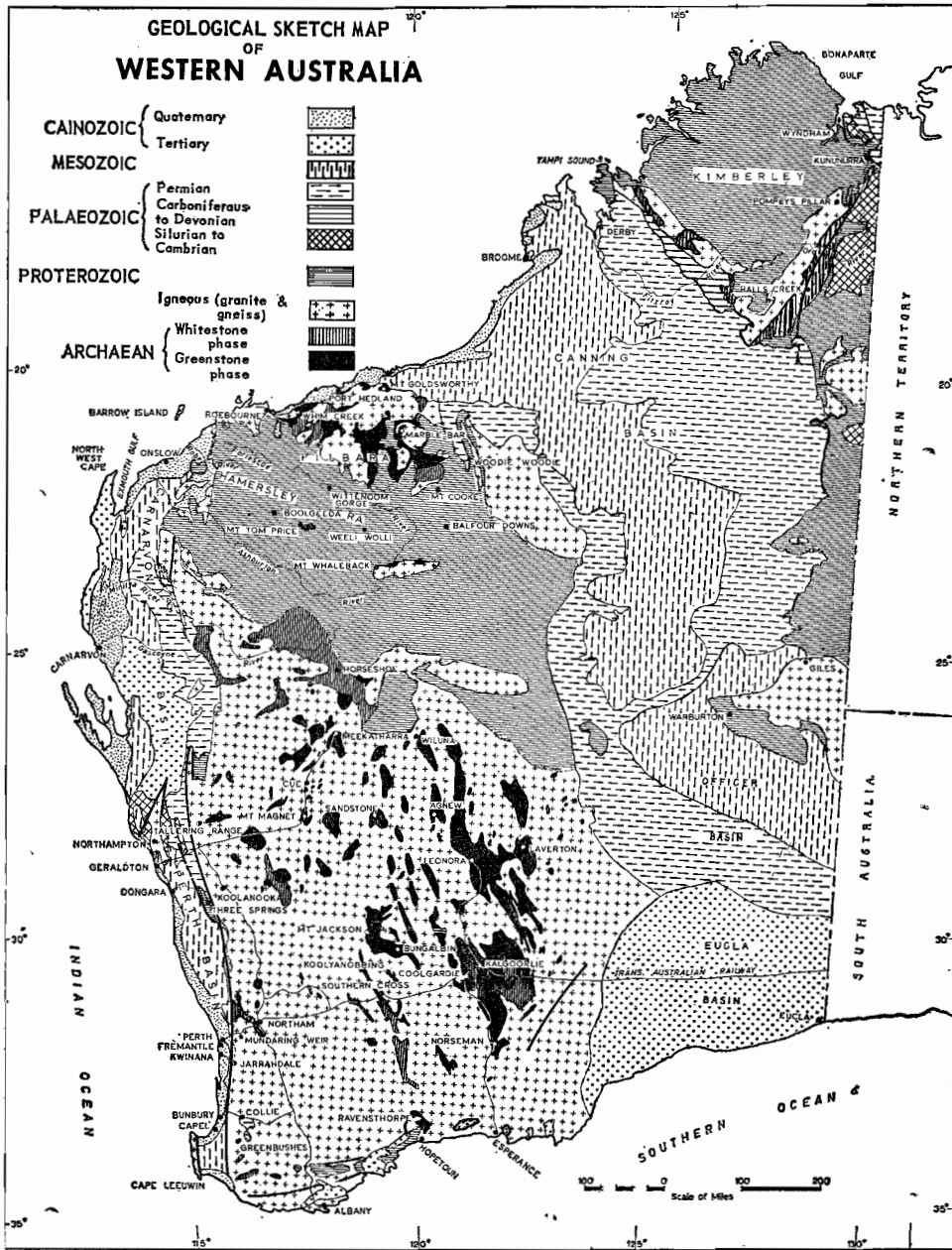
- (a) The Precambrian basement;
- (b) The sedimentary basins;
- (c) The superficial deposits.

The distribution of the solid rocks (omitting superficial deposits) is shown in the accompanying map (see page 20).

The Precambrian Basement

This includes the Archaean and Proterozoic rocks. The Archaean is a complex of crystalline igneous and metamorphic rocks, dominantly granites and gneisses with minor amounts of basic igneous and schistose metasedimentary formations. In places, particularly in the North-West and Kimberley Divisions, this Archaean complex is overlain unconformably by sedimentary and volcanic rocks of Proterozoic age which do not exhibit the extensive metamorphism so characteristic of the older Archaean complex. Within the different areas occupied by the Precambrian rocks the same generalised sequence can be distinguished.

In the Kimberley the oldest rocks are metamorphosed igneous and sedimentary rocks intruded by granite and carrying in places auriferous ore deposits, and these are overlain by un-metamorphosed sediments with basic igneous intrusives. The Precambrian age of all these rocks is evidenced by the fact that in the East Kimberley they are overlain by sedimentary rocks containing fossils of Cambrian age. This is the only area in Western Australia where the Precambrian age of the rocks of this crystalline complex can definitely be proved on stratigraphical evidence alone. In the southern part of the State we find a similar sequence of crystalline schists with intrusive granites and by lithological correlation (which is not a very sound method) we assume that they are Precambrian although they cannot actually be traced through from the Kimberley. We do know that in the Carnarvon Basin these gneisses, schists and granites are older than the Devonian, which unconformably overlies them, and in the Perth Basin they are older than the Permian. During recent years the Precambrian age of these rocks has been confirmed by actual age determinations based on the decay of radioactive elements which occur in them. This work indicates that the bulk of the massive granitic intrusions of the southern part of the State crystallised from a molten state some 2,700 million years ago. Some, however, such as those in the vicinity of Albany and along the south coast, are much younger, being emplaced approximately 1,100 million years ago.



GEOLOGICAL MAP OF WESTERN AUSTRALIA

(from Clarke, Prider and Teichert, 'Elements of Geology for Western Australian Students', by courtesy of University of Western Australia Press)

The Precambrian sequence in the North-West Division appears to be the most complete that is present in Western Australia and, from oldest to youngest, is as follows.

The *Warrawoona Succession*, which consists mainly of greenstones and green schists which were, prior to the intense folding and metamorphism to which they were subjected after deposition, basaltic lavas and tuffs with interbedded chemically deposited secondary rocks (jaspilites or banded iron formations) in the upper part of the sequence. These jaspilites have been the protores of important iron-ore deposits such as those of Mount Goldsworthy. The Warrawoona Succession is overlain by a succession (the *Mosquito Creek Succession*) of sedimentary rocks which have also been intensely folded and metamorphosed to various types of platy-structured schists, slates and quartzites. Both the Warrawoona and Mosquito Creek Successions are invaded by granitic igneous rocks emplaced approximately 2,700 million years ago and both carry auriferous orebodies. All of these rocks in the North-West Division—the Warrawoona and Mosquito Creek Successions and the granites intrusive into them—are therefore of Archaean age and have been called the Pilbara System. Still younger sedimentary rocks such as conglomerates, sandstones, shales and banded iron formations with interbedded basic igneous rocks, were deposited unconformably on the highly-folded, granite-intruded Pilbara System. This thick succession consists of a number of distinct groups. The three lower groups (the *Fortescue*, *Hamersley* and *Wyloo Groups*) are of Lower Proterozoic age as the youngest (the Wyloo Group) is intruded by granite aged approximately 1,700 million years. The two upper groups (the *Breshnahan* and *Bangemall Groups*) are of Middle and Upper Proterozoic age respectively. Of these Proterozoic rocks the Hamersley Group is most important economically since most of the iron-ore deposits of the Hamersley and Ophthalmia Ranges occur within, or have been derived from, the thick jaspilites (banded iron formations) within this group. Except in occasional narrow belts the Proterozoic rocks have not suffered the intense folding that affected the older rocks and consequently they are flat-dipping to horizontally bedded un-metamorphosed sediments. Such sediments cover very extensive areas in the North-West (see Geological Map of Western Australia on page 20) and they are similar in many respects to the flat-dipping Proterozoic sediments which cover the plateau country of the North Kimberley. The final episode on the Precambrian history of the North-West was the intrusion of dolerite dykes and sills into all of the earlier rocks.

Coming to the southern half of the State we find a similar sequence to that in the North-West. In the part of the Precambrian shield extending south of latitude 26° S. the oldest rocks that are recognised are the greenstones of the various gold-mining fields which occur in comparatively narrow belts elongated in a general NNW. direction (see map, page 20). These greenstones, which are for the most part metamorphosed basaltic lavas, contain interbedded jaspilites and are overlain by metamorphosed sedimentary rocks (generally referred to as whitestones). This System of rocks is the *Kalgoorlie-Yilgarn System*. From the mining point of view it is most important since the auriferous ore deposits of the main mining fields are confined to it and it also contains, in the jaspilites, important iron-ore deposits such as those of Koolyanobbing in the Yilgarn. It appears to be the equivalent of the Pilbara System of the North-West. After the formation of the Kalgoorlie-Yilgarn rocks they were intensely compressed into tightly closed folds with NNW.-trending axes. During this period of intense earth-movement alkaline solutions permeated the older rocks, converting them into granitic gneisses which occupy the bulk of the southern half of Western Australia. Subsequently granite magma was intruded as in the North-West. This completes the Archaean sequence. The Proterozoic is represented by a narrow strip of slightly altered sedimentary rocks along the Darling Scarp and the rocks of the east-west Stirling and Mount Barren Ranges along the south coast. As in the North-West all of these Precambrian rocks are intruded by dolerite dykes.

Putting together the information available throughout the State, we conclude that the oldest rocks found in Western Australia belong to the older part of the Archaean Era. It is a great succession of rocks, generally much metamorphosed, which is called the Kalgoorlie-Yilgarn System in the southern part of the State and the Pilbara System in the North-West region. In the early part of Kalgoorlie-Yilgarn times there was much

volcanic activity which took the form of eruptions of basic and intermediate lavas, tuffs, and breccias. These were penetrated, shortly after their extrusion, by intrusions from the same magma; similar events must be occurring now in the interior of great volcanic masses like Etna or Hawaii. In later Kalgoorlie-Yilgarn times, the dominant process was sedimentation, so that the earlier volcanic rocks, with the minor associated bands of sediment, became overlain by a great thickness of sandy and clayey sediments. These sediments must have been derived from some land mass composed of rocks of pre-Kalgoorlie-Yilgarn age but this, possibly the oldest of all rock assemblages, has apparently not yet been found in Australia or any other part of the World.

After the accumulation of the Kalgoorlie-Yilgarn System came a period of intense earth-movement during which the rocks were, in most places, closely folded and regionally metamorphosed. The folding was accompanied by widespread granitic intrusions, some of which consolidated into primary gneisses whereas others soaked into the Kalgoorlie-Yilgarn rocks, penetrating them along bedding planes, joints, and other fractures, and so forming hybrid granitic gneisses by granitisation.

Where they were not affected by this First Granite Invasion, the volcanic rocks of the Kalgoorlie-Yilgarn System were regionally metamorphosed, in some places very strongly into dark-coloured schists, in others only very slightly. Similarly, the sedimentary rocks of the Kalgoorlie-Yilgarn System, where they have escaped the first granite invasion, *i.e.* have not been granitised, are in some places but slightly regionally metamorphosed, in others they are converted into various types of schist and quartzite.

All the Archaean rocks described above were invaded by the 'Younger' Granite, which, unlike the 'Older' Granite, formed well-defined intrusions many of which are stocks, though smaller offshoots from the same magma, in the form of 'porphyry dykes,' occur at nearly every mining centre. These events occurred after the folding but before Proterozoic times. Any of the Archaean rocks in Western Australia may contain ore-bodies yielding gold and other minerals of economic value. It seems likely that many of these ore-deposits were formed at the time of the Second Granite Invasion which, from radioactive age determination studies, occurred about 2,700 million years ago. Important iron-ore deposits occur in the Archaeozoic rocks at many localities, for example at Mount Goldsworthy in the Pilbara, Talling Peak in the Yalgoo Goldfield, and Koolyanobbing, Bungalbin and many other localities in the North Yilgarn. These are all banded ironstone deposits which are interbedded with the basaltic lavas and sedimentary rocks of early Archaean age. In many places there are important manganese deposits associated with these banded iron formations. A rich nickel deposit discovered in ultrabasic Archaean rocks at Kambalda near Kalgoorlie in 1966, has now become an important producer of nickel concentrates. Base metal ore deposits, such as nickel, cobalt and chromium, are generally associated with ultrabasic igneous rocks. Ultrabasic rocks are intrusive into the older Archaean volcanic and metasedimentary rocks of the Kalgoorlie-Yilgarn System in the country between Norseman and Laverton and, following the discovery of important nickel deposits at Kambalda and Scotia in the vicinity of Kalgoorlie, these areas are being carefully examined to assess their prospects for base metal deposits.

Finally, in Proterozoic times we had the deposition, under shallow-water conditions, of conglomerates, sandstones, shales and banded iron formations and another period of volcanic activity yielding basaltic lava flows. These rocks have not suffered the intense earth movements which affected the older rocks, and so are practically un-metamorphosed. Important blue asbestos deposits in these rocks have been exploited at Wittenoom Gorge in the Hamersley Range of the West Pilbara. The deposits occur in banded ironstone formations which also contain large iron-ore deposits. The well-known iron-ore deposits of Cockatoo and Koolan Islands in Yampi Sound, which have been exploited for many years, are metasedimentary deposits of Late Proterozoic age. Although the Proterozoic rocks cover extensive areas in the northern parts of the State they have largely been stripped off the southern half by erosion. The final episode in the Precambrian history of this State was the widespread intrusion of dolerite dykes approximately 550 million years ago.

The Sedimentary Basins

There are five major sedimentary basins in Western Australia—the *Bonaparte Gulf Basin* in the north-east part of the Kimberley Division extending into the Northern Territory, the *Canning Basin* of the West Kimberley, the *Carnarvon Basin* of the North-West, the *Perth Basin* extending from lat. 29° S. to lat. 33° S. and the *Eucla Basin* occupied by the Nullarbor Plain. Large areas of the Central Division are covered by sediments of the *Amadeus Basin* of Central Australia and the shallow *Officer Basin*. In addition to these major basins there are smaller basins such as that at Collie and scattered areas where sediments, which are dominantly lacustrine in nature, have been deposited. In these sedimentary areas we find sediments ranging from Lower Palaeozoic to Pleistocene in age. These sediments of Palaeozoic and later age are, as a rule, less disturbed than those of Precambrian times and many are abundantly fossiliferous. Therefore, there is a sure means of correlating formations even in widely separated places, and so our knowledge of the history of these sedimentary areas is more detailed than in the much altered, highly folded, unfossiliferous Precambrian rocks of the basement.

Apart from the superficial deposits the economic significance of these basins is confined to their possibilities for the occurrence of artesian water, coal, oil and natural gas. A prime requisite for the occurrence of artesian and sub-artesian water is the occurrence of interbedded strata of varying porosity and permeability. These conditions are met in a number of the sedimentary basins in Western Australia and the development of the pastoral industry in the arid or semi-arid parts of these basins has been largely dependent on the occurrence of artesian water. In the metropolitan area, artesian bores are an important source of water supplies. Coal deposits are also confined to areas of sedimentary rocks and occur in the Permian rocks of two of the minor basins, namely the *Collie* and the *Irwin River Basins*, and in the Lower Jurassic sediments of the Perth Basin (at Eneabba, where a seam 100 feet thick has been found at a depth of 6,000 feet in a borehole sunk in search for oil, and is indicated in shallow shot-holes in the Hill River area). Up to 1966 the coal deposits of the lacustrine Permian beds of the Collie Basin constituted the only power source in Western Australia, since oil of commercial significance had only then been proved and the gently undulating topography combined with low rainfall make the hydro-electric resources insignificant. So far as oil is concerned the first occurrence of flow oil in Australia was encountered in Rough Range Bore No. 1, in the Carnarvon Basin, late in 1953. This discovery of flow oil resulted in an increase in the rate of geological exploration of all the major sedimentary basins. The results of extensive geological mapping, geophysical surveys and exploratory drilling have to date been rather disappointing. However, a commercial field was proved at Barrow Island off the north-west coast in 1966. Smaller oil occurrences have been located at various localities in the Perth Basin and this indicates the presence of suitable source material and conditions for oil formation and preservation. Moreover, oil search drilling operations have located some widely-spaced finds of natural gas in considerable quantities, which may ultimately prove to be of commercial significance. The possibilities, therefore, of locating other commercial oilfields in the Carnarvon, Canning and Perth Basins are by no means exhausted and the search is being actively continued.

A detailed description of the sedimentary formations of different ages, from the Cambrian to the Recent, in the various sedimentary basins has been set down in 'The Stratigraphy of Western Australia' (*Journal Geological Society of Australia*, volume 4, part 2, pp. 1-161, 1958). It is proposed here merely to indicate the main features of the various basins.

The *Bonaparte Gulf Basin*, in the East Kimberley, extends into the Northern Territory. As already mentioned, this and the nearby Ord Basin are the only basins in Western Australia where rocks of proved Cambrian age are exposed. On Western Australian territory the Cambrian rocks extend as a narrow belt along the interstate border between lat. 16° 15' S. and lat. 18° 30' S., reaching westward from the border for 15 to 75 miles. The Cambrian consists of basalts at the base of the sequence, overlain by Middle Cambrian fossiliferous limestones, shales and sandstones. There is a small development of sandstones which are considered to be of Lower Ordovician age, following which

there is a big time gap and the next youngest formations are sandstones and limestones of Upper Devonian and Lower Carboniferous age. Upper Carboniferous and Lower Permian formations are absent, the next marine transgression being in the Middle Permian when a thick sequence of conglomerates, sandstones, and limestones was deposited. The only other sedimentary rocks in this basin are freshwater sediments (siltstones, marls and cherts containing freshwater fossils) of late Tertiary age.

The *Canning Basin* (formerly named the Desert Artesian Basin), in the West Kimberley, extends from the coast between Derby and the De Grey River in a south-easterly direction almost to the 128° meridian (see map, page 20). The north-east or Fitzroy part of this basin is a deep trough estimated, from aeromagnetic geophysical surveys, to contain a thickness of the order of 20,000 feet of sedimentary strata ranging in age from Ordovician to Triassic. It was in this area that bores seeking oil were first drilled in Western Australia, following the discovery in 1919 of traces of oil in a water bore on Gogo Station. The larger Canning Desert portion, the South Canning Basin, is covered by a relatively thin Mesozoic and Permian sequence, but geophysical work followed by some deep drilling has indicated that there are deep depressions in this area, the deepest of which is the Kidson Sub-basin, which has a basement approximately 20,000 feet below the surface.

The oldest Palaeozoic sediments in the Fitzroy portion of the basin are richly fossiliferous limestones of Ordovician age outcropping near Price's Creek. These are overlain by Devonian reef limestones, sandstones and conglomerates, followed by Carboniferous sandy limestones. These in turn are followed by a thick Permian sequence of sandstones (of marine glacial origin deposited from floating ice), fossiliferous calcareous shales and limestones, and in Upper Permian times fossiliferous ferruginous siltstones and sandstones. All of these formations dip gently in a general south-westerly direction towards the centre of the basin but these regional dips are interrupted by local folding. Shale and sandstone beds of Triassic age occur in the Fitzroy section of the basin. The youngest rocks in this area are igneous intrusions in the form of intrusive sheets, dykes, and volcanic necks which have been found intruding all rocks of the sequence from the Precambrian granitic basement to the youngest sediments (Triassic) present. These igneous rocks, from direct geological evidence, are of post-Triassic age, and radioactive age determinations made in 1959 indicate that they were formed 180 million years ago (*i.e.* in Jurassic times). This is one of the two areas in the whole of Western Australia where post-Cambrian igneous activity is known.

In the Canning Desert section of the basin the Palaeozoic rocks are not well exposed and the greater part of this portion of the basin (where not obscured by superficial unconsolidated sands) is occupied by Mesozoic sediments ranging in age from Lower Jurassic to Lower Cretaceous. The deep depressions in the floor of the South Canning Basin are filled with Palaeozoic sediments as proved by the first deep oil test well (Kidson No. 1) which was abandoned at 14,539 feet in Lower Ordovician limestone. There is no evidence in the entire basin of any marine transgression after Lower Cretaceous times.

The *Carnarvon Basin* (formerly called the North-West Artesian Basin) has been the most intensively studied of the major sedimentary basins in Western Australia. It extends along the west coast from Onslow near the mouth of the Ashburton River as far south as the mouth of the Murchison River (see map, page 20), the maximum width of the basin being 125 miles at the latitude of Carnarvon. In this basin the eastern portion up to 50 miles wide is occupied by a thick sequence of marine Palaeozoic sedimentary rocks ranging in age from Middle Devonian to Upper Middle Permian, all of which have a westerly regional dip. The estimated maximum thicknesses of the Palaeozoic strata are:

Permian	....	....	....	13,175 feet
Carboniferous	....	....	....	2,510 feet
Devonian	....	....	....	5,120 feet

This Palaeozoic sequence which consists of fossiliferous Devonian limestones and sandstones, Carboniferous limestones and Permian marine glacial beds, limestones, sandstones, and shales, is almost entirely marine in origin. In the Carnarvon Basin we have the only wholly marine Permian sequence in Australia, and without doubt *one of the thickest marine Permian sequences in the World.*

No rocks of Silurian age were known from the western half of the Australian continent until 1957 when a bore sunk by West Australian Petroleum Pty. Ltd. at Dirk Hartogs Island in Shark Bay encountered limestones of Silurian age underlain by sandstones which are now correlated with the reddish sandstones which outcrop in the lower reaches of the Murchison River.

To the west the Permian rocks are unconformably overlain by Cretaceous sandstones, shales, marls and limestones attaining a total thickness of 2,000 feet. It is the basal formation, the *Birdrong Sandstone*, of the Cretaceous sequence that is the oil sand encountered in Rough Range Bore No. 1. Another Cretaceous formation, the Windalia Formation, is one of the important oil reservoirs of the Barrow Island Oilfield. The Cretaceous rocks outcrop in a north-south belt averaging 50 miles wide between the Palaeozoic and Precambrian rocks on the east and the Tertiary limestones to the west. The only other Mesozoic formation exposed at the surface in this basin is a Jurassic sandstone 25 feet thick. However, a deep well (Cape Range No. 2) drilled in search of oil at Exmouth Gulf, after passing through the base of the Cretaceous at 3,707 feet, entered the Lower Jurassic which extended to the depth of 15,169 feet at which the bore was discontinued, thus proving a thickness of at least 11,462 feet of Lower Jurassic strata in this area. It is apparent that there is a marked thickening of the Mesozoic formations from east to west in this area. The westernmost belt of the Carnarvon Basin is occupied by Tertiary strata, mainly limestones, which are well exposed in the Rough and Cape Ranges of the Exmouth Gulf area. These limestones, which range from Lower Miocene to Pliocene in age, total 1,200 feet in thickness and are discontinuously overlain by Pleistocene and Recent beds approximately 450 feet thick. Marine Tertiary sediments which are so well developed along the western margin of the basin extend as a thin discontinuous formation unconformably over the Permian beds of the eastern part of the basin, indicating that in Upper Eocene times the sea transgressed practically the whole of the Carnarvon Basin.

The sedimentary rocks of the Carnarvon Basin were affected by earth movements at various times. Even the youngest of the Tertiary rocks have been thrown into gentle folds which are significant so far as the search for oil is concerned because, in addition to having suitable conditions for the formation and preservation of oil, suitable structures are necessary for its concentration into local areas (oil 'pools'). So far as structure is concerned, the general picture of the Carnarvon Basin is the gentle westerly regional dip of the Palaeozoic sediments of the eastern half of the basin and the gentle dome and basin folding of the western half.

The *Perth Basin* (formerly called the Coastal Plain Artesian Basin) is a narrow elongated basin on the western border of Western Australia extending from Geraldton in the north to Cape Leeuwin in the south. At Geraldton it is 30 miles wide and is flanked both to the west and east by Precambrian crystalline rocks (mainly gneisses). The maximum width of the basin is approximately 50 miles at Watheroo and it narrows again to the south being approximately 30 miles wide in the sunland between Busselton and Augusta. At this southern end it is again flanked both to the east and west by Precambrian rocks. The surface of the basin is mostly covered by Recent sands but occasional outcrops of rocks as old as the Permian occur in places. The only evidence available regarding the structure, thickness and age of the sediments in the basin is that provided by geophysical surveys, some deep bores sunk in the search for oil and a number of water bores up to 2,400 feet deep in the metropolitan area. Gravity surveys indicate that there is a very considerable thickness of sediments, perhaps exceeding 30,000 feet, and it is probable that in this basin we have a complete succession from the Younger Proterozoic (*Cardup Group*), which outcrops along the Darling Scarp, to the Recent sands. Other than the Proterozoic of the Darling Scarp, the oldest sediments exposed are the gently

folded Permian marine sediments of the *Eradu* and *Irwin River Basins* at the north end of the main basin. The Permian sediments of the Irwin River area have a total thickness of 4,000 feet and vary from marine glacial beds at the base (as in the Carnarvon and Canning Basins) through fossiliferous marine shales and limestones to lacustrine sandy sediments with coal seams in the upper part of the sequence. Marine and continental Jurassic limestones and sandstones outcrop east of Geraldton and Jurassic beds, overlain by Cretaceous chinks and greensands, occur near Gingin and Dandaragan. In the southern part of the Perth Basin the oldest rocks exposed (if we except the Permian of the separate minor *Collie Basin* which is situated well to the east of the Darling Scarp in a glacially-gouged trough) are the Cretaceous *Donnybrook Sandstones*.

In the vicinity of Perth, artesian bores to a maximum depth of 2,400 feet expose a sequence varying from Jurassic sandstone at depth, through Cretaceous and Eocene shales. The *King's Park Shale* of Eocene (older Tertiary) age is overlain by Pleistocene aeolian sandstones of the *Coastal Limestone Formation*, the base of which is approximately 100 feet below sea-level. There is therefore a big gap in the succession here between the Eocene and Pleistocene. Many boreholes have been sunk in the north-central part of the basin in the course of oil search operations. Boreholes near the coast (at Jurien Bay and Beagle Ridge) struck Precambrian crystalline basement rocks at comparatively shallow depths of 3,360 feet and 4,860 feet. The sediments thicken further inland, as evidenced by the increasing depth to the Precambrian basement in Cadda No. 1 (9,002 feet), Woolmulla No. 1 (9,218 feet) and Arrowsmith No. 1 (11,220 feet). Very thick sedimentary sequences have been disclosed by Eneabba Bore No. 1 (which bottomed in Lower Triassic at 13,712 feet) and Gingin No. 1 (in Lower Jurassic at 14,908 feet). Some deep wells have been drilled to the south of Perth, namely Pinjarra No. 1 which bottomed in Upper Triassic sandstone at 15,001 feet; in the far south (near the south coast), Sue No. 1 which encountered Precambrian granulites at 10,021 feet; near Perth, Cockburn No. 1 which was abandoned at 10,020 feet in Lower Jurassic sandstone; and Whicher No. 1, near Busselton, which reached a depth of 15,266 feet in Permian sandstone before being abandoned. The first offshore well in the Perth Basin (Quinns No. 1) was spudded in on 10 October 1968 at a location approximately 20 miles north of Rottnest Island.

The only evidence of igneous activity in the Basin is the Cretaceous basalt of the sunland between Bunbury and Cape Gosselin on the south coast.

Very little is known about the structure of this basin. It is bounded to the east by a large fault or monoclinical fold. The evidence available indicates that the main structural character of the deeper part is a regional dip to the east (of 15° to 20°) traversed by north-south trending faults with down-throws to the west. There is an unconformity (Upper Jurassic to Lower Cretaceous) at a depth of approximately 2,000 feet above which the Cretaceous and Tertiary sediments are almost horizontal.

The *Eucla Basin* occupying the Nullarbor Plain, in the south-eastern corner of the State is occupied at the surface by marine fossiliferous Middle Tertiary (Miocene) limestones with a marginal belt of Lower Tertiary (Eocene) limestones. The Tertiary rocks lie on sandstones and shales of probable Cretaceous age, which in turn overlie the Precambrian crystalline rocks. Little is known of the details of the stratigraphy and structure of the Eucla Basin since the beds are very flat-lying and have only been penetrated by water bores in a few places such as Madura near the coast and Loongana on the Trans-Australian Railway. The Madura bore is artesian but bores along the Trans-Australian Railway have only yielded sub-artesian water (*i.e.* the water will rise under pressure only part of the way to the surface). The oil prospects of this basin are poor because of the comparatively small thickness (2,000 feet) of the sediments and the absence of suitable folded structures to form oil traps.

The *Collie Coal Basin*. Of the minor basins and isolated occurrences of post-Cambrian sediments, Collie, since it is the only operating coalfield in Western Australia, is the only one which will be considered here. It is situated approximately 100 miles SSE. from Perth, and has an area of about 100 square miles. Actually it is made up of two basins separated by a subsurface granitic ridge. It is composed of sandstones and shales

with interbedded coal seams and is surrounded by Precambrian rocks. The coal measures, of Permian age, are of the order of 2,000 feet in thickness of which approximately 130 feet is coal. The actual contact between the Permian coal measures and the Precambrian granitic basement has nowhere been seen at the surface but has been encountered in deep drill holes in various parts of the Basin. Such drill holes reveal that Permian mudstone containing granite pebbles lies on an ice-planed surface of the Precambrian granitic rocks. This suggests that the Collie Basin, formerly considered to be a block of the Permian downfaulted into the Precambrian basement, is actually a glacially-gouged trough formed by terrestrial glaciation in the Permian and since filled with Permian lacustrine sediments. Coal occurs at three horizons and the seams, which average 6 feet in thickness, persist over fairly long distances. From the associated plant fossils these coal measures appear to be comparable in age with those of the upper part of the Permian sequence at the Irwin River near the northern end of the Perth Basin.

The Superficial Deposits

Over a great part of the State fresh rock outcrops are comparatively sparse and are covered by highly-weathered rocks, laterite, drift sand, soils, and, in the salt lake country, by thin evaporite deposits.

Laterite. In the southern half of the State the remnants of the Darling Plateau are covered by a thin layer up to 10 or 15 feet thick of a reddish-brown rock composed of spherical pebbles tightly or loosely cemented together by a lighter-coloured earthy matrix. This material in its poorly consolidated state is popularly referred to as 'ironstone gravel' and when strongly cemented as 'ironstone'. This rock, called laterite, although it covers large areas, is purely superficial and wells or bores sunk in it pass within a few feet into highly weathered country rock which may extend down for distances up to 100 feet before encountering fresh unweathered rock. This laterite crust and the underlying highly weathered country rock were developed on a gently undulating surface during a period of warmer, more humid, climatic conditions. These tropical conditions probably existed in Late Tertiary (Pliocene) times when a great part of Western Australia had been reduced by long-continued erosion to a peneplain lying close to sea level, or soon after, when this peneplain had been uplifted to form the *Darling Plateau*. This uplift, judged by the elevation of the laterite-capped hills and the occurrence of fossiliferous marine Eocene sediments 900 feet above sea-level at Norseman, was of the order of 1,000 feet. On the Great Plateau, remnants of this Darling Plateau are evidenced by the table-topped hills so characteristic of much of the Plateau country. The significance of the laterite profile and the soils developed from the laterite and associated weathered rocks has already been mentioned. Economically, the laterite is important for road-making materials and in a few places (such as Wundowie) as an iron ore. The main constituents of the laterite are the insoluble products of intense rock weathering—iron oxide, alumina and silica. In many places the alumina content is sufficiently high to call them bauxites. Bauxites are the main source of aluminium, and the bauxite laterites of the Jarrahdale area in the Darling Range near Perth are being exploited as aluminium ore.

The mid-Tertiary land surface of the southern half of Western Australia on which the laterite profile was developed at a time when this country was subjected to a tropical climate extends into the northern part of the State. In the Hamersley Iron Province of the North-West Division this old land surface truncated the Lower Proterozoic banded iron formations of the Hamersley Group. On this old land surface, (the *Hamersley Surface*) which can be traced without tectonic break from sea-level to elevations of 4,000 feet, there was a secondary concentration of the iron of the Lower Proterozoic rocks resulting in extensive rich iron-ore deposits which make this area one of the richest iron provinces in the World.

In the far south-west of the State subsurface hard pan formations consisting of ferruginous sandstone are a potential source of low-grade iron ore.

Soils and drift sands. Western Australia, an area of 975,920 square miles extending from lat. 13° 44' S. to lat. 35° 08' S., although having little variety in its broad physical features, has very considerable variation in climates from the tropical areas of summer rainfall in the north through a central and inland province of low rainfall to the temperate areas of winter rainfall in the south. Moreover, throughout this enormous area there is very considerable variation in the nature of the country rocks. The nature of the soils developed is dependent on these two factors—climate and parent rock—so it will be apparent that there will be very considerable variation in the soils over this extensive area. L. J. H. Teakle has recognised the following major soil zones of Western Australia:

1. Grey, yellow and red podsolised, or leached, soils of the temperate sclerophyll forests.
2. Red-brown earths of the eucalyptus-acacia woodlands.
3. Grey and brown calcareous, solonised soils of the low rainfall eucalyptus woodlands—('mallee' soil zone of Prescott).
4. Red and brown acidic soils of the acacia semi-desert scrub—mulga, etc.
5. Brown acidic soils of the spinifex semi-desert steppes of the north-west.
6. Pinkish-brown calcareous soils of the Nullarbor Plain desert shrub steppes.
7. Pinkish-brown calcareous soils of the acacia semi-desert scrub, mallee and salt bush-blue bush zone.
8. Brown soils of the tropical woodlands, savannahs and grasslands.
9. Red sands of the central desert sandhills—spinifex with desert acacias, desert gums and mallees (*Eucalyptus spp.*).

Each of these major soil zones may be subdivided into one or more soil regions and the reader is referred to a paper 'A Regional Classification of the Soils of Western Australia' by L. J. H. Teakle (*Jour. Roy. Soc. West. Aust. XXIV*, pp. 123-95) for details concerning the soil characteristics of these various zones and regions.

There are considerable areas of Western Australia covered by drift sand which may be in the form of parallel red sand dunes or, in the southern part of the State, extensive sandy plains. The latter have been generally considered to be residual from the weathering of granite. These sand plains are often underlain by lateritic material and they probably represent the leached zone of the laterite profile. The youngest of the drift sand deposits are the coastal sand dunes.

Coastal sand deposits are of considerable economic importance. At various places along the south and west coasts there are beach sand deposits in which there is a natural concentration of heavy minerals such as zircon, monazite, xenotime, rutile and ilmenite. Such deposits are at present being exploited at Capel and Bunbury for their ilmenite content, which is valuable because of its low chrome content. The other heavy minerals such as zircon, monazite and xenotime are also being exported overseas.

Salt lake deposits. These, together with the coastal sand deposits, represent the youngest of the geological formations developed—indeed they are in course of formation at the present time. They are evaporite deposits resulting from the evaporation of lake waters in the areas of internal drainage. Soluble salts produced by rock weathering are leached out by rain and running water and transported by streams to these lakes. During the long dry summers most of these lakes dry up and the soluble salts are deposited, yielding accumulations of gypsum and common salt. In a few of these lakes hydrated potassium aluminium sulphate (alunite), which is a valuable source of potash for fertilisers, has been formed but its actual mode of formation has not yet been satisfactorily explained.

Conclusion

From the foregoing summary of the geology of Western Australia we see that, although nowhere do we find the complete geological succession, somewhere in the State there are deposits representative of every Period. The geological history of Western Australia begins with the basaltic igneous activity of the Early Archaeozoic some 3,000

million years ago, followed by sedimentation, intense mountain building activity and associated granitisation and granite intrusions leading to the formation of the major deposits of economically important minerals. In post-Archaeon times there is a record of sedimentation throughout all the main geological periods. Igneous activity ceased in the Lower Palaeozoic and only re-occurred during the late Mesozoic, yielding the basaltic lavas of the far South-West and the volcanic rocks of the West Kimberley. By mid-Tertiary times much of Western Australia had been reduced by denudation to a gently undulating peneplain land surface on which, under tropical climatic conditions, there was an extensive development of laterite which in places constitutes valuable aluminium and iron-ore deposits. Geological processes are continuing and at the present day rocks and soils are still in the process of formation.

Current Geological Investigations in Western Australia

While much is known about the geology and mineral resources of Western Australia, there is still much to be learned. The foregoing summary account of the geology of Western Australia is based on work carried out in the past, which has increased in tempo during the last decade because of the discovery of important oil and mineral deposits.

At present, geological work in Western Australia is being carried out by:

- (i) The Geological Survey Branch of the Department of Mines of Western Australia, which is engaged in regional geological mapping, special investigations of varied character concerned with groundwater resources, mineral deposits, and engineering geology problems, and problems arising daily, which require geological advice to the public. The major results of the Geological Survey's operations are published annually in the Annual Report of the Department of Mines of Western Australia, in Bulletins issued at irregular intervals and in 4-mile scale geological maps with explanatory notes, which are also issued at irregular intervals.
- (ii) The Geology Department of the University of Western Australia. Research projects are undertaken by members of staff and research students, varying from mapping and petrological-mineralogical projects concerned with the Precambrian rocks which make up the greater part of the State, through palaeontological work on rocks from the various sedimentary basins, to studies of present-day marine sedimentation. The results of such investigations are published in various scientific periodicals, both in Australia and overseas.
- (iii) Oil exploration companies. Such companies have carried out geological and geophysical surveys of the various sedimentary basins and some offshore areas, and are presently engaged in deep-drilling programmes. Attention is now being given to drilling in the offshore continental shelf areas of the Canning and Perth Basins.
- (iv) Mineral exploration companies. Following the discovery of important nickel deposits at Kambalda and Scotia near Kalgoorlie, many Australian and overseas exploration companies are engaged in base metal exploration, particularly in the Norseman to Laverton belt of Precambrian greenstones.

The continued efforts of these institutions and exploration companies are daily adding much to our knowledge of the geology of the western third of the Australian continent.

Chapter II—continued

Part 2—Climate and Meteorology⁽¹⁾

(Contributed by the Western Australian Regional Office of the Bureau of Meteorology)

Western Australia is the largest State in the Commonwealth, extending from latitude 13° 44' S. to 35° 08' S., and from longitude 113° 09' E. to 129° E. It stretches a distance of about 1,500 miles in a north-south direction and about 1,000 miles west-east. A little more than one-third of the State lies within the tropics, while the remainder extends southward to the temperate zone.

Because of its large size and its latitudinal position, Western Australia has entirely different climates in its northern and southern parts, while in the central regions there is a gradual change from the tropical climate of the north to the typical Mediterranean climate of the south.

Most of the State is a plateau between 1,000 and 2,000 feet above mean sea-level and there are no outstanding mountain ranges. Where the edge of the plateau forms the Darling Range along the southern part of the west coast, it exerts a marked influence on the rainfall, causing a rapid increase from the coastal plain to the higher land. Elsewhere the effect of topography is less marked and its main influence is seen in the general decrease of rainfall with increasing distance from the coast.

PRESSURE SYSTEMS

Weather during the year is controlled largely by the movement of the anticyclonic belt (high pressure systems with anti-clockwise winds), which lies in an east-west direction across the continent for about six months of the year.

In winter this system moves northward, bringing clear skies with fine sunny days and easterly winds to the tropics. With this northward movement, westerly winds on the southern side of the anticyclones extend over the southern part of the State, bringing with them cool cloudy weather and rain. In mid-winter the northern fringe of the 'Roaring Forties' extends to Western Australia and there are frequent westerly gales in the south coastal belt.

These westerly winds are maintained by a series of depressions (low pressure systems with clockwise winds), which move eastward well south of the Western Australian coast, and others which originate in the Indian Ocean and move south-eastward past Cape Leeuwin. The extent to which westerlies affect the State depends largely on the intensity and the position of these depressions.

Towards the end of winter the anticyclonic belt moves southward, and the westerlies are confined more to the lower south-west and the south coastal districts. By summer the anticyclonic belt has moved so far south that its centre is off the south coast and easterly winds prevail over most of the State.

During this summer period the midday sun is at a high elevation in the tropics and the continual heating leads to the development of a monsoonal depression over this region. Wind circulation round this system causes easterlies on its southern or inland side, but in the coastal districts north-east from Onslow, and in parts of the Kimberley, westerlies prevail. Winds in both the north and the south of the State are then in the opposite direction to those prevailing during the winter.

As the sun moves northward again the anticyclonic belt follows it. The monsoonal depression over the tropics dissipates and westerlies again gradually extend northward to the southern part of the State.

⁽¹⁾ See *Appendix* for additional information contained in earlier issues of the Year Book.

During the northern 'Wet' season (from about December to March), occasional cyclones, known locally as 'willy willys', bring strong winds and rain to the tropics. They originate generally in the Timor Sea or off the north-west coast and often move first in a south-westerly direction parallel to the coast and later in a south-easterly direction.

They frequently move inland between Broome and Onslow but occasionally travel further westward before curving to the south-east and moving inland over the west coast. Others fade out at sea without ever crossing the coast. Those that move inland usually commence to dissipate soon after crossing the coast, but occasionally they move right across the State, passing into the Southern Ocean and moving off towards Tasmania.

These storms are often extremely violent and have on occasions almost completely wrecked towns on the north-west coast, while a cyclone which struck a pearling fleet off the Eighty Mile Beach in 1887 caused the loss of twenty-two vessels and 140 lives.

However, despite the damage which they cause, the storms are of great benefit to the pastoral regions on account of the heavy and widespread rain which generally accompanies them. The heaviest fall ever recorded in one day in Western Australia, 29.41 inches, was received at Whim Creek from a cyclone in 1898.

RAINFALL

The moist rain-bearing winds in this State are in general from a westerly direction. The easterlies, having come from the dry inland parts of Australia, usually bring fine weather and clear skies.

Because of this the highest rainfall occurs in the winter months in the south of the State, and in the summer months in the north. In between these areas there is a gradual change from one rainfall regime to the other.

From the map on page 34, which shows the wettest six-monthly period of the year, it can be seen that summer rains extend southward from the Kimberley to the Trans-Australian Railway, where there is a rapid change to the winter rainfall regime of the south coast. However, the difference between summer and winter totals decreases southward, and the southern part of this region is one of almost uniform rainfall.

Proceeding northward from the winter rainfall area of the south-west of the State, the wet period occurs earlier during the year. Across a belt Carnarvon-Menzies-Eucla, there is a more rapid change, and this belt divides the winter rainfall area from that which receives most of its rain in the first six months of the year. Further north, the change is more gradual but continuous and in the Kimberley most of the year's rainfall is received in the summer months which, in the southern parts of the State, are the driest of the year.

The mean annual rainfall for the State is shown on the map facing page 32.

The following table shows the average rainfall and number of wet days, the highest and lowest monthly totals, and the highest daily fall for various centres.

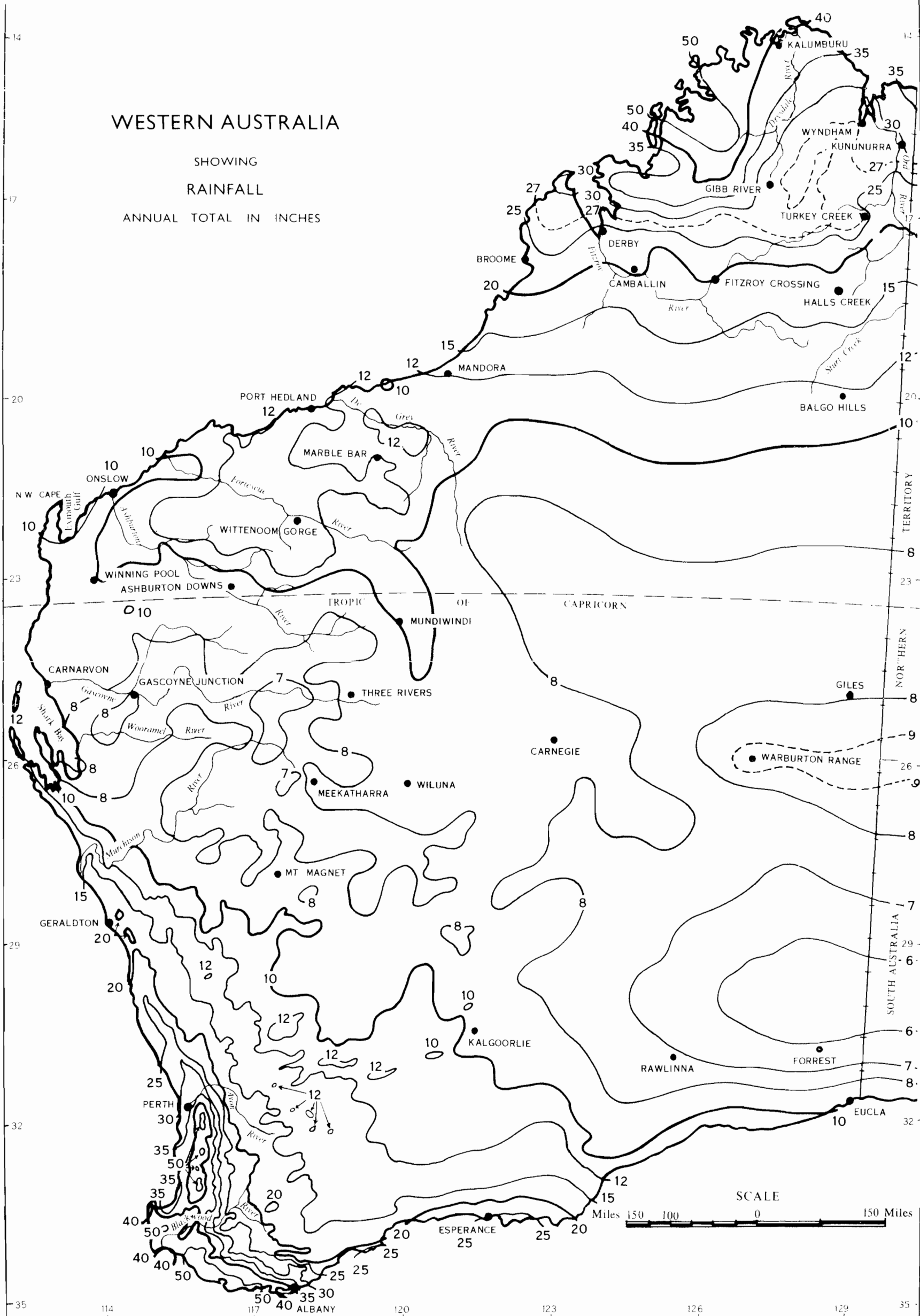
RAINFALL AT REPRESENTATIVE CLIMATOLOGICAL STATIONS
(Stations are arranged from north to south in three groups: Coastal, Wheat Belt and Other Inland)

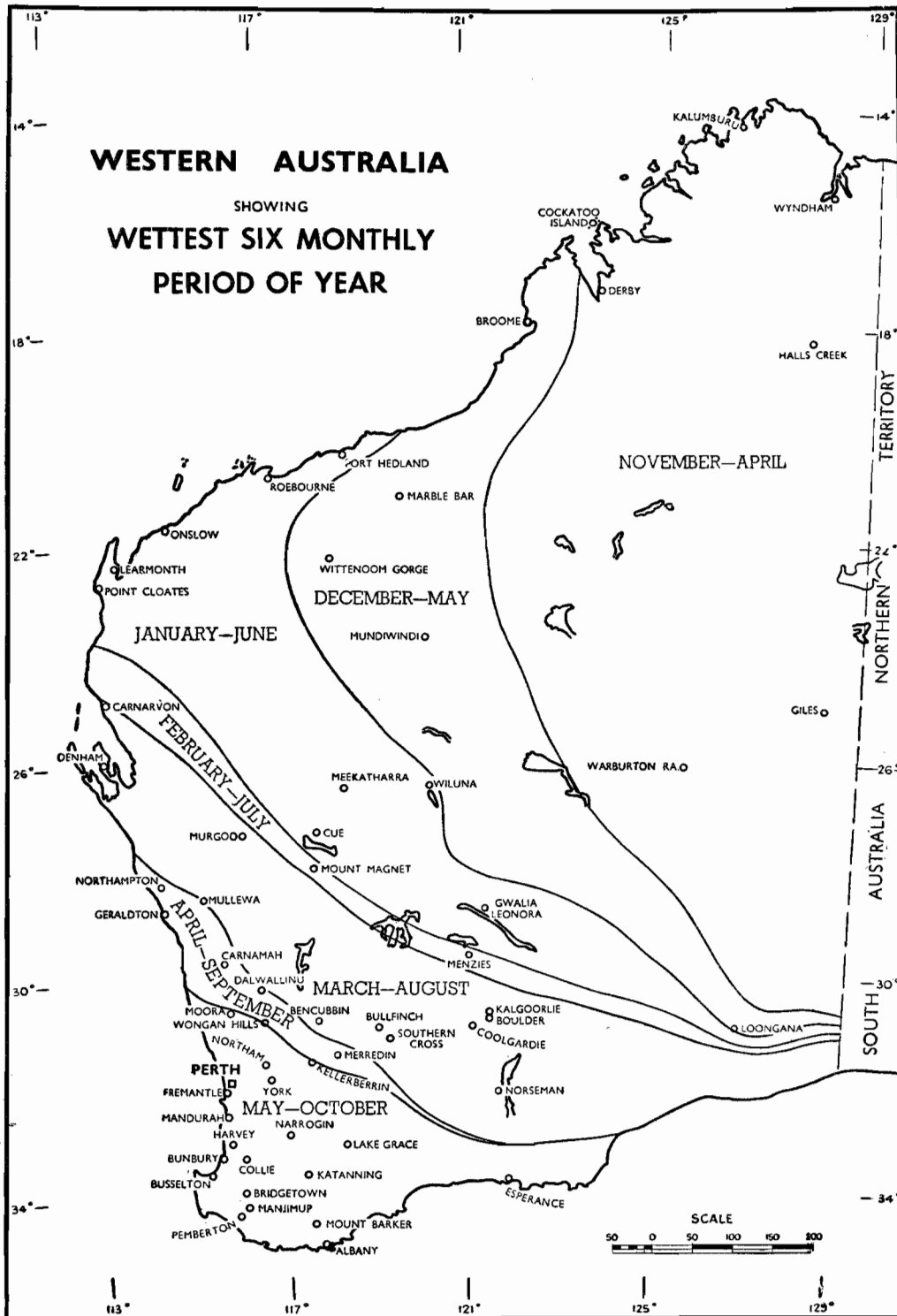
Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
COASTAL													
<i>Wyndham</i> (23 feet)†—													
Rainfall —Average (points)	749	649	470	109	30	20	17	2	8	45	185	434	2,718
Highest (points)	2,824	2,058	1,758	2,027	347	473	524	84	136	334	558	1,150	5,634
Lowest (points)	51	54	0	0	0	0	0	0	0	0	3	28	1,438
Highest one day (points)	1,212	590	1,250	1,732	247	445	338	42	136	225	335	434	1,732
Wet days—Average number	13	12	9	3	1	1	1	0	0	2	6	10	58
<i>Broome</i> (37 feet)†—													
Rainfall —Average (points)	410	559	299	128	137	66	35	8	7	5	34	115	1,803
Highest (points)	3,256	2,358	2,360	1,019	700	973	283	374	86	48	1,095	1,449	4,307
Lowest (points)	11	6	0	0	0	0	0	0	0	0	0	0	544
Highest one day (points)	1,400	1,191	1,062	714	470	563	216	147	82	28	553	680	1,400
Wet days—Average number	10	10	7	3	2	2	2	0	1	1	1	5	44

† Height above mean sea-level.

WESTERN AUSTRALIA

SHOWING
RAINFALL
ANNUAL TOTAL IN INCHES





TEMPERATURES AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

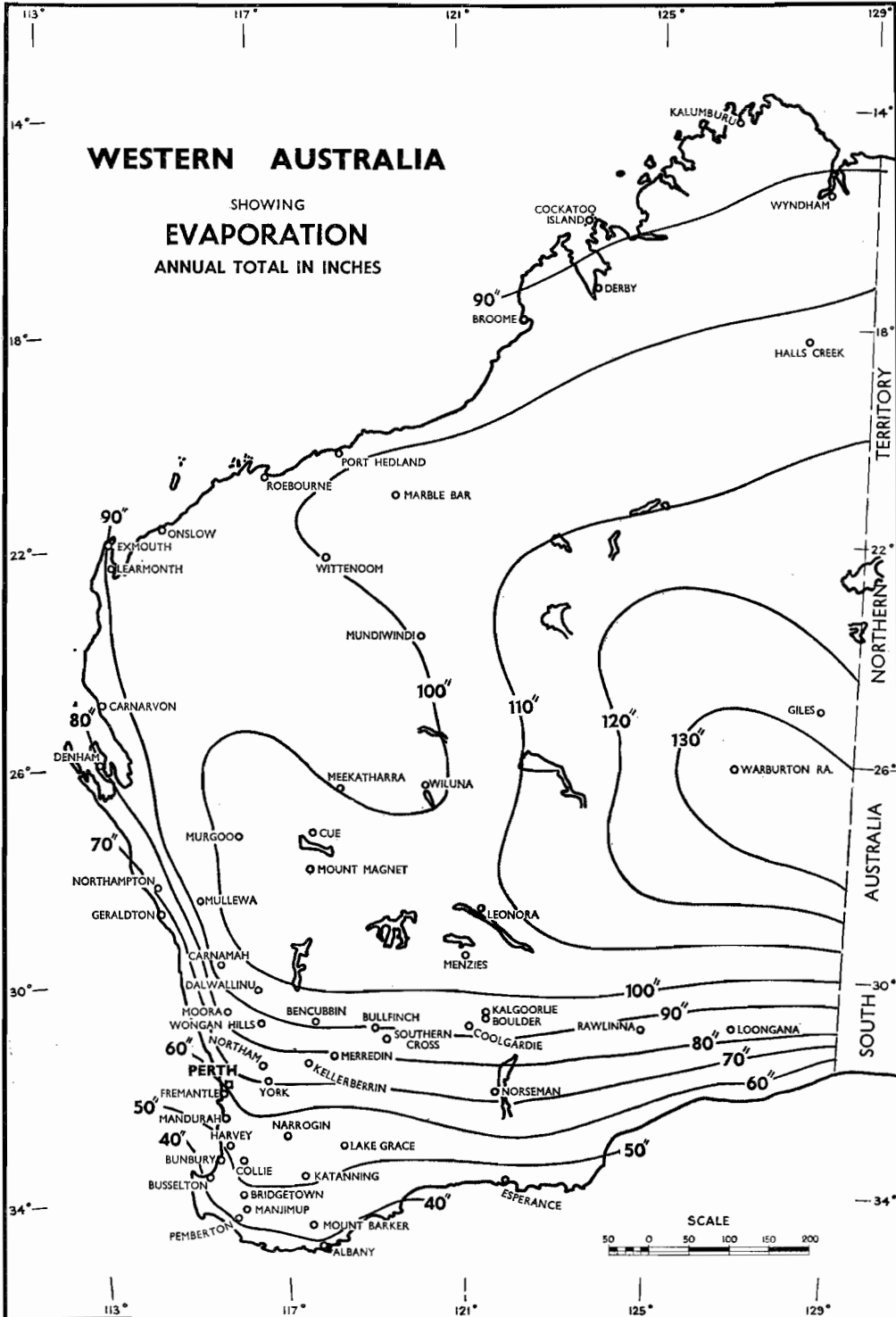
Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
OTHER INLAND—<i>continued</i>													
Laverton—													
Temperature:													
Mean max., °F.	96.4	95.0	89.3	81.1	71.8	64.9	64.1	68.2	76.2	82.1	89.6	94.9	81.1
Mean min., °F.	68.7	68.2	64.4	56.9	49.0	43.5	41.3	43.7	49.2	54.7	61.8	66.7	55.7
Highest max., °F.	114.0	115.0	109.0	104.0	95.0	86.3	82.0	93.0	98.2	104.0	111.0	112.0	115.0
Lowest min., °F.	50.0	45.5	51.0	40.0	31.2	28.0	26.0	29.0	34.0	36.0	41.0	49.0	26.0
Number of days 90° and over	24.0	20.0	15.0	5.0	0.0	0.0	0.0	0.0	2.0	7.0	16.0	23.0	112.0
Number of days 100° and over	12.0	10.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	5.0	10.0	42.0
Number of days 36° and under	0.0	0.0	0.0	0.0	1.0	4.0	6.0	4.0	0.0	0.0	0.0	0.0	15.0
Kalgoorlie—													
Temperature:													
Mean max., °F.	93.2	93.0	86.3	78.4	70.1	63.6	62.5	66.0	73.6	79.0	86.3	91.1	78.6
Mean min., °F.	64.2	64.4	61.3	55.2	48.9	44.6	42.9	43.9	48.2	52.7	58.3	62.3	53.9
Highest max., °F.	114.4	115.0	111.0	102.5	92.0	81.8	81.0	87.0	96.0	105.2	110.6	113.0	115.0
Lowest min., °F.	47.1	48.0	41.6	35.0	28.8	27.4	26.0	27.7	30.9	30.2	38.2	45.5	26.0
Number of days 90° and over	18.8	12.9	10.8	2.9	0.1	0.0	0.0	0.0	0.4	2.9	7.4	14.8	71.0
Number of days 100° and over	7.5	4.3	2.7	0.3	0.0	0.0	0.0	0.0	0.0	0.1	1.3	3.9	20.1
Number of days 36° and under	0.0	0.0	0.0	0.1	0.3	1.8	3.9	3.6	0.3	0.0	0.0	0.0	10.0
Rawlinna—													
Temperature:													
Mean max., °F.	90.0	89.8	84.4	78.0	71.2	65.3	64.2	67.3	74.4	79.0	84.4	88.8	78.1
Mean min., °F.	58.9	59.2	57.8	52.2	46.4	41.6	39.3	41.1	45.3	49.4	54.2	57.6	50.2
Highest max., °F.	118.0	115.5	112.0	104.0	95.0	88.3	85.0	92.0	102.7	107.0	112.2	114.3	118.0
Lowest min., °F.	42.0	41.0	42.9	35.0	32.0	29.2	27.8	26.2	31.6	33.2	36.4	41.2	26.2
Number of days 90° and over	14.8	10.8	10.3	2.8	0.5	0.0	0.0	0.0	1.7	3.6	7.9	13.3	65.7
Number of days 100° and over	6.8	3.5	3.2	0.2	0.0	0.0	0.0	0.0	0.1	0.8	2.5	5.7	22.8
Number of days 36° and under	0.0	0.0	0.0	0.0	1.2	3.5	5.3	4.4	0.8	0.2	0.0	0.0	15.4
Collie—													
Temperature:													
Mean max., °F.	86.4	85.7	80.4	74.3	65.9	61.3	59.8	61.0	64.8	68.8	77.2	83.0	72.4
Mean min., °F.	55.6	54.9	52.5	47.1	42.9	40.4	39.1	39.8	42.5	45.3	49.7	53.1	46.9
Highest max., °F.	112.0	110.2	105.4	98.0	86.8	76.0	73.0	79.0	86.6	97.4	101.8	106.2	112.0
Lowest min., °F.	37.7	35.2	32.3	29.6	28.0	24.8	25.0	26.2	28.0	31.0	32.6	35.0	24.8
Number of days 90° and over	13.0	11.3	8.0	1.2	0.0	0.0	0.0	0.0	0.0	0.3	2.1	5.7	41.6
Number of days 100° and over	2.2	1.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1	5.5
Number of days 36° and under	0.0	0.0	0.1	0.8	5.3	7.8	7.9	6.6	5.9	1.8	0.3	0.1	36.6
Manjimup—													
Temperature:													
Mean max., °F.	78.3	79.4	74.8	69.5	62.8	59.3	57.4	58.7	61.4	64.7	71.0	75.3	67.7
Mean min., °F.	53.7	54.0	53.0	50.5	46.5	44.5	42.5	43.0	43.7	46.2	49.3	51.8	48.2
Highest max., °F.	107.0	105.0	102.0	92.0	81.0	72.0	71.0	76.4	82.5	92.0	99.3	100.0	107.0
Lowest min., °F.	42.0	40.0	38.0	35.0	34.0	33.0	27.0	30.0	31.0	33.0	35.0	40.0	27.0
Number of days 90° and over	5.7	4.3	3.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.0	16.1
Number of days 100° and over	0.3	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
Number of days 36° and under	0.0	0.0	0.0	0.1	0.5	1.3	2.3	3.2	2.1	0.1	0.0	0.0	9.6
Pemberton—													
Temperature:													
Mean max., °F.	78.7	78.5	75.1	68.9	63.6	60.1	57.9	59.6	61.6	64.6	69.8	73.9	67.7
Mean min., °F.	55.4	56.1	54.8	51.3	48.4	46.8	44.4	44.2	44.9	46.6	49.8	52.9	49.6
Highest max., °F.	106.0	103.0	102.0	93.0	80.0	72.0	70.0	78.0	83.0	87.0	95.0	100.0	106.0
Lowest min., °F.	40.0	40.0	39.0	37.0	32.0	34.0	32.0	30.0	31.5	35.0	35.8	39.0	30.0
Number of days 90° and over	3.9	2.8	2.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.1	12.2
Number of days 100° and over	0.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Number of days 36° and under	0.0	0.0	0.0	0.0	0.2	0.7	1.3	1.6	0.9	0.2	0.0	0.0	4.9
Mt Barker—													
Temperature:													
Mean max., °F.	78.1	78.3	74.1	69.7	63.0	58.8	57.2	58.7	61.9	65.3	71.3	75.4	67.7
Mean min., °F.	54.1	54.3	53.4	50.5	46.8	44.1	42.0	42.4	44.0	45.9	49.3	52.2	48.3
Highest max., °F.	111.0	110.5	105.0	96.8	87.0	75.8	70.0	77.0	84.8	96.0	102.9	109.3	111.0
Lowest min., °F.	35.0	39.0	38.5	36.0	33.0	32.0	28.0	29.7	31.0	33.0	34.0	34.0	28.0
Number of days 90° and over	4.3	4.0	2.5	0.4	0.0	0.0	0.0	0.0	0.0	0.1	1.0	2.8	15.1
Number of days 100° and over	0.8	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	2.2
Number of days 36° and under	0.0	0.0	0.0	0.1	0.3	1.5	3.5	3.3	1.9	0.4	0.0	0.0	11.0

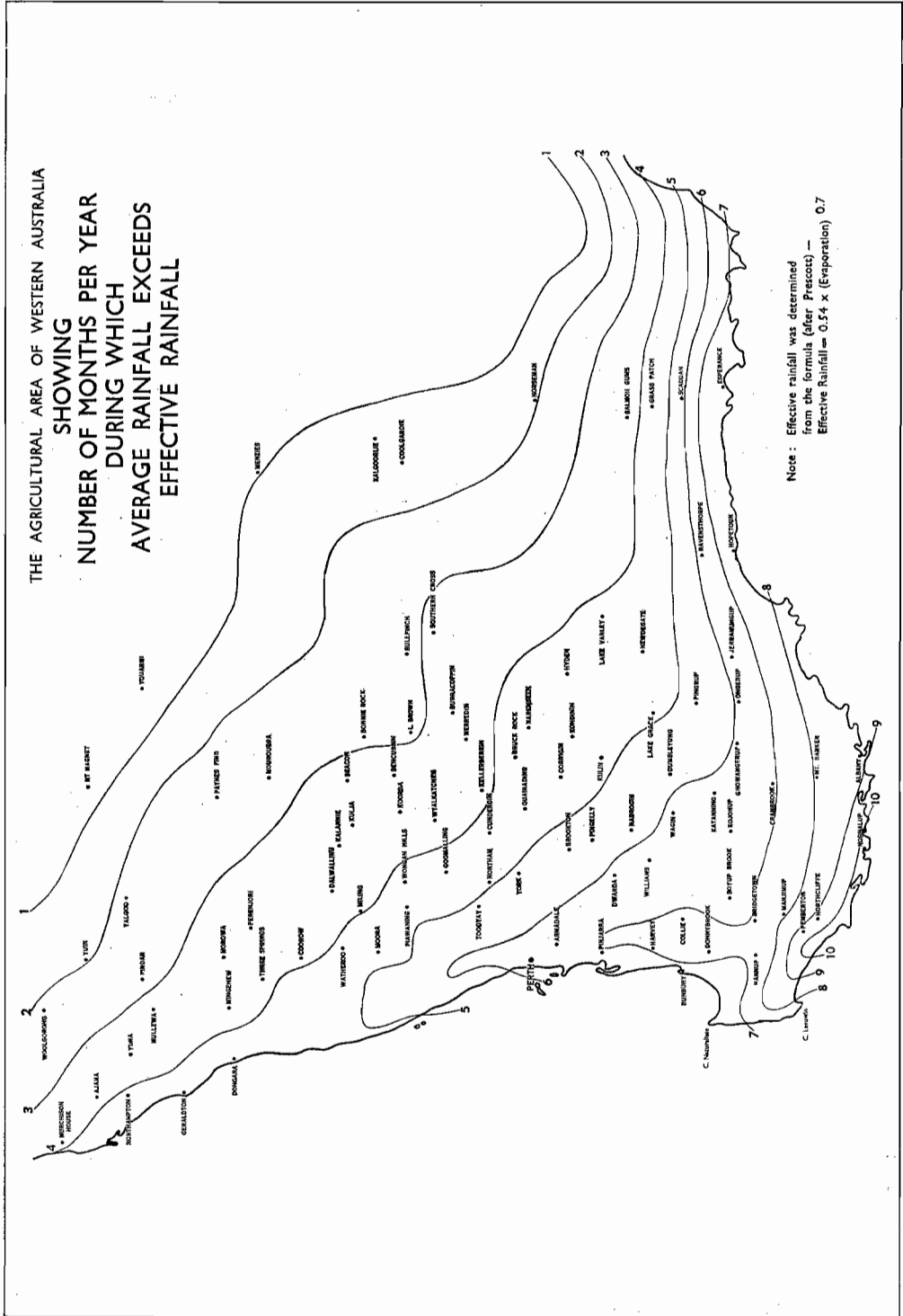
THUNDERSTORMS

Thunderstorms are most frequent along the Kimberley coast where they occur during the 'Wet' season but are practically unknown in the 'Dry'. In the remainder of the tropics they occur over roughly the same period but the season is a little shorter and the storms less frequent.

In most of the State south from the tropics thunderstorms are most frequent in the summer months but in the south-west they are more uniformly distributed and in many places in coastal districts they are most frequent in winter.

The winter storms are often accompanied by hail which, however, is usually not heavy enough to cause any damage. Hail accompanying summer storms can be much heavier, and occasionally damages ripening crops in the wheat belt. Both winter and summer thunderstorms may be accompanied by tornadic squalls, but these are infrequent.





EVAPORATION

Except in the lower south-west, evaporation from a free water surface exceeds the annual rainfall, and in a large proportion of the State it is more than ten times greater than the rainfall.

It is least in the winter months, amounting in July to less than one inch in the far south-west, and to about 8 inches in the northern tropics. In January, when evaporation is highest, it totals about 5 inches on the far south coast and reaches 14 inches in the East Gascoyne and North-Eastern Meteorological Districts. Further north, evaporation is reduced by the moister air over the tropics at this time of the year.

The map on page 41 shows total annual evaporation throughout the State.

GROWING SEASON

Less moisture is required to sustain plant life when evaporation is low than when it is high, and the minimum amount required can be related to evaporation from a free water surface.

That part of the year during which rainfall is greater than this minimum amount (the 'effective rainfall'), may be taken as the *growing season*. The map on page 42 shows the length of this season in the agricultural area of the State. It is based on average monthly rainfall and effective rainfall, the latter being calculated from the formula $P = 0.54 \times E^{0.7}$ (after Prescott), where P is effective rainfall and E is evaporation (both in inches per month).

SNOW

Snow has been known to fall as far north as Wongan Hills, but it is only in the southern districts that it occasionally lies on the ground. It is seen on top of the Stirling Range for a short time nearly every winter, but elsewhere is very infrequent and of negligible importance.

METROPOLITAN CLIMATE

Perth has more sunshine and a greater number of clear days during the year than any other State capital city. It also has the wettest winter, the driest summer, and is the windiest of the capital cities. Details of its climate are shown in the table on page 51.

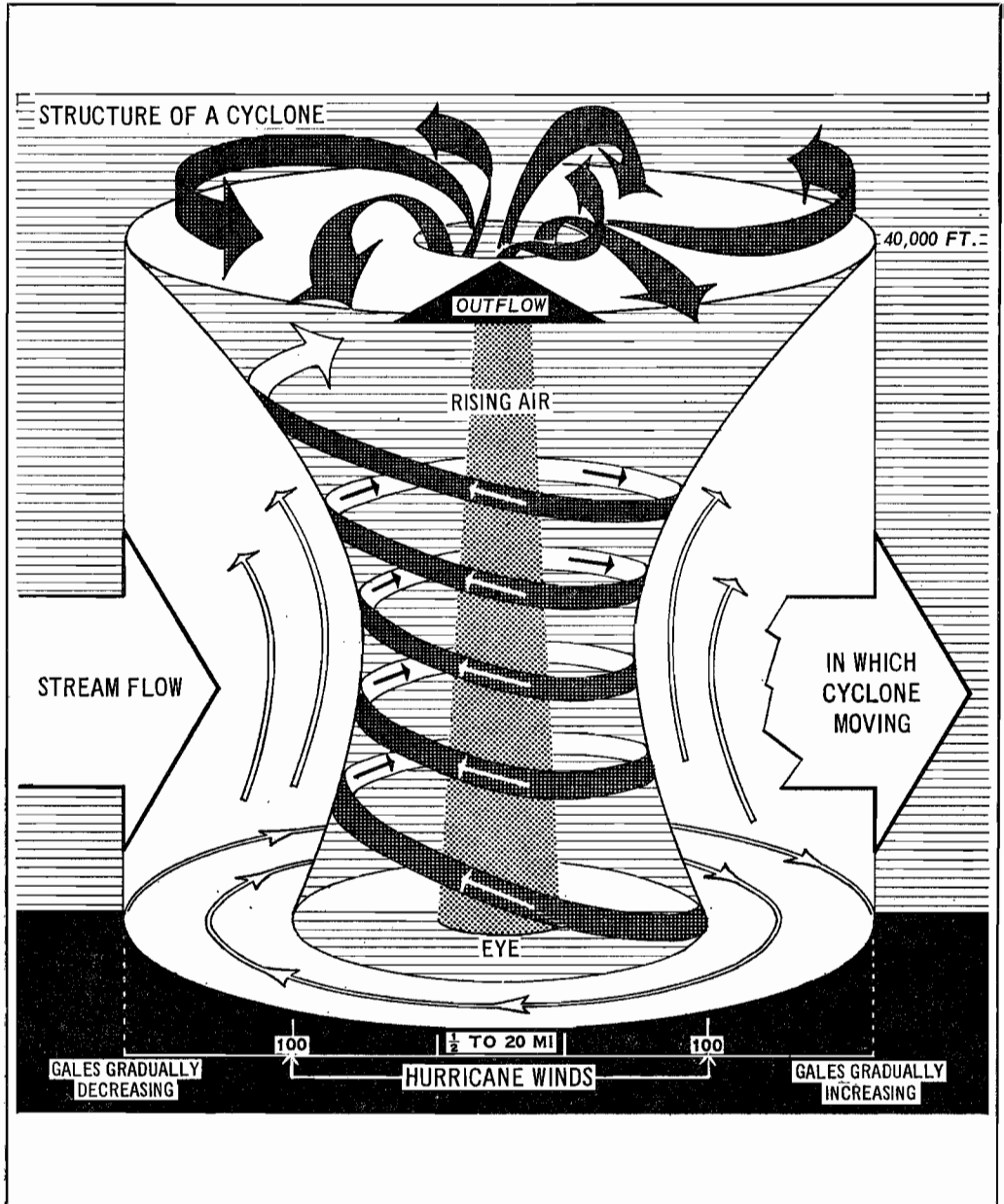
TROPICAL CYCLONES

One of the most devastating of natural phenomena is the low pressure system which develops in the tropical areas of the world, and is named the tropical cyclone from its circular form and area of genesis.

These systems occur in many places over the sea areas of the world, and are known by different names depending on the area in which they occur. In the West Indies they are called hurricanes from a word meaning 'big wind'. In the Western North Pacific the name typhoon is used which again is derived from words meaning 'strong wind'. Local names such as 'Baguio' in the Philippines or 'Willy Willy' (believed to be derived from a native word for water) in the north-west of Western Australia are also used.

By whatever name these systems are known, however, there is no essential difference between them as they occur in various parts of the world. All have the same characteristics, being approximately circular in shape with a small central area of calm or relatively light winds where the lowest pressures are recorded, in which cloud tends to decrease and may clear entirely. This central area is surrounded by a region of variable extent in which there is much cloud and rain and often, in the formative stage, considerable thunderstorm activity. The pressure gradient because of the extremely low central pressures is very steep and, away from the centre, winds of extreme speeds occur.

In the low levels of the atmosphere the wind in the Southern Hemisphere blows in a clockwise direction spiralling inwards to the centre. Over the oceans where unlimited moisture is available this gives rise to very rapid vertical motion of the air and development of a deep cloud structure, usually with heavy rain. The cloud form follows the inward spiralling of the wind as is clearly shown in the satellite photograph facing page 48, of a cyclone on 30 March 1966 about 400 miles north-west of Port Hedland. The structure of a cyclone is illustrated in the diagrammatic sketch below.



One of the areas in which these tropical cyclones occur is the Arafura and Timor Seas and the eastern part of the Indian Ocean. They are not limited to the waters immediately adjacent to the continent but may occur well out in the Indian Ocean and still affect Western Australia. The earliest record of cyclones in this region refers to one which occurred in April 1778 at Banda Island about 450 miles north of Darwin. The next was reported by the ship 'Abercrombie' in January 1812 about 500 miles north of Onslow. The settlement at Port Essington in the Northern Territory was wrecked by a cyclone in November 1839. Since that date the expansion of settlement in the north of the continent, the increased movement of ships in adjacent waters and better communications have resulted in a steadily increasing volume of records on these systems near Western Australia and over the ocean and to the westward.

Area of Formation. The cyclones form over the tropical oceans mainly within about 10° of the equator. Those affecting Western Australia may even develop as far west as the Cocos-Keeling Islands. Occasionally a system which has developed in the Coral Sea will cross the north of the continent and descend with renewed vigour on Western Australia. A large number of cyclones also form further westward in the Indian Ocean, but these will only affect Western Australia indirectly.

Extent. The size of tropical cyclones varies very considerably. Some are only about 50 miles in diameter while others may be 500 to 600 miles wide. Their vertical development also varies; in some it may not reach above 20,000 feet and in others it may be much deeper.

Frequency. The first record of a cyclone actually crossing the coast of Western Australia was in March 1839 when one occurred at Shark Bay but, due to the lack of settlement and any organised system of meteorological observations, it is likely that a number of cyclones which developed in the early years were never reported.

The incidence of these systems has steadily increased as settlement extended northward and as the population increased. The average number of cyclones per annum which cross the coast of Western Australia is slightly in excess of two but the number affecting this State exceeds three, since some remain over the sea for the whole of their lifetime.

Movement. Contrary to common belief cyclones follow no regular track. Because they usually move to the westward in tropical areas, and if they go far enough south will ultimately move to the eastward under the influence of westerly winds of the temperate zone, the idea has grown that these systems move in a parabolic path but such is not the case. Their movement is largely governed by conditions in the upper atmosphere and while some will recurve and move south-eastward very quickly, others never do so but continue the westward movement; on occasions they may even move in a complete circle in their track before continuing in the original direction. In February 1956 one such system moved south-west down the Timor Sea, crossing the coast near Broome, moved inland to the western border of the Northern Territory, then recurved moving north and west to cross the Kimberley Division and moved sea-ward again near Derby, finally following the coastline south-west and south, crossing into the Southern Ocean slightly south of Perth.

The most frequent track is one along which the cyclone, after first forming, moves south-westward from the Arafura or Timor Sea area, continuing this movement for a time but gradually changing direction until it moves south-east.

Cyclones have been known to originate in the Coral Sea, cross Cape York Peninsular into the Gulf of Carpentaria, move across the Northern Territory into the Indian Ocean and after following the Western Australian coastline, recurve south-eastward near Geraldton and cross the south-west of the State into the Southern Ocean.

As with direction, the speed and movement is very varied but it is of the order of 5 to 10 knots becoming much faster as the system moves out of the tropics.

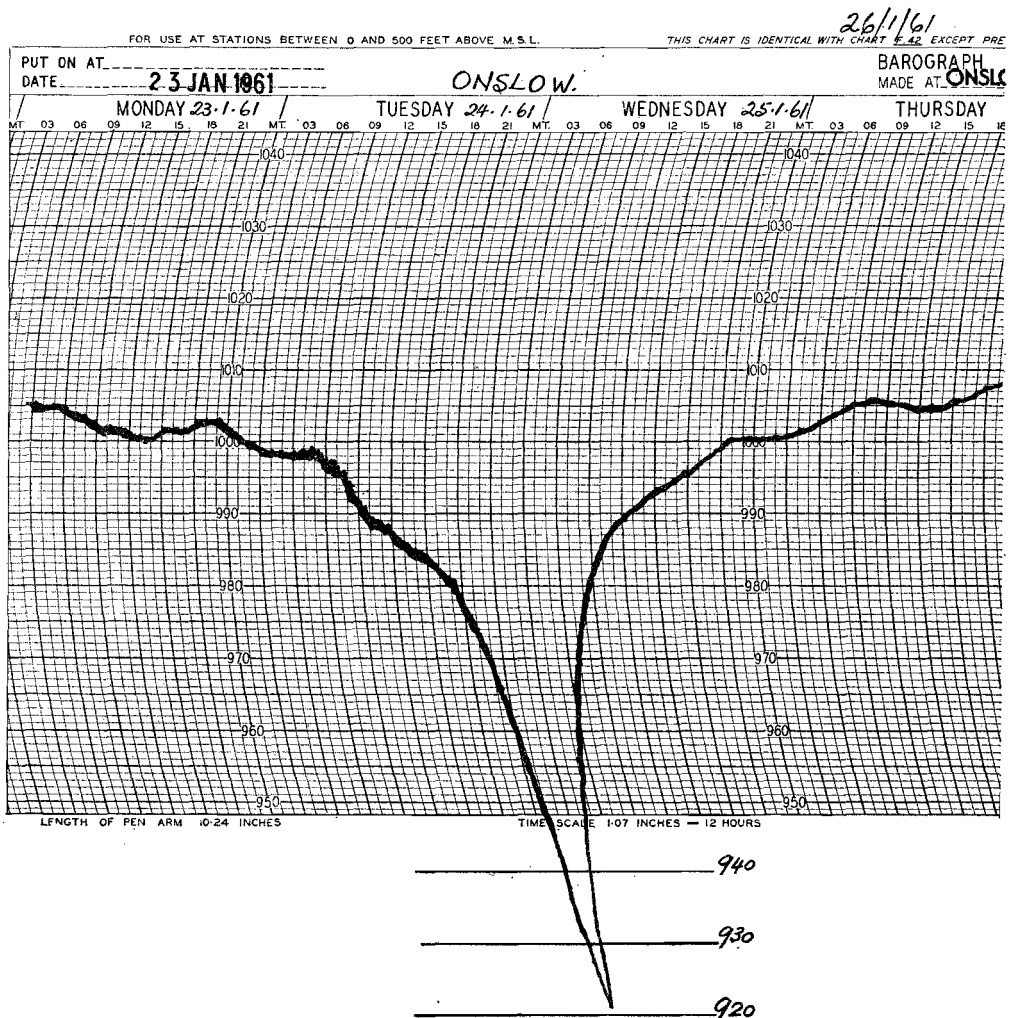
Time of Occurrence. Cyclones develop mainly in the months of January, February and March, and to a lesser degree in November, December and April. Only rarely do they occur outside these months near the continent and no authenticated storms are recorded in June, August or October. They do occur, however, over the ocean areas to the west of the continent and, if these are included, the month of June alone is cyclone free.

Pressures. Tropical cyclones originate in areas of relatively low pressure. As they develop, the air pressure decreases rapidly so that readings below 982 millibars (29.00 inches) are not unusual, while reports of 914 millibars (27.00 inches) are on record.

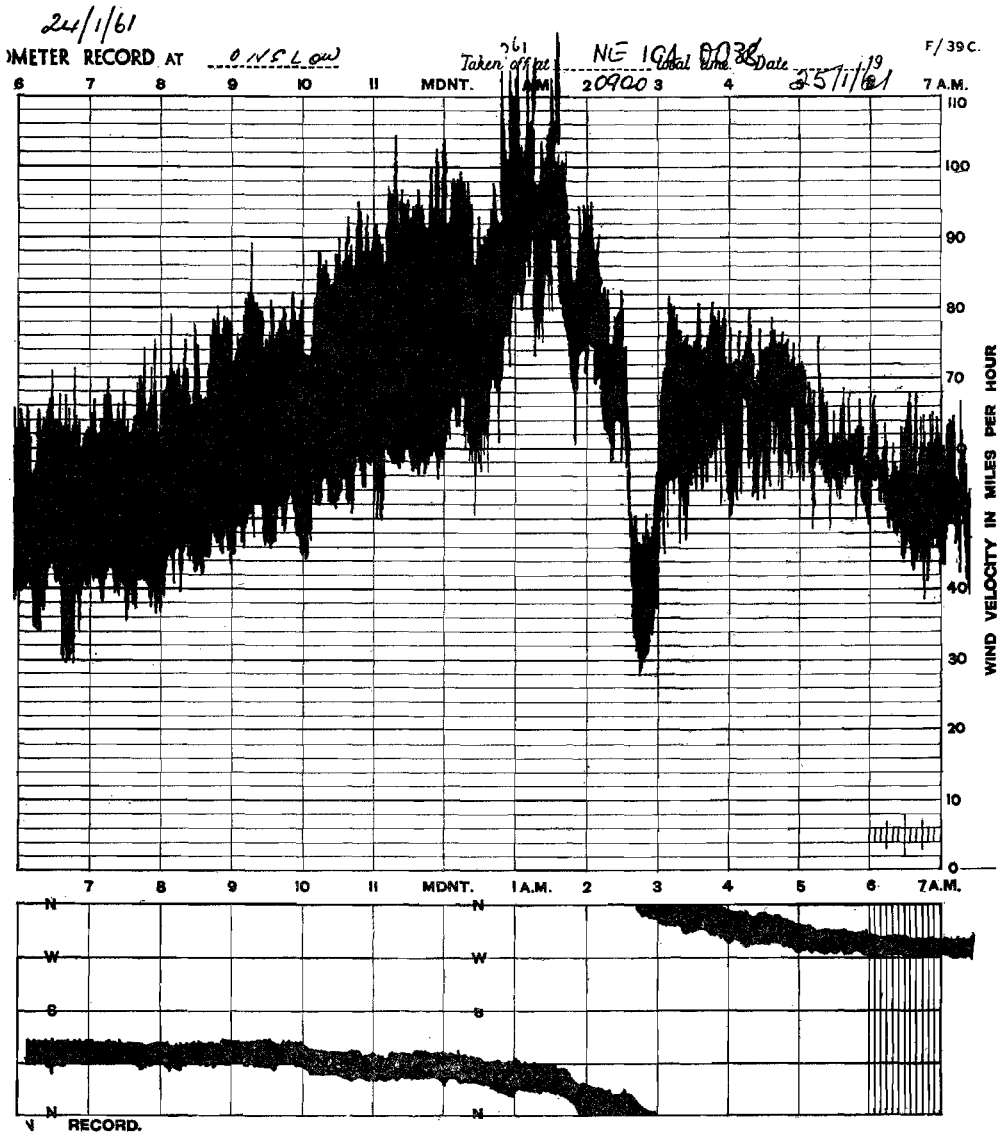
The pressure decreases as the storm advances and a sudden very rapid reduction to the lowest value occurs as the centre approaches and passes over the station, followed by an equally rapid rise after that passage.

The pressure fall is by no means a steady one throughout. Rhythmic oscillations, the causes of which are unknown, and violent fluctuations are frequently recorded.

The sudden reduction in pressure is strikingly illustrated in the following reproduction of portion of an actual barograph chart recorded at Onslow on the north-west coast in January 1961.



Winds. Normally the wind speed increases rapidly as the centre is approached, while the clockwise motion and inward spiralling cause rapid direction changes round the system. Strong winds may blow for several hours as the cyclone approaches or recedes from the station, and extreme gusts in excess of 120 knots may be experienced. The strongest gust yet measured on the north-west coast occurred at Onslow in February 1963 when 125 knots were recorded, and it is possible there were gusts of greater speed in that storm. Due to the sparse network of recording anemometers and the fact that none at all were installed before 1939, it is quite likely that this extreme gust has been exceeded at other places also. Winds of 90 to 100 knots are not uncommon.



Reproduction of portion of an actual anemometer chart recorded at Onslow in January 1961. The maximum wind speed shown corresponds with the reduction in pressure traced on the chart on the previous page.

The area of strongest winds is generally within about 30 miles of the centre and the highest speeds usually in the front left hand quadrant of the storm. As the centre or eye of the cyclone passes over a place there is a lull, and calm or nearly calm conditions prevail. After a short period, which may range from a few minutes to an hour or more, depending on the width of the eye and the forward speed of the cyclone, the wind suddenly strikes from the opposite direction with a speed nearly equal to that before the lull. It is this sudden onset of extreme wind which frequently causes great damage.

Gustiness is extreme, the variation between the maximum and minimum speeds being of the order of half the mean wind speed; thus with a mean wind of 100 knots, extremes can range between 75 knots and 125 knots or thereabouts.

The area of extreme winds is usually relatively small.

Eye of the Cyclone. This central portion of the cyclone has been remarked on by observers throughout the world since records were first available. It is the part of the system in which the pressure reaches its lowest value, where the wind lulls to calm or relatively light conditions, the rain ceases and the cloud decreases or wholly clears. The width of the eye is very variable; it may be very small, perhaps a mile or two in diameter in young or miniature systems, or perhaps 40 miles in mature ones.

The sudden decrease in wind and rain and the relative quiet in the centre is an awesome experience which has given rise to descriptions such as suffocating. But apart from the calm and the cessation of the rain there is little change in the temperature or humidity.

Sea Swell. Because of the extreme winds very high seas are built up; towards the centre of the cyclone these become quite confused as wave trains moving in different directions meet. Also, these seas which leave the area of generation and swell provide a precursor of the cyclone even at considerable distances from it.

In some parts of the world waves generated in cyclones have been reported up to 45 feet in height. On the Western Australian coast waves of 35 feet have been recorded on several occasions.

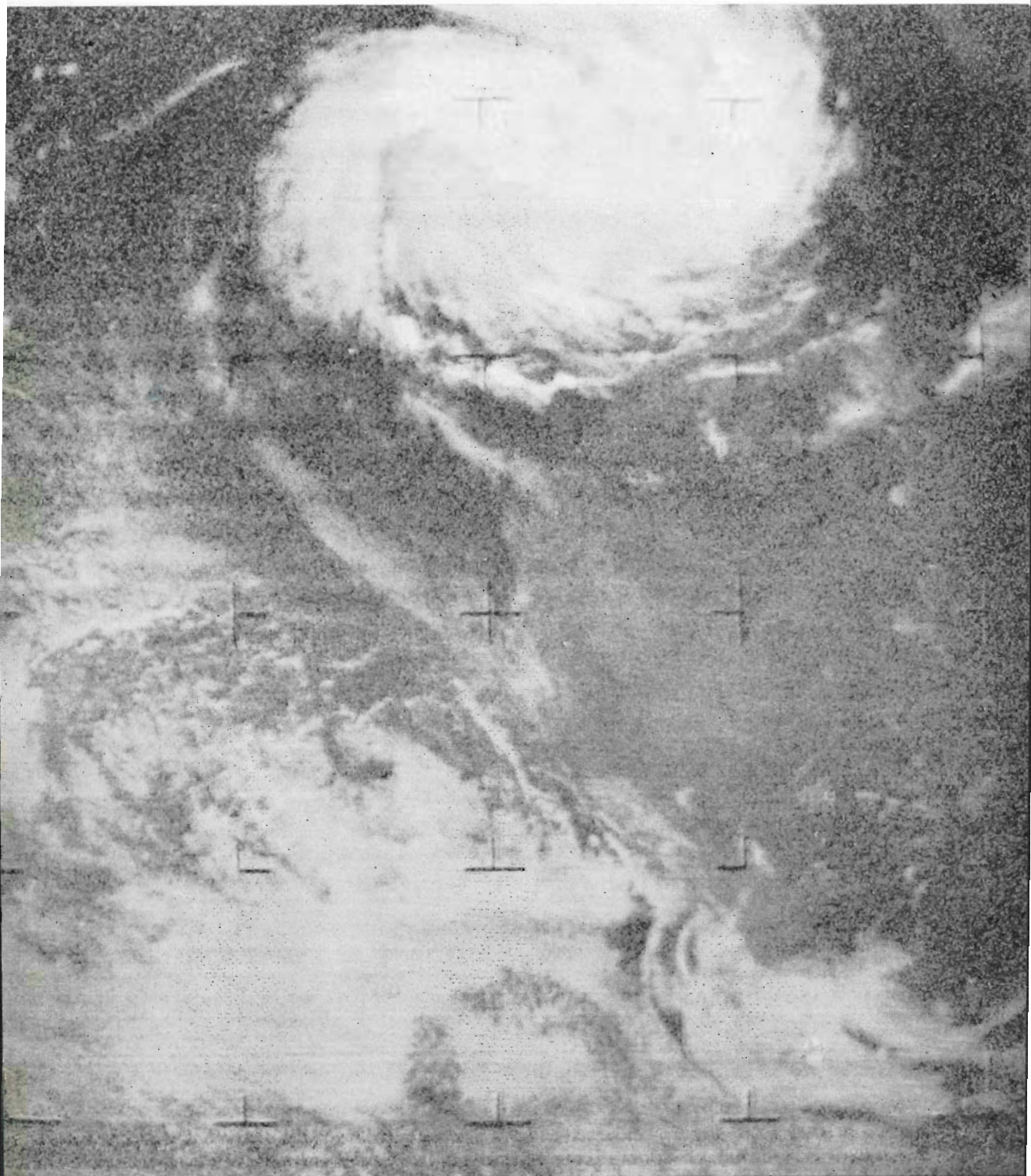
The interaction of the several wave trains in the cyclone moving in different directions near the centre of the system gives rise to the development of very confused and dangerous pyramidal seas.

Outside the actual area of the storm these wave trains travel away as a swell gradually decreasing in height. Thus they often provide indications of a cyclone which has developed undetected. Also, the direction from which the train is moving points to the area in which the waves were generated and hence the location at the time of generation of the cyclone. Finally, changes in direction of the swell will give a clue to the movement of the system.

Sea swells from these cyclones travel great distances. A cyclone in the vicinity of Mauritius caused a swell which reached Fremantle as waves of about two feet.

Storm Waves and Storm Tides. Because of the very low pressures, the sea surface in the area of influence of the cyclone will be higher than usual, while the strong winds blowing for long periods pile up water along the coastline when the direction and movement of the system favours it (that is, when a storm is approaching the coast). These increases in the water level are superimposed on the ordinary gravitational tides so that abnormally high tides may occur and flood extensive areas. These high tides have the further serious effect of allowing the ocean swells to move and break inland from the normal coastline.

More serious is the so-called 'storm wave', which is a sudden rise of the sea level generally near the centre of intense storms. As this happens so quickly that there is no possibility of escape, in some parts of the world whole towns have been inundated. Due to the difficulty of observations we are without any clear appreciation of this phenomenon and consequently the cause is unknown. It seems likely that it may result in some way from rapid pressure fall near the centre or the interaction of the wind and sea in that



CYCLONE 'SHIRLEY'

This photograph of Cyclone 'Shirley' was taken by the satellite ESSA 2 during its 386th orbit on 31 March 1966. The centre of the photograph is latitude $24^{\circ} 03' S.$ and longitude $113^{\circ} 02' E.$, while the centre of wind circulation is latitude $14^{\circ} S.$ and longitude $116^{\circ} E.$ The top of the photograph faces north.

region of the storm. These sea effects are most notable in areas where the water mass is surrounded, or partially so, by land, as a configuration of the coastline appears to intensify the effects. On the north-west coast of Western Australia only limited small areas are so enclosed and in many cases these are sheltered by off-shore reefs and islands; at the same time the cyclones are operating in the open sea and there is no restriction on the water movement. For these reasons incursions by the sea onto the north-west coast are rare; however, they can, and have, occurred. Thus in January 1939 Port Hedland was badly flooded and in March 1956, also at Port Hedland, a storm tide four feet above the normal tide was recorded when the cyclone was about 150 miles to seaward.

Life of a Cyclone. The life of these storms is by no means uniform. Some will develop rapidly and die just as fast; others mature slowly and can be identified for many days, while yet others may weaken and re-intensify in a passage over a long period. In 1956 one cyclone was tracked and retained its identity from 16 February to 4 March. Yet another in March-April 1923 was first identified in the Coral Sea east of New Guinea on 21 March, was tracked across Northern Australia, over the north-west coast and finally lost on 9 April in the Bight south of Eucla.

Rainfall. The rainfall in such storms is usually, but not always, widespread and heavy. Rain gauge measurements are at best only an approximation to the actual amount of rain which has fallen. This is due to the extreme wind which drives the rain drops horizontally so that they are moving almost parallel to the surface and therefore are not collected in the gauge; this effect results in a recorded fall less than the true amount.

While rain will occur near the outer edge of the cyclone, the heaviest falls are concentrated in the inner part near the eye where the pressure decrease is greatest. It follows that if the system moves slowly over a station and is in one place for some time, that area will be deluged; on the other hand if the storm is moving rapidly, falls will be lighter.

The rainfall is largely concentrated in the front of the storm and in the direction of motion. Outside that area the falls decrease in amount and tend to become less widespread. Even in the area of most intensive rainfall there is some variation in amounts from place to place and this becomes more marked as the outside edge is approached.

Many falls of 10 inches or more in 24 hours have been recorded in Western Australia. The greatest amount measured in one day occurred at Whim Creek on 3 April 1898, when 29.41 inches were received, and an amount of 36.49 inches in 48 hours. The rate of fall also varies and can be extremely high. Exact measurements are not available as few continuous recording instruments are installed and even these have only been operating in recent years. A report from Bulla Bulla on a storm in March 1900 stated that 3 inches fell in 25 minutes, and in the same storm 10.32 inches were recorded, most of which, it was claimed, fell in 10 hours.

Damage. While the periodic cyclone probably makes possible the pastoral industry in the north-west of this State because of the invaluable rains which are associated with them, they also do considerable damage.

The heavy seas generated and the associated winds are always a menace to ships at sea, many of which have been lost. Notable instances of these are firstly, the cyclone of 22 April 1887 when, on the Eighty Mile Beach near Wallal, twenty-two vessels were lost and 140 men drowned; and secondly, a few years later in December, 1893 when twenty men lost their lives and ten luggers foundered near Onslow. The worst disaster was the loss of the S.S. 'Koombana' which sank near Port Hedland on 21 March 1912 with seventy-four crew and seventy-six passengers. Great damage to port installations, such as occurred on 24 January 1961 when 700 feet of Onslow jetty was destroyed, is caused by the pounding of the heavy seas. This was a repetition of damage which had previously occurred in March 1953 and March 1935 at the same port. In 1925 the Point Samson jetty was destroyed and this loss was repeated on 31 December 1954. On the latter occasion the damage done was estimated at \$100,000. In addition to damage to installations, the seas may also cause changes in the coastline, eroding the beaches in places and building up shoals in others.

Structural or crop damage often results from the extreme winds in cyclones. It was estimated after a cyclone at Cockatoo Island in December 1960 that \$200,000 worth of damage was done, while after a visitation in Carnarvon in March 1963 the toll taken of the plantations was estimated at \$500,000.

Following the heavy rains which usually accompany the tropical cyclones, the inland rivers, which are for a large portion of the year dry, flood and become raging torrents while water spreads over wide areas of the countryside away from the river beds, extensively damaging roads and bridges. As the cyclone moves inland taking with it the heavy rain, such floods may extend to areas where they would not normally be expected; thus in January 1939 the cyclone which damaged Port Hedland caused extensive flooding and damage estimated at \$400,000 in Kalgoorlie.

INTERSTATE COMPARISONS

In general, humidity and rainfall are lower in Western Australia than in corresponding places in eastern Australia. The following table shows average rainfall, mean humidity and temperature for groups of reporting stations at approximately the same latitude. The stations have been selected in such a way that, in each pair, one is on the west coast and the other on the east coast or, where a pair relates to inland stations, each station is situated at about the same distance from the coast. The group appearing last in the table has been included to provide a comparison between observations at Albany, the most southerly town in Western Australia, and those at places elsewhere in Australia at about the same latitude. The height above mean sea-level is also given for each station.

INTERSTATE COMPARISONS—RAINFALL, HUMIDITY, TEMPERATURE

Reporting station	Height above mean sea-level	Average rainfall		Relative humidity (a)		Average daily mean temperature	
		May to October	November to April	May to October	November to April	May to October	November to April
	feet	inches	inches	%	%	°F.	°F.
Bunbury	17	29.96	5.01	77	70	57.0	67.5
Sydney, New South Wales	138	21.53	23.27	66	69	58.2	69.3
Perth	197	30.24	4.80	69	55	58.2	70.8
Newcastle, New South Wales	112	20.56	20.80	70	74	58.7	69.7
Kalgoorlie	1,247	5.16	4.53	58	48	58.0	74.5
Cobar, New South Wales	822	5.88	6.73	59	46	56.3	75.2
Geraldton	13	16.04	2.39	67	62	62.3	73.0
Brisbane, Queensland	137	12.01	28.08	66	69	63.3	74.7
Wiluna	1,700	3.21	6.59	50	35	60.4	80.9
Charleville, Queensland	965	6.19	11.78	55	46	61.1	79.5
Carnarvon	15	6.48	2.60	63	63	65.5	77.4
Bundaberg, Queensland	45	10.86	31.51	73	74	64.5	75.7
Mundiwindi	1,840	2.74	8.28	39	30	63.0	82.4
Longreach, Queensland	612	3.92	11.62	50	50	65.7	82.3
Onslow	14	4.45	4.88	55	56	69.3	82.9
Mackay, Queensland	35	11.49	51.67	78	80	66.8	77.7
Port Hedland	25	3.33	9.23	50	59	72.6	85.3
Townsville, Queensland	73	5.49	37.57	66	73	71.7	80.3
Derby	53	1.67	23.78	51	65	76.9	86.5
Innisfail, Queensland	22	35.88	103.27	85	85	69.7	78.1
Wyndham	23	1.13	25.51	43	59	80.9	88.0
Cooktown, Queensland	17	8.08	59.79	76	78	75.1	81.1
Albany	41	28.75	8.87	76	73	55.8	64.3
Adelaide, South Australia	140	14.42	6.67	64	45	56.5	69.6
Swan Hill, Victoria	230	7.88	5.21	70	54	53.4	69.8
Canberra, Australian Capital Territory	1,837	11.85	11.45	72	61	57.5	64.0

(a) Saturation = 100%.

CLIMATOLOGICAL DATA—PERTH OBSERVATORY
(For other data relating to Temperature and Rainfall see preceding tables)

Month	Wind				Temperature				Relative humidity (Saturation = 100%)		Sunshine	Cloud (proportion of sky covered)	Evaporation
	Prevailing direction		Speed		Highest in sun	Lowest terrestrial	Mean	At 3 p.m.	Mean daily amount	Mean of readings at 9 a.m., 3 p.m. and 9 p.m.	Mean amount		
	9 a.m.	3 p.m.	Average	High-est									
Number of years of observations	30 (a)		30 (a)	53	62	66	30 (a)		30 (a)	30 (a)	30 (a)		
January	E.	S.S.W.	m.p.h. 10·9	m.p.h. 50	°F. 177·3	date 22/1914	°F. 39·5	date 20/1925	% 53	% 43	hours 10·4	% 29	inches 10·37
February	E.N.E.	S.S.W.	10·7	54	173·7	4/1934	29·8	1/1913	52	43	9·8	31	8·63
March	E.	S.S.W.	10·1	70	167·0	19/1918	36·7	(b)	57	46	8·8	35	7·52
April	E.N.E.	S.S.W.	8·5	63	157·0	8/1916	30·8	26/1960	60	48	7·5	42	4·62
May	N.E.	W.S.W.	8·4	74	146·0	4/1925	25·0	31/1964	68	58	5·7	54	2·80
June	N.	N.W.	8·4	80	135·5	9/1914	25·9	27/1946	72	63	4·8	59	1·82
July	N.N.E.	W.	8·8	85	133·2	13/1915	25·1	30/1920	73	63	5·4	56	1·76
August	N.	W.N.W.	9·4	97	145·1	29/1921	26·6	18/1966	71	60	6·0	56	2·37
September	E.N.E.	S.S.W.	9·4	68	153·6	29/1916	27·2	(c)	64	57	7·2	49	3·44
October	S.E.	S.W.	10·0	65	161·2	19/1954	29·8	16/1931	64	54	8·1	48	5·38
November	E.	S.W.	10·7	63	167·0	30/1925	35·0	3/1947	57	47	9·6	39	7·65
December	E.	S.S.W.	11·0	64	168·8	11/1927	38·0	29/1957	54	46	10·4	32	9·69
Year—													
Average...	E.	S.S.W.	9·7	.....	.....	.....	.....	.....	62	52	7·8	44	.....
Extremes	.....	.....	.....	97	177·3	22/1/44	25·0	31/5/64	.....	.....	.....	.....	.....
Total	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	66·05

(a) Standard 30 years' normal (1911-1940). (b) Recorded on 8 March 1903 and 16 March 1967. (c) Recorded on 8 September 1952 and 6 September 1956.

Chapter II—continued

Part 3—The Vegetation of Western Australia

With Special Reference to Toxic Plants

*Contributed by R. D. Royce and T. E. H. Aplin
(Western Australian Herbarium, Department of Agriculture)*

The flora of Western Australia comprises over 6,500 Angiosperms, some fifty ferns and over four hundred marine algae, as well as many mosses, lichens and liverworts which have never been completely listed.

It is one of the most interesting floras of the world, due very largely to its high degree of endemism, *i.e.* the large number of species which are entirely restricted to the region. This is especially noticeable in the South-West Vegetation Province, which extends from Shark Bay at its northern extremity to Israelite Bay on the south coast and has an eastern boundary approximating closely to the 10 inch isohyet.

It has been estimated that the endemism of the South-West flora is as high as 75 per cent. When compared with island floras, this may not, of course, appear to be a very impressive total. The Hawaiian Islands for instance record an endemism of 90 per cent and more, but the number of species and the actual area of land involved are not very great. When considered as a portion of a continent, however, the figure for the South-West flora is a particularly high one and is possibly exceeded only by the Cape Province of South Africa and some areas of the South American continent.

Despite this high percentage of endemism among its species, and the consequent great interest centred around the Western Australian flora, it is not to be regarded as being completely different or highly individual when considered from the standpoint of its larger groups. At the generic level, the western flora is remarkably similar to that of eastern Australia, while the plant families in Australia as a whole are well represented in other countries.

Speaking of the Australian flora as a whole in his *Introduction to the Flora of Tasmania* (1859), J. D. Hooker states: 'It contains more genera and species peculiar to its own areas, and fewer plants belonging to other parts of the world, than any country of equal extent. About two-fifths of its genera, and upwards of seven-eighths of its species, are entirely confined to Australia. On the other hand, if, disregarding the peculiarities of the flora, I compare its elements with those of the floras of similarly situated large areas of land, or with that of the whole globe, I find that there is so great an agreement between these that it is impossible to regard the Australian vegetation in any other light than as forming a peculiar but not an aberrant or anomalous botanical province of the existing Vegetable Kingdom; that with only two small exceptions, the Australian families are also found in other countries; that most of those most widely diffused in Australia are such as are also the most widely distributed over the globe; and that Australia wants no known family of general vegetation. . . . Turning again to other countries which are remarkable for the peculiarity of their vegetation, I find that South America contains many more peculiar families than Australia, and South Africa about as many'.

In Western Australia there is only one truly endemic family, the Cephalotaceae, a family which consists of only one species, the Albany Pitcher Plant, *Cephalotus follicularis*. This remarkable plant, with leaves closely resembling those of the insect-trapping *Nepenthes* of tropical Asia, is found in sandy soils in and around low-lying swampy areas along the south coast as far east as Mount Manypeaks and extending northwards to the Blackwood and Margaret Rivers.

The other families in Western Australia are represented either in eastern Australia or in countries overseas. In a great many of these families, however, the degree of speciation is very much greater in the South-West than in other areas of their occurrence. This raises an interesting point connected with the origin of the State's flora, since this large number of species could have arisen under two very different circumstances. Either the ancestors of the present flora evolved on the ancient land mass of the south and, after centuries of intense speciation, gradually spread into other countries thus developing their present distribution patterns or, on the other hand, the ancestral plants may have originated outside of the present Australian continent, and the development of species may then have followed the migration of primitive forms into Australia where conditions were suited to a vigorous speciation. The large number of species in individual families may therefore denote either an ancient and truly ancestral group, or it may indicate a very successful but younger migrant family.

VEGETATION PROVINCES

It has been said that of all the factors which determine and control the vegetation of the earth, the climatic factor is the most important, and rainfall and temperature are the most important of the climatic elements. In Western Australia there are three distinct climatic regions. These are the tropical north with a short hot rainy period, the temperate south with a rainy period occurring in the coldest months, and the arid interior which has no regular rainfall pattern. The flora is remarkably different within these three areas which for this reason have been used as natural divisions of the flora. Diels referred to them as the Northern, the South-West and the Eremean Provinces. A map showing the boundaries of the three Provinces appeared in the *Western Australian Year Book*, No. 7—1968 and earlier issues.

The description of the climatic and vegetative characteristics of these Provinces and their Formations contained in the following sections is by C. A. Gardner, formerly Government Botanist of Western Australia.

Climatic Characteristics

The *Northern Province* extends over the Kimberley Division to some few miles southward from the Fitzroy River, thence contracting into a narrow coastal isthmus in the vicinity of the Eighty Mile Beach, and expanding southward to include the De Grey River and the greater part of the Fortescue system. It is the area which, lying north of the Tropic of Capricorn, receives its rain entirely in the summer months, with a seasonal rainfall during the four wettest months ranging from about seven inches in its southern portions to over forty inches in parts of the Kimberley Division, and has an annual mean maximum temperature of 90° F. or over, although during the growing season temperatures may be even higher. The season from the commencement of April until the end of October is relatively rainless.

The *South-West Province* extends from the southern end of Shark Bay in the north to Israelite Bay in the south. On the west and southern sides it is bounded by the ocean, while its inland boundary passes close to Mullewa, Morawa, Koorda, Bencubbin, Burracoppin, Hyden, Ravensthorpe and Grass Patch. It is pre-eminently the winter rainfall province which receives its maximum rainfall from May to August inclusive and, with the exception of the southern portion, experiences a seasonal drought extending from November to March or April. The average maximum temperature is less than 80° F. with much lower temperatures during the growing season.

The *Eremean Province* lies between the Northern and the South-West Provinces, and occupies approximately two-thirds of the total area of the State of Western Australia. It is intermediate in character between the other two; its rainfall is received either from extensions of summer rainfall southward (and this makes up the greater portion, especially such rainfall as is received from tropical hurricanes during the late summer months), or in the south from extensions of the winter systems, while rarely a general rainfall may occur throughout.

Vegetative Characteristics

The *Northern Province* is essentially the savannah-steppe Province in that a herbaceous ground-covering mainly composed of grasses occurs. This varies from the rich grasslands of the Kimberley to the harsh spinifex 'steppe' of the country southward from the Fitzroy, broken only by the alluvial grassland plains of the De Grey and Fortescue districts, especially the Roebourne Plains. Scrubland as such is unknown, except to a very limited extent in the rough sandstone range country of north-west Kimberley. Forests as such do not occur and Mulga too is absent. Floristically the Province is characterised by the part played by the 'Indo-Melanesian Element' in its constitution. In places this element may predominate to the extent that amongst the trees *Eucalyptus* plays a secondary role, and deciduous trees are prominent. The grotesque Baobab is common, together with various soft-wooded trees, while the herbaceous growth is rich in members of the *Hibiscus* family and several others. With the exception of the river bank and swamp formations, most herbaceous growth is either dead or resting during the winter months.

The *South-West Province*, on the other hand, is characterised by a total absence of the Indo-Melanesian influence, and its flora bears a distinct southern or 'Antarctic' impress. Trees and shrubs predominate with a marked diminution of grasses, and there is no true grassland. The herbaceous species are of winter growth, and the plants remain dormant during the dry summer months, especially the species of *Acacia* and Casuarinaceae. The Proteaceae, which assume a minor role in the North, here hold sway, as do the Myrtaceae and Leguminosae. The principal formations are forest woodland and scrubland, with extensive tracts of sand heath. Mulga and spinifex are absent and the various salt bushes either exist as inhabitants of the physiologically dry salt pans, or occur only marginally. There is a distinctive plant architecture among the woody plants in which the effect of the dry season is apparent.

The *Eremean Province* is again intermediate. Floristically it is characterised by the 'Australian Element', recruited from northern and southern influences, and those hardy species which have arisen in response to an adverse environment. Notably there is an increase in the spacing of plants due to root competition between neighbours. The result is a series of 'open formations'; Mulga bush, consisting of leafless species of *Acacia* with resinous or stiff leaf-like phyllodes; a predominance among the shrubs of species of *Acacia*, *Cassia* and the attractive species of *Eremophila*, notable for the size and colour of their blossoms. The Northern influence is expressed most strongly by the Spinifex (*Triodia*) which is the dominant tussocky grass of the lighter and stony soils, while the Mulga occupies the more closely-grained soils, the true mulga (*Acacia aneura*) being restricted to hard-pan soils. The Southern Element is most strongly asserted in the loose red sand and around granite rocks, the former carrying those sand-loving species for which the South-West is famous (even the Blackboy extends into the heart of the Eremea) while the species of the granite rocks owe their existence to an improvement in the water content of the soil in addition to the shelter and shade provided by declivities. In the northern portions of the Province we find, where watercourses provide permanent pools and moister conditions than elsewhere, an intrusion of the Northern Element, especially in the grasses and the herbaceous flora generally. Savannah and steppe occur in the north, Mulga and spinifex steppe occupy the middle areas, while in the south we have woodland formations, with some degree of heath development. The salt soils carry distinctive associations of salt-tolerant plants in which salt bushes are predominant, and this same formation occurs on the limestone soils of the Nullarbor Plain. Forests are absent.

VEGETATION FORMATIONS

Within the three large Vegetation Provinces plant species are grouped into associations which are basically dependent on soil type. The soil, within the limits of each rainfall zone, governs the amount of water available to the plants and influences the habit and character of the plant cover. Thus there are Forest Formations, Woodland Formations, Shrub Formations and many others.

The Forest Formations of the South-West

The Jarrah Forest. The most important of the forest formations of the South-West is that dominated by the Jarrah (*Eucalyptus marginata*), which reaches its greatest development in the lateritic soils from the Darling Scarp eastward to the 20 inch isohyet, although it does occur also on the sandy coastal soils. Within the forest area Jarrah forms an almost pure stand, but along watercourses Blackbutt (*Eucalyptus patens*) is common, while Marri (*Eucalyptus calophylla*) is almost always present where sandy soils occur. In the richer soils of the valleys, Wandoo (*Eucalyptus redunca* var. *elata*) and Powder Bark Wandoo (*Eucalyptus accedens*) commonly occur, the latter being usually associated with granite outcrops. The understorey of the Jarrah forest consists principally of *Banksia* and the related *Persoonia*, *Hakea* and *Dryandra*, together with the Christmas Tree (*Nuytsia floribunda*), Sheoak (*Casuarina fraseriana*), Blackboy (*Xanthorrhoea preissii*) and *Zamia* (*Macrozamia riedlei*) in varying associations.

The Karri Forest. To the south of the Jarrah forest, in an area where the rainfall is heavier and more evenly distributed throughout the year, the Karri (*Eucalyptus diversicolor*) forms almost pure stands in certain light types of soil, mainly on the hillsides. Associated with it in the valleys is Bullich (*Eucalyptus megacarpa*), a tree which closely resembles Karri, while Jarrah and Marri occur where there are gravelly or sandy soils. The understorey consists of the Karri Sheoak (*Casuarina decussata*), Peppermint (*Agonis flexuosa*), Warren River Cedar (*Agonis juniperina*), Bull *Banksia* (*Banksia grandis*) and River *Banksia* (*Banksia verticillata*). The shrubby components are Karri Wattle (*Acacia pentadenia*) and Hazel (*Trymalium spathulatum*) with *Hovea*, *Crowea* and *Boronia* providing masses of colour in the flowering season.

The Tingle Forest. Around the lower reaches of the Frankland River, the Karri trees are largely replaced by Red Tingle (*Eucalyptus jacksonii*) occurring mainly on the slopes and tops of hills, and Yellow Tingle (*Eucalyptus guilfoylei*) found mainly in the valleys and low situations generally. The associated vegetation is almost identical with that of the Karri forest.

The Wandoo Forest. There are few large areas of true Wandoo forest in the South-West, although the tree is widely distributed in the country to the north and east of the Jarrah belt. Where the Wandoo penetrates into the Jarrah forest it is associated with an understorey which, though closely resembling that of the Jarrah forest, lacks *Persoonia*, Sheoak and Christmas Tree. In the more open stands to the east, however, it is associated with a much reduced shrubby undergrowth, and frequently with Jam (*Acacia acuminata*). Within the Wandoo forest, the Mallet species *Eucalyptus astringens* and *E. gardneri* form dense associations on stony hillsides, while in the southern portion of the forest the Swamp Yate (*Eucalyptus occidentalis*) occurs freely on the low-lying country.

The Tuart Forest. The Tuart (*Eucalyptus gomphocephala*) occurs in a typical forest formation between Ludlow and Busselton where it is associated with Peppermint, species of *Banksia* and a large number of herbaceous species. The formation extends northward as far as the Hill River and throughout its occurrence is restricted to limestone soils. To the north of Ludlow the forest gradually merges into a sparse woodland formation with an abundance of shrubby undergrowth and relatively few herbaceous species.

Woodland Formations

The Woodland formations differ from the forests of the South-West in being less uniform. Whereas the forest is invariably dominated by a single species, the woodland on the other hand consists of a series of co-dominant species which occupy relatively small areas in the intricate pattern which makes up the mozaic of the Woodland formation. The principal trees are the Salmon Gum (*Eucalyptus salmonophloia*), Gimlet (*Eucalyptus salubris*), Morrel (*Eucalyptus oleosa* var. *longicornis*) and Yorrel (*Eucalyptus gracilis*). Many other species are locally dominant and the undergrowth consists of species of *Acacia*, *Grevillea*, *Hakea* and mallee forms of *Eucalyptus*. This formation is chiefly South-Western, but it extends also into the Eremean Province where, although the tree species remain fairly constant, the undergrowth changes in character with an increasing number of the species of Poverty Bush (*Eremophila*), Saltbushes (*Atriplex*) and Bluebushes (*Kochia*).

Shrub Formations

The Mallee Eucalypts. The mallee form of *Eucalyptus* is found in many districts from the west coast to the South Australian border, and it is absent only from the forest areas of the South-West. Mallee thickets reach their greatest development in the alluvial soils, but they occur in almost any type of soil. In the lighter soils they frequently occur in association with other shrubs, particularly tea tree which at times actually dominates in a sandy habitat.

The Mulga Bush. The Mulga bush occupies a large part of the Ereman Province. This formation extends almost without interruption from the west coast between Onslow and the Wooramel River eastward as far as New South Wales and, although its species may change, it maintains its character and identity throughout. The species of *Acacia* referred to as Mulga have a greyish resinous foliage and it is the dominance of these species, more than anything else, which gives the Mulga bush its character. Component shrubs are rather widely spaced. Another characteristic of the formation is its differential response to rain, a winter precipitation producing an immediate germination of vast numbers of annual and perennial herbs and shrubs, while summer rains promote a vigorous growth of grasses.

The Sand Heath. It is in the sand heath formation that the flora of the State displays the greatest number and diversity of its species, as well as the greatest development of colourful and interesting endemic forms. The most extensive sandplains are found at the northern and eastern extremities of the South-West Province, between Northampton and the Murchison River and from Ravensthorpe to Israelite Bay. They occur also on the eastern fringes of the South-West Province, and in the Ereman Province where important areas occur at Comet Vale and to the east and south of Southern Cross.

Savannah and Steppe Formations

Except for a weak development in Jam and York Gum (*Eucalyptus loxophleba*) country in the South-West, savannah and steppe formations are restricted to the Northern and Ereman Provinces where there are the necessary climatic conditions of summer rains alternating with a dry cool winter. On river flats the dominant species is the Coolabah (*Eucalyptus microtheca*) with a grass element consisting of species of *Sorghum* and Citronella Grass (*Cymbopogon* spp.). In the sandier soils Spinifex (*Triodia* spp.) is the dominant grass, while the tree layer consists of a number of bloodwoods and the Micum tree (*Eucalyptus brevifolia*). On the basalt soils the Grey Box (*Eucalyptus tectifica*) is associated with certain cabbage gums and Kangaroo grass (*Themeda australis*). An interesting type of open savannah occurs in coastal country between the De Grey and Fitzroy Rivers and is referred to as Pindan. In this formation, several species of *Acacia* are associated with a large number of grasses both annual and perennial although in recent years the introduced Buffel Grass (*Cenchrus ciliaris*) is dominating the grass cover.

Southward from the Fitzroy River is the large area of Spinifex steppe dominated by *Triodia*, where very few trees occur. The shrubs are mainly species of *Acacia* and *Cassia*. This formation gradually merges into the more open desert country of the interior, an area which is only now becoming known botanically.

THE POISONOUS PLANTS OF WESTERN AUSTRALIA

The flora of Western Australia is world famous because it includes some of the most spectacular and most bizarre wildflowers in the world, but it is also noteworthy because of the large number of species which contain a toxic principle. Each year these plants take a heavy toll of livestock both in the agricultural and pastoral regions, and are therefore of considerable economic significance to farmers, graziers and pastoralists.

While the botanical history of Western Australia may be said to have commenced in 1699 with the second voyage of William Dampier, the history of poisonous plants, as far as the white man is concerned, goes back to 1676 when Commander Willem de Vlaming reported cases of human poisoning attributed to the seeds of the zamia palm, *Macrozamia*

riedlei (Gaud.) C. A. Gardn. Poisoning of cattle through the consumption of zamia palm leaves was first reported in 1894. Affected animals show locomotory disturbance and a progressive paralysis of the hind limbs. The same type of 'neurological disorder' has been reproduced in sheep and goats fed leaves of members of the cycad family.

Within a few years of the settlement of the Swan River Colony, settlers began experiencing considerable stock losses, particularly in travelling animals. Suspicion was thrown on a member of the Papilionaceae, the pea-flower family. Feeding trials conducted in 1839 and 1841 incriminated what was almost certainly York Road Poison (*Gastrolobium calycinum* Benth.) and Champion Bay Poison (*G. oxylobioides* Benth.), respectively. Not long after that, Box Poison (*Oxylobium parviflorum* Benth.) was also shown to be toxic. Both genera belong to the tribe *Podalyriae* of the Papilionaceae, and may be distinguished from each other by the number of ovules present in the ovary. In *Gastrolobium* this is consistently two, whereas in the genus *Oxylobium* the number can vary from four to eight. The genus *Gastrolobium* includes some twenty-seven toxic species. Twenty-five of these are present in the South-West Province with four species extending their range of distribution into the Eremean Province. The remaining species, found in both the Eremean and the Northern Provinces is the only species of this group to extend its range beyond the boundary of Western Australia, through the Northern Territory into Queensland. The genus *Oxylobium* includes seven toxic species. Six are present in the South-West Province with three of these extending their range of distribution into the Eremean Province. The remaining species is restricted to the Eremean Province. The toxic principle, monofluoroacetic acid, has been shown to be present in the majority of toxic species of both genera which have been chemically tested to date. This substance is better known as its sodium salt '1080' which is used in vermin control. This toxic substance is responsible for the symptoms and post mortem appearances displayed by affected animals. Two classes of signs, in varying degrees, are shown by different animals. The first of these is associated with the central nervous system, the second with the cardio-respiratory system. The quantity of monofluoroacetic acid present in toxic species of the genera *Gastrolobium* and *Oxylobium* has been shown to vary considerably. The lethal dose for an adult sheep, of plants that are highly toxic, such as Heart Leaved Poison (*G. bilobum* R. Br.) and Box Poison (*O. parviflorum* Benth.) is less than an ounce of fresh leaf material.

The genus *Isotropis*, another member of the tribe *Podalyriae* of the pea-flower family, includes ten or eleven species, all restricted to Australia. Six species are present in Western Australia. Five of these are found in the Eremean Province, although two of these are also seen in the South-West, while a further species, found also in the Northern Province, is seen over a large area of Australia, in the Northern Territory, South Australia, New South Wales and Queensland. The remaining species is found exclusively in the South-West Province. The toxic principle present in *Isotropis* has not been identified. The main effects are exerted on the liver and kidneys, although gastro-intestinal and cardio-vascular lesions are also considered to contribute to acute deaths of livestock.

The genus *Crotalaria* which belongs to the tribe *Genistae* of the pea-flower family includes over five hundred species. Seventeen species have been recorded for Western Australia. All but one of these, which extends its range of distribution into the Eremean Province, are restricted to the Northern Province. Both *C. retusa* L. and *C. crispata* (F. Muell.) Benth. have been shown to cause Kimberley horse disease or 'walkabout' disease. *C. novae-hollandiae* DC. and *C. verrucosa* L. have been suspected of being toxic, while *C. trifoliastrum* Willd. has been associated with lesions of the liver, lung and urinary bladder. Other species of *Crotalaria* have been associated with stock losses elsewhere. The toxic principle contained in poisonous species of the genus *Crotalaria* are pyrrolizidine alkaloids. The action of these compounds is most marked on the liver, the damage being apparently irreversible and cumulative. Horses affected by these plants walk aimlessly, and suffer from disturbed consciousness, hence the term 'walkabout' disease. Pyrrolizidine alkaloids are also present in the family Compositae, e.g. in *Senecio*, and in the family Boraginaceae, e.g. in *Heliotropium*.

The discovery that certain central American species of the Convolvulaceae or morning glory family contained hallucinogenic compounds prompted a search for these substances in *Ipomoea muelleri* Benth. which had for some time been suspected of causing heavy stock losses in parts of the pastoral region of Western Australia. Extracts of seeds run on thin layer chromatographic plates produced spots identical to those attributed to D-lysergic acid amide and D-isolysergic acid amide. The presence of these compounds was considered to have caused the striking behavioural and locomotory changes observed in sheep affected by *I. muelleri* poisoning. The genus *Ipomoea* contains some five hundred species, and nineteen of these are present in the Northern and Eremean Provinces of Western Australia.

Hallucinogenic compounds are also contained in species of the genus *Phalaris*, a member of the Gramineae or grass family. These compounds, are regarded as being responsible for the condition known as 'phalaris staggers'. *P. tuberosa* L. and other species of *Phalaris*, which originate from the Mediterranean Region, have been introduced, deliberately or by accident, for use as pasture grasses.

There are a number of poisonous plants in which further work on the nature of the toxic principle needs to be done. Some plants that need to be more fully understood in this regard are the species of *Isotropis*, the lamb poison; *Swainsona* spp., native vetches; *Tephrosia rosea* F. Muell., Flinders River poison; *T. purpurea* Pers.; *Stypandra imbricata* R.Br. and *S. grandiflora* Lindl., the blind grasses; *Atalaya hemiglauca* F. Muell., white-wood; *Indigofera enneaphylla* L., Birdsville indigo; and *Trema aspera* Blume, peach-leaf poison bush.

In Western Australia there are a large number of cyanogenetic plants, *i.e.* plants which, when eaten by stock, are capable of releasing hydrocyanic acid (HCN) or prussic acid. There are also several species which, although they have not been shown to contain HCN, produce poisoning syndromes which suggest HCN or cyanide poisoning. The more important cyanogenetic or cyanogenetic-like plants found in Western Australia are the several species of goosefoot (*Chenopodium* spp.), native fuchsia (*Eremophila maculata* F. Muell.), a number of native spurges (*Euphorbia* spp.), the popflowers (*Loudonia* spp.) and several grasses and sedges.

The prussic acid in cyanogenetic plants is bound to sugar molecules to form cyanogenetic glycosides. When acted upon by an enzyme these glycosides release the HCN molecule which then produces the manifestations observed in animals affected by cyanide poisoning. HCN poisoning is usually associated with plants recovering from setbacks brought about by frosts, drought and fire. Young plants are more highly toxic than mature plants.

The toxic principle in other poisonous plants may consist of alkaloids, bitter principles, coumarins, essential oils, photosensitising compounds, inorganic compounds, oxalates, phenols, saponins or toxalbumins. Some of the more important families which include toxic plants with these types of poison are Apocynaceae, Leguminosae, Solanaceae, Compositae, Chenopodiaceae and Polygonaceae. The lower plants such as the algae and the fungi contain species that are poisonous to humans and livestock. The toxic blue-green alga, *Anacystis cyanea* (Kuetz.) Dr. and Dail., has been suspected of causing sheep and water fowl mortalities in Western Australia. The toxicity of several collections of this alga has been established. The toxic principle is capable of causing very rapid death. The toadstool genus *Amanita* is represented in Western Australia by several species. It is also probable that certain hallucinatory toadstools, *e.g.* *Psilocybe* are also present. The death of birds due to *Aspergillus flavus* Link. in peanut meal, has been reported. The contaminated peanut meal, however, originated from outside Western Australia. 'Facial eczema', a photosensitising disease, caused by the fungus *Pithomyces charatum* (Berk. and Curt.) M. B. Ellis has been reported in Western Australia. The toxic principle causes liver and bile duct damage which impedes normal excretion and this causes the photosensitisation. *Claviceps paspali* Stev. and Hall, which forms ergots in the seed heads of *Paspalum dilatatum* Poir., paspalum, has been reported to cause ergotism or 'staggers' in livestock. *Helminthosporium biseptatum* Sacc. and Roum., found on *Romulea rosea* (L.) Eckl., has been reported elsewhere to produce infertility. *R. rosea* is a common

weed and it is probable that this pathogen is present in Western Australia. A serious disease which occurs in Western Australia and is known as 'lupinosis' is considered to be caused by a toxic fungus. Studies aimed at the isolation and identification of the causal agent are proceeding.

Infertility in ewes arising through the consumption of pastures of *Trifolium subterraneum* L., subterranean clover, continues to be an important problem in the agricultural regions of Western Australia. Considerable emphasis has been placed on the selection and development of less toxic strains of subterranean clover, low in oestrogenic potency, to overcome this very important problem.

Studies on the incrimination of poisonous plants, together with their effects on livestock, the identification of their toxic principles, and the establishment of methods of overcoming problems associated with them, are continually being carried out. Plants of potential value as sources of therapeutic drugs are also being investigated. There is, at the present time, a renewed interest in the search for drugs occurring naturally as plant products. The search for these plants in Western Australia has only recently been commenced and there appears to be tremendous scope for research in this field.

CONSERVATION OF THE FLORA

Agricultural expansion in Western Australia since the end of the second World War has been considerable. With increased knowledge of trace elements in relation to plant nutrition, large areas of formerly unused land have been opened up for farming and, since this is of great significance in the economy of the State, it is likely that a steady increase in the use of land, particularly for agriculture, will continue for some time. In the face of this development the flora and fauna must give way. Many plant communities could become extinct and thus be lost to scientists and the general public for all time. The flora of the State is widely recognised, both in Australia and overseas, as being unique and deserving of preservation. Because of the growing need for land for agricultural and pastoral use, conservation of the flora on land not yet cleared is a matter of urgency. It is principally by the creation of vested Flora Reserves that this conservation can be brought about.

Already much has been accomplished but, if sufficient really representative reserves are to be established, there is still a lot to be done. A considerable number of reserves both small and large have already been set aside. Some of the smaller reserves have been established for the protection of a particular species or plant community, while others have been created for purposes, such as water catchment, which although not specifically directed to the protection of the flora do nevertheless assist in the preservation of the plant cover. Among the larger reserves are some which are specifically designed to preserve the whole of the environment and biological structure of important areas such as the Stirling Range, or of flora associations such as sandplain, woodland, and so on. These reserves are as large as they can be made, having due regard to the requirements of agriculture, forestry and other activities in the district. It is the large size and the diverse conditions in these reserves which permit the plants and animals within them to live in equilibrium, without affecting any of the species involved and thus preserving the biological balance.

Many of these reserves are not vested in any authority, but the most valuable are vested either in a Government Department, a special authority or the local governing body. Some of them are legally established as Class 'A' Reserves. The National Parks Board administers the largest of the reserved areas which have been set aside specifically for the preservation of flora. The principal National Parks are those of the Stirling Range, Porongurups, Walpole-Nornalup and Kalbarri. The Stirling Range in particular is a most valuable botanical area, and is also of value as a fauna reserve. Walpole-Nornalup National Park contains some magnificent stands of timber and some excellent examples of coastal swamp formations, as well as a most picturesque estuary and river mouth.

A number of the most important nature reserves in the State are vested in The Western Australian Wild Life Authority. The main concern of this Authority is the conservation of fauna, but it is obvious that the preservation of the flora within the reserves is of vital

importance to the success of its work in protecting the fauna. Among the reserves administered by The Western Australian Wild Life Authority are Bernier and Dorre Islands at the entrance to Shark Bay, Lake Magenta Reserve south of Newdegate, and the Pingelly Reserve.

The reserves described in the following paragraphs have been selected as being representative of the types of reserves already discussed. Reference to other such areas is made under the heading 'Public Parks and Reserves' in Part 1 of Chapter VII.

Kalbarri National Park is situated near the mouth of the Murchison River and includes the greater part of the gorge of the southern loop of the river, extending almost to the edge of the Ajana agricultural area. It is a large reserve, approximately 358,000 acres in area, and consists mainly of gently undulating sandplain which is underlain by a gravelly soil resting on Cretaceous sediments or in some areas on the Tumblagooda Sandstones of Silurian-Ordovician age. The gorge is one of the most remarkable physiographic features of Western Australia and must in time become one of the foremost tourist attractions the State has to offer. It is extremely rugged and picturesque and its sheer walls drop some five hundred feet from the level of the sandplain. Permanent pools of brackish water occur along the gorge.

Three distinct types of flora are recognised in the area. They are the predominant sand heath, the lateritic association along the eastern boundary, and the coastal heath vegetation on the limestone soils. The area is one of the most valuable flora reserves in the State. Its importance is due largely to its location at the northern end of the South-West Province, where it comes under the influence of the Desert or Eremean Province. This overlap of two flora types has resulted in the development of a unique flora, containing an exceptionally large proportion of plants which are entirely restricted to the area. In this connection the species of *Banksia* are of particular significance, while many other related plants in the *Banksia* family as well as a number of Myrtles found here occur nowhere else in the world. The gorge of the Murchison River contains many very fine examples of the picturesque River Gum (*Eucalyptus camaldulensis*), as well as a number of endemic species some of which are entirely restricted to this environment. However, it is the heath vegetation of the sandplain for which the area is particularly notable. This formation covers the greater part of the reserve, its flora being extremely rich both in species and in variety of colour and form. It undoubtedly constitutes the richest botanical area of the reserve, and during the spring and early summer it is a blaze of colour. Not only has vigorous speciation taken place here in past ages to produce a number of unique plants, but the reserve also contains the northernmost representatives of several typical South-West plants. Species such as the Firewood *Banksia*, Blueboy, Tree Smokebush and Mangles Kangaroo Paw extend northwards as far as this reserve, but are not known to occur much further to the north. It is important scientifically that these plants occur within the borders of the reserve, since they will be preserved for all time as evidence of the wide distribution of these and co-existing species.

The *Stirling Range National Park* of 284,540 acres is situated to the east of Tenterden and encloses the entire mountain system of the Stirling Range, which consists of Proterozoic sandstones, shales and slates. The Range reaches to a height of over 3,500 feet and is the dominant landmark of the country to the north of King George Sound. The reserve consists of the mountain range surrounded by a broad undulating plain carrying a low heath vegetation with a predominance of species of Myrtles and of Proteaceae. Stirling Range Poison (*Gastrolobium velutinum*) is common, and many other species of the Pea family also occur. A striking component of this heath is the Red Kangaroo Paw (*Anigosanthos rufa*). Around the base of the mountain peaks are forests consisting principally of stunted Jarrah. Springs and damp areas occur in the forests due to seepage from the higher land and there are several lakes both within the reserve and outside its boundaries. Because of the height of several of the peaks, snow is sometimes recorded, while a cloud blanket frequently covers all but the lowest peaks. Due to these phenomena the reserve contains a highly interesting and scientifically important endemic flora which makes it one of the outstanding botanical reserves in Australia. Altogether there are

over a hundred species which occur within the reserve and are not known elsewhere in the world. A large proportion of the plants are outstandingly attractive, prominent among them being the Mountain Bells (*Darwinia* spp.), nine species of which are restricted to the Range while some are entirely confined to a single peak. *Isopogon latifolius* is the most spectacular member of a group which is restricted to Western Australia. It occurs on the upper levels of Bluff Knoll, the highest point in the Range. Several species of *Banksia* and of *Hypocalymma* are endemic in the Range. The high degree of endemism and the spectacular character of the flora, some unique features of the fauna, and the rugged grandeur of the Range itself make the Stirling Range National Park one of the most valuable of the nature reserves of the State.

Bernier and Dorre Island Reserves. Bernier and Dorre Islands, which together comprise an area of about 26,000 acres, constitute portion of the western boundary of Shark Bay. They are some sixteen and nineteen miles in length, respectively, and are very narrow. They are in fact elongated dunes running in a north and south direction and consist largely of quaternary aeolianite with some loose sand. The islands are chiefly of value as fauna sanctuaries, since they contain vigorous populations of six native mammals some of which are rare on the mainland. They are situated at the northern extremity of the South-West Province where they come under the influence of both the South-West and the Eremean Provinces. The vegetation includes typical South-West plants such as *Phyllanthus*, *Triglochin* and several species of Myrtles, while a number of plants from coastal dunes such as *Spinifex* and some of the Daisy family are common on both islands. The Desert or Eremean flora is represented by the Poverty Bushes, Wattles, *Solanum*, and species of the Pea-Flowered and the Hibiscus families. The *Triodia* (*Spinifex*) which occurs over a great part of the interior of the State is also present on Bernier Island and is well represented on Dorre Island. The Northern elements have also penetrated to the islands and occur chiefly among the grasses, of which there are several species. Other plants demonstrating Northern affinities are the native Fig, the Caper, *Jasminum*, and the Euphorbiaceae. Several species in the island floras are endemic in the Shark Bay area, and a few were originally collected on the islands. These reserves are of extreme importance biologically both as yardsticks to measure the effects of sheep-grazing on the neighbouring Dirk Hartogs Island and as natural laboratories in which to study and understand the processes of ecological interaction within our native plant and animal communities.

The *Pingelly Reserve* is situated to the east of Pingelly and is an outstanding example of extreme diversity of habitat types in a small area. It is no more than 3,000 acres in extent and consists of lateritic highlands in the northern and southern areas, between which erosion has uncovered masses of the country granite and produced extensive granitic soils. It is particularly rich in native animals while the plant assemblage covers some seven well-marked associations ranging from sandplain to a White Gum woodland. This latter type is found in the more fertile loams in the valleys, where it is associated with Box Poison and Jam. Two different associations of *Acacia* are evident, the more important being that dominated by Jam, occurring on the better-class soils and merging into the White Gum area, the other being a Black Wattle association occurring along the bottoms of the valleys and along the watercourses. Sheoak forms almost pure stands in the granitic soils while thickets of Mallet clothe the steep rocky slopes below the gravelly tops of the hills. Few plants regularly grow in association with Mallet but, in this reserve, Bullock Poison (*Gastrolobium trilobum*) forms a constant understorey. York Gum dominates the flora in certain places, while in the lateritic soils on the tops of the scarps there has developed a mixed association dominated by *Dryandra* and containing several other members of the Proteaceae, together with representatives of the Myrtaceae and other families. It is the sandplain association, however, for which the area is most noteworthy. This vegetation type occurs in seven localities scattered throughout the reserve, each of them being distinctive in one or more respects. For example, one of these localities is distinguished by the Christmas Tree, another by the Narrow-leaved *Banksia*, a third by a deep yellow sand development, and another by heavily leached white sand where Jarrah is found. Despite its limited area, this reserve contains a remarkable diversity of flora and fauna, making it one of the most valuable of the nature reserves of Western Australia.

Chapter II—continued

Part 4—The Fauna of Western Australia

Contributed by

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and

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DISTRIBUTION

Terrestrial Vertebrates

An observer who looks carefully at the fauna of a large land mass like the Australian continent will soon discover that its animals are not distributed uniformly throughout it. He will find that groups of species which are characteristic of some places are missing from others. This is because the distribution of animals results both from their response to the physical (*i.e.* ecological) conditions of their environment (and these are not uniform from place to place), and from their past histories. For example, the presence of routes along which a species could have moved in the past, and of barriers which would have made its movement from one place to another impossible, decide whether any species could have reached a particular locality by today.

The relationship between the distribution of a species and the character of its environment may be demonstrated dramatically and most easily by comparing the distribution of animals with that of climate, and in particular with its components of temperature, rainfall and the time of the year at which rain falls. In Western Australia many species lie within one or other of the boundaries of two rather different climatic regions. These are the South-West with its regular and plentiful rainfall during cold winters, and the Kimberley with regular, plentiful rainfall during hot summers. The remainder of the State receives intermittent and unreliable rainfall in quantities which vary widely; some parts of this area (*e.g.* the Pilbara) receive their small amount of rain principally in the summer and other parts (*e.g.* the Nullarbor) in the winter.

An analysis of most of the Western Australian groups of vertebrate animals shows that they can be referred to three faunal assemblages characteristic of these climatic regions. These assemblages are called *faunas* and have been named by zoogeographers *Bassian* which, in this State, is the fauna characteristic of the South-West; *Torresian* which, in this State, is characteristic of the Kimberley; and *Eyrean* which is the fauna which occupies the land between. While the composition of a fauna is, generally speaking, characteristic of the area in which it occurs, the occurrence of a particular species in a fauna does not mean that it will not be found in another because each of the faunas has several elements which are sufficiently wide in their requirements for them to occur as 'foreigners' in the faunas of neighbouring regions. Examples of these are the species with predominantly Torresian populations (and apparently histories of origin) which are found today in the otherwise Eyrean fauna of the Pilbara district of the North-West; and various Eyrean species which occur in the Bassian fauna of the South-West.

Among the birds the sharpest faunal break is between the Torresian fauna of the Kimberley division and the Eyrean fauna of the Pilbara. The Kimberley is the headquarters in Western Australia of the Scrub Fowl (*Megapodius freycinet*), the Fruit Pigeons (Ptilinopinae), Lorikeets (*Trichoglossus* and *Psitteuteles*), the White Cockatoo (*Kakatoe galerita*) and most of the Grass Finches. The Torresian species which penetrate further southwards include the Brolga (normally only to Onslow), White-breasted Wood Swallow (to Shark Bay), and the Brown Honeyeater (right through to the South-West).

Among mammals there seem to be a few truly Torresian species in Western Australia. Examples would be the Fruit Bats or Flying Foxes (*Pteropus* and *Macroglossus*), the Little Rock Wallaby (*Paradorcas concinna*), the Jungle or River Wallaby (*Macropus agilis*) and the Antelope Kangaroo (*Macropus antilopinus*). On the whole most of the mammal species which occur in the Kimberley seem to be characteristic of that part of the Eyrean fauna inhabiting the country which receives intermittent rainfall during the summer.

Even among birds, the boundary between the majority of the Eyrean species and the bulk of the Bassian species is less well defined than that which separates Eyrean and Torresian faunas as there is a good deal of overlapping. For example, the line which separates the woodland eucalypts and the mulga, the so-called 'mulga-eucalypt line', is the extreme limit of most Bassian species, though many do not range inland beyond a line connecting Geraldton, Moora, Northam and the Stirling Range. The mulga-eucalypt line separates, to quote an example, the main distributions of the Grey Kangaroo (Bassian) and the Red Kangaroo (Eyrean). This line is the northern limit of other well known Bassian species such as the Red Wattle Bird.

The South-West of the State has representatives of many well known Bassian species also found in south-eastern Australia. These include among birds, the Brush Bronzewing, White-tailed Black Cockatoo, Western Rosella, Scarlet Robin, Yellow Robin, Southern Emu-Wren, Silvereye, White-naped Honeyeater, Western Spinebill, New Holland Honeyeater and Red-eared Firetail. Among mammals there are the Pigmy Possum, the Wambenger, the Grey Kangaroo, the Tammar Wallaby, the Brush Possum and various dunnarts (marsupial mice, *Sminthopsis*). Among frogs there are various *Crinia* and *Heleioporus inornatus* and *australiacus*; and fishes such as *Galaxias* and *Nannoperca*. However, there has been an extensive intermingling of Eyrean and Bassian elements in the South-West on a scale not paralleled in south-eastern Australia. In the South-West we have a blend of faunas in the sclerophyll forests which, though essentially Bassian in character, contain such Eyrean intrusives as the Purple-crowned Lorikeet, the Twentyeight Parrot, the Rufous Tree-creeper, the Western Warbler, the Banded Blue Wren and the Red-tipped Diamond-bird.

It must also be recognised that the distribution of animals that we see today is only a relatively recent pattern. There have been very drastic climatic changes in Western Australia during the last two million years and the discovery of fossil remains in local caves has shown that there has been a dramatic change in both faunal composition and distribution in the South-West. There has been an ebb and flow, as it were, of faunal elements out of and into the South-West. During the times when suitable conditions reigned, various mammals occurred which are now extinct in this State but still persist in south-eastern Australia. These included the Koala, the Tasmanian Wolf (*Thylacinus*) and the Tasmanian Devil (*Sarcophilus*). In other times, creatures which are now living only in the desert country of the northern interior ranged as close to Perth as Jurien Bay. Among these were the Crest-tailed Marsupial Mouse (*Dasymercus*) and the desert dunnarts *Sminthopsis hirtipes*. The Ghost Bat (*Macroderma gigas*) once ranged as far south as the Margaret River; it is now known no nearer than Wiluna, the Warburton Range country, and the Barlee Range.

Climatic alterations, on a minor scale, are constantly going on. In the past half-century, or longer, there has been a considerable change in northern Europe, Asia and America, an amelioration in some parts and a drying-up in others, with widespread effects on the distribution of animals. Something similar appears to have been taking place in Western Australia. Many dry-country bird species, of the Eyrean faunal assemblage, have made notable extensions of range into the south-west corner. These include the Galah, Little Corella, Budgerygah, Smoker Parrot, Crested Pigeon, Black-faced Woodswallow, Crested Bell-bird, Blue-and-white Wren, Black-throated Butcher-bird and Little Crow. The records of local naturalists, who keep district lists of local birds and mammals over a period of years, are very useful sources of data for plotting these changes. Frequent Museum surveys will provide more positive information.

In some cases distribution changes due to natural causes may be masked or modified through the alterations of habitat due to settlement. These habitat changes act to the detriment of woodland birds but favour open-country species (like pipits and plovers).

Coastal Marine Fauna ⁽¹⁾

The long Western Australian coastline (4,350 miles) extends from tropical to warm temperate waters, from Cape Londonderry at 14°S. with a mean water temperature of 81°F. to Albany at 35°S. with a mean water temperature of 63°F. As is to be expected, the marine fauna is very different at the extremes. Two principal elements in this fauna have been recognised; a northern tropical and a southern temperate fauna. The northern fauna is found right around northern Australia and many of the animals have a much wider distribution through the tropical Indian and west Pacific Oceans. For example, the Serpent's Head Cowrie (*Ravitrona caputserpentis*) and the sea urchin *Echinometra mathaei* are found from the east coast of Africa through the Pacific islands; both are abundant as far south as Rottneest Island. The southern fauna extends along the southern coastlines of Western and South Australia, with some species being common also on the New South Wales coast, though absent from Victoria. The boundary between these faunas has been drawn at different points along the west coast, according to the specialities of particular authors. However, there is in fact a broad area of overlap between North West Cape and Cape Leeuwin. Some southern species, such as the periwinkle *Melaraphe unifasciata*, are common as far north as Shark Bay and even to North West Cape. On the other hand some northern species are common on the rocky shores between Cape Naturaliste and Cape Leeuwin, for example the cowrie mentioned above, and may even extend east to Albany or Hopetoun. There are extensive colonies of the coral *Turbinaria* in Geographe Bay and smaller colonies of *Pocillopora* on Rottneest Island. *Turbinaria* occurs also in the Archipelago of the Recherche.

In addition to these northern and southern faunal elements there is a considerable number of endemic species, found only in the south-western part of the State. Both among the molluscs and less well-known animals such as the sea squirts there are many species which have not been found outside this region. Two examples are the Slate Pencil Urchin (*Phyllacanthus magnificus*) and the cone shell *Dyraspis dorreensis*.

The islands of this part of the coast are of particular interest. At the Aboholos Islands there are extensive coral reefs and other northern marine animals are much more numerous than on the adjacent mainland coast. At Rottneest also there are a dozen or more reef-building corals, although most species occur only as scattered colonies so far south, and again there are more northern species than along the adjacent mainland.

Fauna of Inland Waters ⁽²⁾

The inland waters are of many types and possess very varied faunas. They may be divided into four main ecological groupings: (1) the rivers of the Kimberley Division; (2) the river systems of the North-West from the De Grey to the Murchison; (3) the streams, swamps, and lakes of the south-west corner; and (4) the temporary waters of the dry inland represented by two widely different habitats, (i) freshwater claypans and soaks (including man-made dams) and (ii) the salt lakes.

The rivers of the North-West from the De Grey to the Murchison flow only intermittently, and between times of flood the fauna must survive in widely separated spring-fed pools in river beds. These pools, like those at Millstream Station on the Fortescue River, are often of striking beauty. Their fauna is relatively sparse as compared with the richer assemblages in the Kimberley rivers, the most conspicuous element being a few fish species and a freshwater tortoise (*Chelodina steindachneri*) which is confined to the region.

The permanent hill streams of the South-West have a diverse arthropod fauna. Most of these are insects but, in addition, there are several species of freshwater crayfish and freshwater mussels in slower-running parts—Marron (*Cherax tenuimanus*) occur in permanent streams of deep water; Jilgie (*C. quinquecarinatus*) in shallow permanent water;

(1) Written in collaboration with Dr E. P. Hodgkin and Mrs. L. Marsh.

(2) Written in collaboration with Dr E. P. Hodgkin.



FORTESCUE RIVER NEAR MILLSTREAM

In the dry season, fauna must survive in spring-fed pools in river beds, such as the one illustrated near Millstream Station, about 80 miles from Dampier.

Koonac (*C. preissi*) make burrows in the mud of swamps. A species of a closely related group, the so-called 'land-crabs' (*Engaeus*), has been recently discovered in the swamps of the South-West. Most rivers stagnate and may become saline in summer; they are reduced to chains of large or small pools to which the fauna is restricted. The small transparent prawn *Palaemonetes* is often abundant in these pools. Shallow permanent lakes and swamps near the coast also have a fairly varied insect fauna, among which certain species of dragonflies are particularly abundant; at times there are enormous numbers of *Daphnia* and related small crustaceans.

The inland freshwater claypans are characterised by an interesting ephemeral fauna, mainly of phyllopod Crustacea. The most conspicuous is the large shield shrimp (*Triops australiensis*) but a variety of fairy shrimps (Anostraca and Conchostraca) occur also. The eggs of these creatures survive for years in the dried mud and development is rapid when the claypans fill after occasional rains.

The most conspicuous animals in the waters of the salt lakes are the brine shrimps (*Artemia* and *Parartemia*), which at times build up to such high population densities as to attract large flocks of Banded Stilts, which breed only in certain of the inland salt lakes.

The fishes of the inland waters are described in a subsequent section.

THE COMPOSITION OF THE FAUNA

The fauna of Western Australia includes representatives of all major phyla of the Animal Kingdom and individuals range in size from the Blue Whale (*Balaenoptera musculus*), the largest mammal that has ever lived, to minute single-celled protozoa which cannot be seen without a microscope. No estimate can be made of the number of species, and probably the number of species of insects alone out-numbers all the rest by a comfortable margin. Here we have not attempted to describe all phyla. The vertebrates are given fairly full treatment because they are obvious and familiar animals to most of us. The insects (mostly those of economic importance) are dealt with in Part 5 of this Chapter, and the remaining phyla are treated in a few paragraphs which confine themselves to groups of interest.

THE VERTEBRATE FAUNA

Mammals

Unlike the birds and reptiles, wild mammals are not frequently seen in most parts of Western Australia. This is because most of the species are small and secretive and appear only at night. However, there are exceptions and, as any traveller in inland and northern parts of the State can attest, kangaroos of one species or another can often be seen in large numbers during daylight hours.

Most species of mammals have distinct ecological preferences which allow them to be categorised into one or other of the three main faunal groups which are described earlier in this Part under the heading *Distribution*. For example, in the kangaroo family, the Tammar Wallaby (*Macropus eugenii*), the Quokka (*Setonix brachyurus*), and the Brush Wallaby (*Macropus irma*) are found only in the South-West or on certain isolated islands off the coast. Of these, the Brush Wallaby is closely related to the South Australian Toolache Wallaby (*Macropus greyi*) and the Tammar to the Flinders Island Wallaby and the now extinct St Peter Island Wallaby of South Australia. The most familiar kangaroo of the dry country with unreliable rainfall is the Red Kangaroo or Marloo (*Megaleia rufa*), while in the summer-rainfall country of the Kimberley Division we find such species as the Jungle or River Wallaby (*Macropus agilis*), the Little Rock Wallaby (*Peradorcas concinna*) and the Organ-grinder Wallaby or Karrabul (*Onychogale unguifer*). In addition to the species which sort out in this convenient way, there are others which are widely distributed and in fact occur as members of all three faunal assemblages. The most familiar members of the family which do this are the Euro or Biggada (*Macropus robustus*), the Boodie (*Bettongia lesueur*), and the Rock Wallaby (*Petrogale penicillata*).

Of these, the Euro may still be found anywhere in suitable local habitats from the Kimberley to the South-West and inland across the South Australian border. At one time this was true also of the Boodie and the Rock Wallaby which, however, are today unfortunately absent from much of their former range.

So far, only the kangaroos have been mentioned but, in fact, representatives of all three major divisions of the mammals (*i.e.* monotremes, marsupials and placentals) occur in the State.

The egg-laying monotremes are represented by the Echidna (*Tachyglossus aculeata*), sometimes called Spiny Anteater or Porcupine. This curious and completely inoffensive animal is not uncommon in the country around Perth and it even appears on occasions in densely-settled suburban areas. In drier districts, its diggings, made in its search for insects, are familiar around rocky hills and breakaways.

Marsupials, or pouched mammals, occur in great variety in Western Australia. The kangaroos and wallabies, already mentioned, are the herbivorous members of the group. These animals are the Australian evolutionary equivalent of the antelopes, deer, and horses of the other continents and there is often an extraordinary similarity in structure between members of the kangaroo family and these other herbivores. These similarities extend even to such details as the physiology and shape of the stomach and other organs of digestion. The reproductive systems of marsupials and their physiology have also long been of great interest to biologists because they differ from those of other animals. For example, it is now known that in the Quokka, and some other wallabies, the adults mate again immediately after the birth of the 'joey'. The embryo which is the product of this second mating does not develop immediately but is held in a dormant state in the female system. However, if the first young joey is lost from the pouch, this dormant embryo immediately begins to develop and a second joey is produced after a minimum period of time.

In Western Australia the kangaroos and wallabies are all terrestrial (there are no tree kangaroos), and even their arboreal relatives, the phalangerids, are few in number as compared with other parts of Australia. The Brush Possums, the Pigmy Possums and the Ring-tails have Western Australian representatives, but the Koalas and the striped Possums are absent, and of the four species of flying possums of eastern Australia only one (*Petaurus breviceps*) occurs in Western Australia and that only in the Kimberley Division. Although the species of possums in Western Australia are few in number, there are some unique forms which are of great interest. One of these is the rare Scaly-tailed Possum (*Wyulda*) of the Kimberley; unlike other Australian possums this animal has a hairless scaly tail and only twelve specimens of it are known. There is also the curious and rarely-seen Honey Possum (*Tarsipes*) of the South-West. Wombats are known to have occurred in Western Australia around the turn of the century and were thought to be extinct until a small colony was rediscovered in 1965 near Caiguna in the Eucla Division.

Although the large carnivorous marsupials no longer live in the State, the smaller representatives of this group are still fairly common. There are two separate species of native-cats, a southern species (*Dasyurus geoffroii*) and a northern one (*Dasyurus hallucatus*), as well as many species of smaller carnivorous and insectivorous forms. One of the smaller members of this family, the Dibbler (*Antechinus apicalis*), one of our least-known marsupials and last recorded in 1884, was rediscovered during 1967 at Cheyne Beach near Mount Manypeaks on the south coast. Studies are being made at La Trobe University on its biology.

The remaining group of marsupials is that commonly called the bandicoot family. One of these, the Pig-footed Bandicoot (*Chaeropus ecaudatus*) is probably the State's rarest mammal, but it once occurred in the Nullarbor region where its remains have recently been discovered in caves and two living specimens of it were collected by John Gilbert in 1841 some miles to the north-east of Northam. No confirmed record has been made of the species in Western Australia since then. On the other hand another species of bandicoot, the Quenda, or Short-nosed Bandicoot (*Isoodon obesulus*), is one of the commonest of marsupials. Its scratchings are common in country gardens and the little

animal is often run over and found dead on roads. It lives largely on insects, and being nocturnal it is seldom seen but it is nevertheless very common in many areas in the South-West.

The third main group of mammals is that of the higher mammals or placentals. Animals of this group occur in Western Australia in addition to the marsupials and the monotremes, and it always comes as something of a surprise to visitors (who generally have a strong preconception of Australia as a land in which all but introduced mammals and the Dingo are pouched mammals and monotremes) to learn that there are many species of Western Australian native placental mammals. In fact, if the seals, whales, and Dugong which occur around our coasts be counted, the species of native placental mammals outnumber the marsupial and monotreme species.

The composition of the mammal fauna is shown in the following table.

Kinds of wild mammals	Number of species occurring in Western Australia (a)	Kinds of wild mammals	Number of species occurring in Western Australia (a)
Monotremes	1	Introduced placentals—	
Marsupials	60	Rodents	5
Native placentals—		Land carnivores	2
Bats	23	Ungulates (Horses, Deer, Camels, etc.)	9
Rodents	24	Rabbits	1
Marine mammals :			17
Seals (b)	2		—
Dugong	1		—
Whales	22		—
Land carnivores—Dingo	1	TOTAL, ALL SPECIES	151
	73		—

(a) Total numbers of species are from *A Guide to the Native Mammals of Australia* by W. D. L. Ride. (b) Only resident seals are counted. Antarctic seals are occasionally 'shipwrecked' on southern coasts but these are clearly stragglers into the area.

Within Western Australia the best-established groups of native placental mammals, *i.e.* the bats and rodents, are distributed in much the same ecological manner as are the marsupials; some are dry country forms like *Leggadina hermannsburgensis*, the small mouse which builds mounds of pebbles on stony ridges^(*), others are predominantly animals of the wet tropics like the majority of the Fruit-bats or Flying Foxes (*Pteropus* and *Macroglossus*), while yet others are confined to the country of reliable winter rainfall in the South-West, *e.g.* the Southern bush-rat (*Rattus fuscipes*). These native placental mammals are of great zoological interest because some of them, and in particular the native rats and mice, have been here for many millions of years and closely parallel (in adaptation to our stringent ecological conditions) their relatives in similar places in other lands. Thus, we have tiny hopping-mice (*Notomys*), like miniature kangaroos, which are very similar in appearance and habits to the jumping-mice (Zapodidae) of the American and Eurasian dry-lands, and the jerboas (Dipodidae) of Africa; but it must be emphasised that the jumping specialisations of our own hopping-mice have evolved quite independently within Australia.

Some of our native placental mammals are economically important. Until 1963 a shore-based Western Australian fishery at Carnarvon depended upon the migrating groups of Hump-back Whales (*Megaptera novaeangliae*) which move along the western coast between their feeding grounds in Antarctic waters and their breeding places in the tropics. Unfortunately, immoderate exploitation of the stocks (especially the breeding stock) had so reduced the population that it was in danger of extermination and the shore-based fishery collapsed. Another whale fishery, at Albany, is dependent upon Sperm Whales (*Physeter macrocephalus*). The catching of Southern Fur-seals (*Arctocephalus doriferus*),

(*) It is suspected that these may be dew-traps.

formerly lucrative, is now no longer permitted. The Dugong (*Dugong dugon*) was once an important source of food for the natives of the coastline from Shark Bay to the Northern Territory. The Dingo (*Canis familiaris dingo*) has probably not been in Australia for as long as the other native mammals, and may well have entered with the first of the Australoid people who were ancestral to our present Aborigines. In some parts of the State the Dingo is a major problem to the pastoral industry because of its attacks on livestock.

The preceding table also shows that there is a large number of introduced species as well as native mammals. These are now a part of the wild mammal fauna of Western Australia and all are placentals. Some of these species are also agricultural and pastoral pests and they have become so well entrenched in the environment that there is no doubt that any discussion of the mammalian fauna of the State must take them into account and mention should be made of some of them here. Red Deer (*Cervus elephus*) occur spasmodically in the South-West around Pinjarra, Waroona and Harvey. Camels (*Camelus dromedarius*) occur in large numbers and are distributed through the Eastern Goldfields up through the Pilbara and into the Kimberley. They have been declared vermin around Laverton, Nullagine, Port Hedland, and Halls Creek. Donkeys (*Equus asinus*) have a distribution very much like that of the camel and also occur generally throughout the Kimberley. Wild goats (*Capra hircus*) are ubiquitous in dry country but are mainly concentrated in the Murchison and the North-West. A small herd of Black-buck (*Antelope cervicapra*) occurs near Geraldton. Rabbits (*Oryctolagus cuniculus*) are widespread in Western Australia but are only of economic significance south of the Murchison. They are by no means the problem that they used to be, due largely to programmes of intensive rabbit extermination. Foxes (*Vulpes vulpes*), declared vermin, are also widespread but do not commonly occur north of the De Grey River, having only been reported spasmodically from the Kimberley Division. The domestic cat run wild (*Felis catus*) occurs commonly in the bush and is an efficient predator on native fauna. It became feral in the early days of settlement and soon spread throughout the Colony. The naturalist Keartland while a member of the Calvert Scientific Exploring Expedition in 1896, recorded that 'in the desert of North-West Australia' he saw a tabby cat at least four hundred miles from the nearest house. Earlier still the ornithologist Tom Carter writing in 1887 from the Carnarvon district spoke of 'the domestic cat, which is found quite wild and of a large size all through the colony'.

ENDEMISM OF NATIVE MAMMALS TO WESTERN AUSTRALIA

(excluding marine mammals)

Group	All endemic and non-endemic species	Number of endemic species—			
		Total endemics	Endemics north of Fitzroy River	Endemics of South-West Land Division	Endemics of remainder of State
Monotremes	1	.....	.....	.....	.....
Native cats	23	5	1	2	2
Marsupial moles	1	.....	.....	.....	.....
Bandicoots	7	.....	.....	.....	.....
Possums	8	2	1	1	.....
Wombats	1	.....	.....	.....	.....
Kangaroos and Wallabies	20	4	.....	3	1
Rats	24	3	.....	2	1
Bats	23	.....	.....	.....	.....
Dingo	1	.....	.....	.....	.....
Totals	109	14	2	8	4

Examination of the composition of the older mammal fauna of Western Australia, *i.e.* monotremes, marsupials, bats and native rodents, as set out in the preceding table, reveals that only one-eighth of all species recorded from the State today appear to occur only in Western Australia. The South-West contains by far the greatest number of endemic species.

Birds

The bird fauna of Western Australia consists of a selection of the species occurring in eastern Australia, with only a very minor development of endemic forms. All of these latter, except one (the Western Australian King Parrot, *Purpureicephalus spurius*), have a close and obvious affinity to other Australian forms. The quantitative relationship of the Western Australian bird fauna to that of Australia as a whole is indicated in the following table, which has been prepared on an ecological basis.

	Number of breeding species		Number of non-breeding visiting migratory species	
	Western Australia	Australia	Western Australia	Australia
Land birds	307	499	6	8
Inland water birds	51	52	33	42
Sea birds	25	38	33	55
Total	383	589	72	105

Representatives of most of the families and genera of Australian birds occur in this State. Notable absentees include the Cassowary (*Casuarus casuarus*), Brush Turkey (*Alectura lathamii*), several of the fruit-pigeons, the Crimson Rosella (*Platycercus elegans*), Lyre-bird (*Menura novae-hollandiae*), several honeyeaters including the Regent (*Zanthomiza phrygia*), Apostle-bird (*Struthidea cinerea*), Cat-birds (*Ailuroedus*), Satin Bower-bird (*Ptilonorhynchus violaceus*) and Rifle-birds (*Ptiloris*).

Space is insufficient to detail all the forms occurring in Western Australia. Mention may be made only of some distinctive species and groups which are common and widely distributed.

The Emu (*Dromaius novae-hollandiae*) is still numerous all over the State and is occasionally encountered in the Darling Range near Perth. Australia's only breeding species of penguin, the Fairy Penguin (*Eudyptula minor*) nests on islands off the southern and south-western coasts as far north as Carnac near Fremantle. The Mallee-fowl or Gnow (*Leipoa ocellata*) is still plentiful and, after a period of decline during which its disappearance was feared, it is now increasing in abundance. All of the widespread species of Australian quails occur but owing probably to the scarcity of natural grasses in the south are not individually very numerous. Among the pigeons two species have shown notable recoveries in population strength. After a long period of scarcity the Common Bronzewing (*Phaps chalcoptera*) began a cycle of increase about 1936 and is still very abundant. The rare Flock Pigeon (*Histriophaps histrionica*) of the more arid country of the North-West and the far North has declined all over Australia and had not been recorded in this State since 1927 until 1958 when considerable flocks were observed in the Hamersley Range and the Fortescue River country. It has also reappeared in parts of the Kimberley Division.

A very distinctive member of the rail family is the Black-tailed Native Hen or Gallinule (*Tribonyx ventralis*). It is a creature of the drier country but is subject to violent fluctuations in numbers, when it is liable to invade the South-West in great strength. A famous occasion was in May, 1833 when it overran the settlers' fields and gardens around Perth and did considerable damage to the crops. Similar irruptions took place in 1853, 1886, 1897 and 1919. Later invasions, such as those in 1952 and 1964, have been on a much more modest scale. Of the three Australian grebes the most plentiful is the Hoary-headed Grebe (*Podiceps poliocephalus*) which assembles in the winter in big flocks on the southern estuaries, including that of the Swan River.

In the petrel group there are five breeding species in local waters. The most numerous is one of the mutton-birds, the Wedge-tailed Shearwater (*Puffinus pacificus*) which nests on most islands between Carnac in the south and Sable Island, in the Dampier Archipelago, in the north. A second mutton-bird, the Fleishy-footed Shearwater (*P. carneipes*) nests between Cape Leeuwin and the Archipelago of the Recherche; it is a migratory species and in the winter months migrates to the north-western sector of the Indian Ocean. A similar trans-equatorial migrant is the White-faced Storm-petrel (*Pelagodroma marina*), a diminutive form rarely observed at sea. It nests often in vast aggregations on islands off the south coast and as far north as the Abrolhos. All of these species nest in the spring and summer months. The remaining two breed in the winter. The Great-winged Petrel (*Pterodroma macroptera*) shares the nesting islands off the south coast with the Fleishy-footed Shearwater in a sort of 'Box and Cox' relationship. The black and white Little Shearwater (*Puffinus assimilis*) has a wider nesting range, from the Recherche to as far north as the Abrolhos; in former times it nested at Parrakeet Island off Rottnest Island. In the winter months some twenty-two species of southern-breeding petrels visit local seas. They vary in size from the little Wilson Storm-petrel (*Oceanites oceanicus*), barely larger than a swallow, to the great Wandering Albatross (*Diomedea exulans*). The Wilson Storm-petrel 'winters' all along the Western Australian coast to the tropics and is a familiar sight around fishing boats in Shark Bay. The most common of the albatrosses is the Yellow-nosed Albatross (*Diomedea chlororhynchos*) and may be seen as far north as Point Cloates. The most familiar of these visitors is the dusky Giant Petrel (*Macronectes giganteus*). Ringing experiments have demonstrated that the birds seen here are first-year individuals making circumpolar flights round the Southern Hemisphere; marked birds found in the South-West had been ringed a few months previously in their nests at Heard Island, Macquarie Island, and islands in the South Orkneys in the South Atlantic.

All of the five species of Australian cormorants or shags occur locally. Despite complaints of their depredations on commercially important fish, investigations have cleared the birds of blame, though one species, the Black Cormorant (*Phalacrocorax carbo*), specifically identical with the Cormorant of Europe, does occasionally include edible fish in its diet. One marine species, the Pied Cormorant (*P. varius*), which enters the Swan River estuary and Peel Inlet, is mainly responsible for the guano deposits on the coastal islands. Deposits at Shark Bay were commercially exploited in the last century and at one stage, in 1850, a detachment of troops was stationed at The Quoin Bluff, Dirk Hartogs Island, to ensure the collection of royalties. Pelicans in Western Australia, unlike those in eastern Australia, breed only on coastal islands and not on inland waters. Until recently the nearest breeding place to Perth, and presumably the origin of most of the Swan River Pelicans, was Pelican Island, Shark Bay. However, since 1962 a breeding colony has become established at Peel Inlet, Mandurah.

Fourteen species of terns are recorded for the southern parts of the State and three more for the Kimberley Division. Three of the seventeen are migrants from the Northern Hemisphere and ringed individuals of the European Common Tern (*Sterna hirundo*) and the Arctic Tern (*S. macrura*), marked in northern Europe, have been recovered near Fremantle. These birds must have reached our coast via the Cape of Good Hope. The Silver Gull (*Larus novae-hollandiae*) is noteworthy for having two breeding seasons in the southern part of the State. On the islands at Safety Bay, for example, there is an egg-laying peak in the autumn and another in the spring.

The numerous Order of wading or shore-birds (sandpipers, dotterels, and plovers) includes a few locally-breeding species but the majority are migrants from the Northern Hemisphere, where they breed in the tundra zone of northern Asia. Though they frequent ocean beaches and estuaries, as well as swamps and lakes, they are listed in the category of 'inland water birds' in the table on page 69. Some twenty-five species of these birds, commonly called 'snipe' (though the true Snipe of eastern Australia, *Gallinago hardwickii*, does not occur in this State) migrate to Western Australia. In addition there are sixteen species of this Order which breed in Australia. One of them, the Red-capped Dotterel (*Charadrius alexandrinus*), is virtually identical with the rare Kentish Plover of England. Here it is very common and nests at Pelican Point on the Swan River. Another local

breeder is the remarkable Banded Stilt or Rottneet Snipe (*Cladorhynchus leucocephalus*) which is an attractive inhabitant of the salt lakes of Rottneet Island. However, it nests only on the inland salt lakes. The nesting habits remained long unknown until colonies were discovered at Lake Grace and Lake King in 1930.

The Australian Bustard ('Wild Turkey', *Eupodotis australis*) is a magnificent bird which has been largely exterminated by shooters over much of south-eastern Australia and in the developed South-West of this State. It is not uncommon in sparsely-settled areas and individuals occasionally appear on the open coastal country quite near Perth. It has recently been demonstrated by ringing that the Straw-necked Ibis ranges between south-western Australia and northern and eastern Australia. Fledglings marked in the nests at Muchea have later been taken in the North-West, the Kimberley Division, Arnhem Land and near Orange (New South Wales).

The Brolga (*Grus rubicunda*) is a northern bird normally found as far south as Onslow, but some individuals may wander into the outer parts of the South-West as occurred in 1952. In the heron family a new bird has been added to the State list—the Cattle Egret (*Bubulcus ibis*), which appears to have colonised northern Australia from Indonesia and has now spread over much of eastern and Western Australia.

There are eighteen species of swans and ducks occurring in the State, one of the most remarkable, perhaps, being the Cape Barren Goose, which is now restricted to the islands of the Recherche Archipelago. Recent leg-ringing experiments have shown that the common and widespread Grey Teal (*Anas gibberifrons*) wanders indiscriminately all over Australia, its movements being influenced by availability of surface waters.

The State is also well provided with hawks and eagles, twenty-four species being found within its limits. Most are harmless economically and the few that do take chickens and lambs are not serious depredators, though there is controversy on the role of the Wedge-tailed Eagle (*Aquila audax*) which is, however, classified by the Agriculture Protection Board as vermin in certain districts in the central and north-west portions of the State.

There are not as many species of the parrot group in Western Australia as there are in eastern Australia but one species, the Western Australian King Parrot or Red-capped Parrot (*Purpureicephalus spurius*), is restricted to the South-West and has no near relatives elsewhere. The Twentyeight Parrot is a form of the Port Lincoln Parrot (*Barnardius zonarius*) and is common almost everywhere, being regularly present in King's Park, a natural reserve adjacent to the City of Perth.

The Kookaburra (*Dacelo gigas*), so common in the forests of the South-West, is not a Western Australian native but was introduced from eastern Australia by the Acclimatisation Board during January 1897. A similar species, however, the Blue-winged Kookaburra (*D. leachii*) occurs in the north, as far south as the Wooramel River. The Rainbow-bird (*Merops ornatus*) in the south is a strict migrant, arriving regularly in the first week in October. Local birds migrate to the north of the State, the wintering area being from the Gascoyne River northward, but some individuals cross the Timor Sea to the Indonesian islands. There are eleven cuckoo species in our area, the commonest being the Pallid Cuckoo (*Cuculus pallidus*) whose plaintive insistent note is heard soon after the winter rains set in.

In the great group of passerines, or song-birds (Order Passeriformes), the most celebrated is the Noisy Scrub-bird (*Atrichornis clamosus*), a primitive almost-flightless bird which until recently was believed to be the only Australian bird which had become extinct since white settlement. The last specimen was collected by the ornithologist A. J. Campbell at Torbay in 1889, but late in 1961 a surviving population was discovered at Two Peoples Bay east of Albany. Space is insufficient to deal in any detail with other members of this large Order. Throughout the State there are 172 species, of which 95 occur in the southern, settled parts and at least 33 are found in King's Park. A distinctive robin, the White-breasted Robin (*Eopsaltria georgiana*), occurs in the South-West. It is a relative of the yellow robins and is found in the dense coastal and forest thickets from Geraldton southward and east to Albany and the Porongurups. The Western Warbler (*Gerygone fusca*)

is a sweet-voiced songster which may be heard in the street trees of Perth, the only Australian capital city in which it lives; in the other States the bird is an inland species. Another distinction of the Perth metropolitan area is that four species of blue-wren, a greater number of species than in the environs of any other capital city, have been noted there. One species, the Red-winged Wren (*Malurus elegans*), which used to live near the city, disappeared when Herdsman Lake was drained. The remaining species are the Splendid Wren (*Malurus splendens*), occasionally still seen in the University grounds; the Blue-and-white Wren (*Malurus leuconotus*) in the coastal dune scrubs, and the Causeway and Pelican Point samphire flats; and the Variegated Wren (*Malurus lamberti*) in the dune thickets. Honeyeaters are numerous, the largest, the Red Wattle-bird (*Anthochaera carunculata*), being a familiar bird in metropolitan streets and gardens. Most of the grassfinches are restricted to the Kimberley Division, where ten species are found. However, one of them, the widespread Zebra Finch (*Taeniopygia castanotis*), nests as near to Perth as Northam and York. Two bower-birds occur in the State. The Great Bowerbird (*Chlamydera nuchalis*) is confined to the Kimberley Division, but the Spotted Bowerbird (*C. maculata*) is found in the North-West and ranges south to the East Murchison country and Malcolm in the Eastern Goldfields.

In contrast with all other Australian States there are very few species of exotic birds established in Western Australia. (The same is true of the Northern Territory.) In the towns of the South-West two turtledoves are plentiful, the Indian (*Streptopelia chinensis*) and the Senegal (*S. senegalensis*). The Goldfinch (*Carduelis carduelis*), an escapee from aviaries, breeds freely in the Perth metropolitan area and around Albany. Recently another cage-bird escapee, the Red-browed Finch (*Aegintha temporalis*), an eastern Australian species, has established itself east of Kalamunda in the Darling Range near Perth. The Indian or Ceylon Crow (*Corvus splendens*) repeatedly arrives at Fremantle on ships from the Orient but the vigilance of officers of the Department of Agriculture and port officials has led to the successful eradication of the unwanted immigrants. The House Sparrow (*Passer domesticus*) has been similarly kept at bay at Fremantle. This species did, however, make a temporary colonisation, from South Australia, in the vicinity of Eucla and Mundrabilla in 1917-18 but it failed to make any headway and disappeared from that sector.

Reptiles

In Western Australia the reptiles are represented by three major zoological groups or Orders. These are the Chelonia (four marine species of turtles and six of freshwater tortoises), Crocodylia (two of crocodiles) and the Squamata (sixty-two species of snakes and 159 of lizards).

The freshwater tortoises of Western Australia, like those of the rest of the continent, belong to the ancient group of side-necked tortoises. In most other parts of the world tortoises retract their heads straight backwards bending their necks in a vertical S-shaped curve. Australian tortoises, and certain others from South America, bend their necks sideways; this is believed to be an ancient character. Although the species of Western Australian tortoises are few, they are of great interest and their distributions are far from well understood. This is especially true of the species inhabiting the Kimberley. Freshwater tortoises do not seem to fall into simple faunal zone classifications. The common species of the South-West, *Chelodina oblonga*, is probably specifically different from a rather similar species in the Kimberley. The common species of eastern and central Australia, *Emydura macquarii*, occurs in the Kimberley Division in a slightly more globose form which has been called *Emydura australis* but it is not represented in the South-West. The river systems from the Irwin, in the Northern Agricultural Division to the De Grey in the northern Pilbara, have their own tortoise (*Chelodina steindachneri*), while a highly specialised short-necked tortoise (*Pseudemydura umbrina*) is apparently confined to a few square miles of winter swamps between Upper Swan and Bullsbrook to the north of Perth. Because of its vulnerability to extinction this last species is rigidly protected.

Marine chelonians also occur in large numbers around the coasts. The Green Turtle (*Chelonia mydas*), the species which is used for soup making, comes ashore to lay its eggs on the northern beaches. Attempts are made from time to time to exploit this species commercially, but no permanent industry has been successfully established.

There are two species of crocodiles in Western Australia. One is the harmless fish-eating Freshwater Crocodile (*Crocodylus johnstoni*) and the other the dangerous Salt-water or Estuarine Crocodile (*C. porosus*). The former is protected by law, while the latter forms the basis of a lucrative trade in hides. Both species are confined to northern parts of the State.

Snakes and lizards are common and widespread throughout the State, and in numbers of obvious individuals they are probably surpassed among the vertebrates only by the birds. In the South-West, Bobtails (*Trachysaurus rugosus*) can often be seen crossing the roads at most times of the year, while the walker among coastal sand dunes on warm days cannot avoid noticing innumerable small dragon-lizards which move away from in front of him. In the southern part of the State the largest lizard which is at all common is the Goanna (*Varanus gouldi*). These are frequently between 3 and 4 feet in length. In northern areas the Bungarra (*Varanus giganteus*) exceeds it in size. A few species are confined to the South-West and of these the most interesting are Mueller's Snake (*Rhinohoplocephalus bicolor*), the Little Brown Snake (*Elapognathus minor*), the Black Striped Snake (*Vermicella calonota*) and the Slender Snake Lizard (*Pletholax gracilis*) which is also one of our rarest species of lizard. An Eyrean species which never ceases to surprise the visitor is the terrible-looking Mountain Devil (*Moloch horridus*). This lizard is actually one of the most gentle and harmless of animals and lives exclusively on ants.

The snake fauna of the State is diverse and, like that of other parts of Australia, contains many venomous species, the best known being the Tiger Snake (*Notechis scutatus*), the Dugite (*Demansia affinis*), the Gwardar (*D. nuchalis*), the Death Adders (*Acanthophis antarcticus* and *A. pyrrhus*) and the Mulga Snake (*Pseudechis australis*).

The snakes and lizards are well described in Glauert's *Handbook of the Snakes of Western Australia* and *Handbook of the Lizards of Western Australia* (see bibliography at the end of this Part).

Because of the great distance of the Kimberley Division from centres of scientific research, insufficient is known of its snakes and lizards. As in the case of some of the smaller mammals, some endemic species of lizards have been described, but until much more scientific collecting and research has been done it will not be possible to evaluate such apparently-unique species. Some Kimberley species of lizard, e.g. the Frilled Lizard (*Chlamydosaurus kingi*), through being commonly illustrated in journals because of their bizarre appearance, have become familiar to the public.

Amphibia⁽⁴⁾

Unlike the other continents Australia has no newts or salamanders (Urodela) or worm-like gymnophionans (Apoda). However, frogs (Anura) are abundant.

The frogs of Western Australia fall into the same grouping (Bassian, Eyrean and Torresian) which was mentioned in the section on mammals. However, they lack the diversity of genera and species shown by other groups and only ten genera with about thirty species are known from south of the Tropic of Capricorn. Of these, two genera, *Metacrinia* and *Myobatrachus*, each with one species, are restricted to the South-West. Most of the other kinds of frogs are distinct from, but related to, species found elsewhere in Australia.

Since most of Western Australia is exceedingly dry it is of interest to note that frogs are common in these arid regions. Those species of *Heleioporus* which occupy marginal-desert habitats overcome drought conditions by burrowing into the damp sub-soil. However, the arid-country species of *Neobatrachus* frequent clay soil where deep burrows are impossible and water can be lost. These species show no special capacity to endure

(4) Written in collaboration with Prof. A. R. Main.

greater water loss than *Heleioporus* species, but they do display an exceptional capacity for rapid replacement of water when water is present, as for example after thunderstorms. The water-holding frog, *Cyclorana platycephalus*, is found in inland and northern parts of the State. All 'desert' species retain an aquatic larval life, but this is much shorter than that of species in the well-watered parts of the State. The only species lacking aquatic larval development occur in the wetter South-West; these are *Myobatrachus gouldii*, *Metacrinia nichollsi* and *Crinia rosea*. *Myobatrachus gouldii* is the only species which exhibits any strong dietary preference and eats only termites (Isoptera).

Freshwater Fishes

The truly freshwater fish fauna of the southern part of the State is, by eastern Australian standards, an impoverished one and the species, with the exception of the freshwater catfish ('cobble'), are diminutive in size. Most of the species are representatives of eastern Australian genera, such as the Pygmy Perch (*Nannoperca vittata*), Mountain Trout (*Galaxias truttaceus*), Black-striped Minnow (*G. pusillus*), and the Native Minnow (*G. occidentalis*). Others are more distinctive, with no near relatives in eastern Australia, such as the Nightfish (*Bostockia porosa*), the King River Perchlet (*Nannatherina balstoni*) and the newly-described scaled galaxiid (*Lepidogalaxias salamandroides*). There are several gobies (*Glossogobius suppositus* and *Lizagobius olorum*) and Hardyheads (including *Atherinosoma edelensis*, *A. rockinghamensis*, *A. elongata* and *Craterocephalus cuneiceps*). A lamprey (*Geotria australis*) ascends the rivers to breed and has been recorded north to the Swan River system, but is more abundant in the streams emptying on the south coast. An eel (*Anguilla australis*) has been recorded from the South-West but it is not known whether it is native to the area or has been introduced.

The north-western rivers have a richer fish fauna. The most widespread is the Spangled Perch (*Therapon unicolor*), a useful food fish which occurs in all rivers south to the Murchison. A large catfish (*Arius australis*) reaching 5 lb in weight, occurs in the systems south to the Fortescue. The Rainbow Fish (*Melanotaenia*), popular with aquarists occurs in the river systems of the Pilbara and the Kimberley. The remarkable Blind Gudgeon (*Milyeringa veritas*) and blind eel (*Anommatophasma candidum*) occur in wells and subterranean channels in the North West Cape area. The Kimberley Division has an even larger series of freshwater fishes. These include a catfish (*Neosilurus brevidorsalis*), various Bony Bream (*Fluvialosa*), various perch-like fishes (*Therapon*, *Acanthoperca*), Gudgeons (*Carrassiops*) and two freshwater saw-fishes (*Pristis clavata* and *Pristiopsis leichhardti*). There is also a freshwater eel (*Anguilla bicolor*) in these far northern waters.

Marine Fishes⁽⁵⁾

The marine fish fauna of Western Australia is probably richer in species than that of any other Australian State. This is because the fish of the northern part of the State's very long coastline belong to the rich tropical Indo-Pacific fauna, while its southern fauna is a temperate one which includes many elements peculiar to Australian waters. The most up-to-date list of the species of Western Australian fish, published in 1948, enumerates 740 species, but since that time collecting has revealed about 120 more. Even so, this figure is still far short of the total number which, it is suspected, will eventually be found to be in the neighbourhood of two thousand.

From this it can be seen that there is much to be learnt about fish of Western Australia but it is probable that only a few of these species are confined to Western Australian waters. At present it seems that most of the fish occurring in the tropical part of the State are widely distributed, and species often range throughout the whole of the tropical Indian and Pacific Oceans, while the species which are found along the south coast usually occur also in the waters of South Australia, Victoria, Tasmania and southern New South Wales.

Between Cape Leeuwin and Shark Bay both northern and southern elements are found, the tropical element dominating as far south as the Houtman Abrolhos.

(5) Contributed by Dr G. F. Mees.

In addition to the widely-distributed tropical and southern elements, there are a number of species, between thirty and forty, which seem to be peculiar to Western Australia. It is necessary to be cautious here for two reasons. Firstly because the Indo-Pacific fish fauna is, as a whole, poorly known and some fish, at present only recorded from Western Australia, may actually have wider ranges. Secondly, our classification of fishes is still imperfect so that fishes which we regard as endemic to Western Australia may be known from some other region, but under different names. On the other hand there can be no doubt that at least a proportion of these species which we now believe to be endemic will prove to be confined to Western Australian waters.

In the following very incomplete review, a number of the more important and interesting families and species are listed.

Of the major groups, the Elasmobranchii (sharks and rays) are richly represented, with nearly eighty species, of which the most familiar are the Port Jackson Shark (*Heterodontus portusjacksoni*), the Carpet Shark or Wobbecong (*Orectolobus maculatus*) and the shark known locally as the Swan River Whaler (*Carcharhinus*), which can be caught in the Swan River as far upstream as the Causeway. Its specific identity has not yet been established beyond doubt, but it is probably widely distributed. The foregoing species are regarded as harmless to man; of the dangerous species, the Tiger, the Whaler and the White Pointer are perhaps the best known. Four fatalities from shark attack have been recorded for Western Australia (in 1803, 1923, 1925 and 1967) and a few people are known to have been maimed. It may be said, however, that in Western Australia the danger of shark attack is low.

Most major families of bony fishes are represented, but only a number of the more interesting or familiar species can be mentioned here.

There are about ten species of true herring (Clupeidae), one of which, the Pilchard (*Sardinops neopilchardus*) will in future probably become of economic importance. The rather similar-looking *Amblygaster postera* seems to be confined to Western Australia. The State is particularly rich in sea-horses and pipe fishes, there being some twenty-five species. The most familiar of these is perhaps the leafy sea-horse (*Phyllopteryx foliatus*) which is often found on the beaches after storms. The so-called Sand Shark or Rat Fish (*Gonorhynchus greyi*), a peculiar fish and the sole representative of its family, deserves mention; it is fairly common off sandy coasts of the South-West. Though eels are represented by several families and over twenty species, only three are common in the South-West; the Snake Eel (*Ophisurus serpens*), a slender golden brown eel inhabiting sandy estuaries, which is often taken for a snake and referred to as the water snake; Woodward's Eel (*Gymnothorax woodwardi*), found on rocky shores, yellowish green with a network of grey lines; and the Conger Eel (*Conger wilsoni*), which normally is dark brown in colour.

Garfishes (Hemiramphidae) are common. Of their relatives the Long Toms (Belontiidae), only *Belone ciconia* is common in the South-West the others being more tropical in distribution, though one of the northern species, *Belone hians*, has been found as far south as Rottnest Island.

Silversides and hardyheads (Atherinidae) are well represented and so are mullets (Mugilidae). Some representatives of these groups have been mentioned in the preceding section, which deals with freshwater fishes.

The family Serranidae, known as groper, rock cod, etc. are well represented by nearly thirty species. The best known is the North-west Groper (*Epinephelus tauvina*) which attains a length of more than 7 feet. Most species have a very wide, mainly tropical, distribution, but *Epinephelus rankini* is only known from a restricted area round Onslow and must be looked upon as endemic to Western Australia. In temperate waters the preceding family is more or less replaced by the related Hypoplectrididae.

Some small families, like the Australian Salmon (Arripidae), Whiting (Sillaginidae) and Snappers (Sparidae) are of great economic importance, though there are only a few species. On the other hand the Skipjacks (Carangidae) are the largest family of the State

and comprise some thirty species. Another group which are also called Snappers (Lutjanidae) is prominent in the tropical part of the State. These are often referred to as North-west Snappers and should not be confused with the southern Snapper (*Chrysophrys unicolor*) which belongs to the Sparidae.

Coral fishes (Chaetodontidae) are richly represented, mainly along reefs in the tropics, but a number of species come down to the Albrolos Islands, and some even near to Perth. Most species have a very wide distribution in the Indo-Pacific, but one, *Chaetodon assarius*, has not been found outside Western Australia.

The Mackerel family (Scombridae), which includes mackerel, Spanish mackerel, tuna, bonito and albacore, is important both in tropical and temperate waters. The related marlins and swordfishes, well known to sporting fishermen, also occur in these waters.

Flatfishes (Heterosomata) occur in a great variety of species, and the same can be said of Parrotfishes and Wrasses (Scaridae and Labridae). All these groups are as yet very insufficiently known.

The stargazers and stonelifters are sluggish bottom fishes that deserve mention because of their unusual shape. One, *Ichthyscopus barbatus*, occurs off the south-west coast and also in South Australia, and is regularly caught by anglers. Another species, *Ichthyscopus insperatus*, a common fish of the north-west coast from Broome to Shark Bay, seems to be confined to Western Australia. The dragonets (Callionymidae), of which nine species have been recorded, are smaller, but their pretty appearance attracts attention, and one species, *Dactylopus dactylopus*, widely distributed in the Indo-Pacific, is regularly found off sandy beaches as far south as Rockingham.

Blennies (Blenniidae), weedfish (Clinidae), and gobies (Gobiidae) are small fishes of which there are many species; blennies are most plentiful in rockpools and on reefs in the tropics, while gobies are also found on sandy bottoms.

There are some twenty species of scorpion fishes known from the State, the most familiar of which are *Scorpaena sumptuosa* in the south, and the small *Scorpaena bynoensis* in the north; the first-mentioned species is also interesting in that, though it has been known for almost a century, it has never been recorded from outside Western Australia. Of the closely-related Synancejidae, the feared stone fish, three species are known from the State, one of which, *Erosa daruma*, is apparently restricted to the North-West and is known from but two specimens. A related species occurs in Queensland and Japan.

Flatheads (Platycephalidae) are common in the temperate part of the State.

An interesting family is that of the angler fishes or toad fishes (Antennariidae). Their curious shape with the leg-like pectoral fins always excites attention. There are about a dozen species, two of which are endemic to the State. One of these is *Echinophryne glauerti* which is occasionally found washed up on City Beach.

Leatherjackets (Monacanthidae) are a large group distinguished by the rough leathery skin and a single large erectile spine on the nape. Some species, like *Chaetoderma penicilligera*, are common and of attractive appearance.

Of the blowfish family, the common Blowie (*Tetraodon (Spheroides) pleurogramma*) needs special mention; it is extremely plentiful off the coast at Fremantle and in the Swan River estuary. It is poisonous to eat and is greatly disliked by anglers who find that it greedily takes their bait. Fishes of this family contain a poisonous substance called Tetraodontoxin and the celebrated navigator Captain James Cook was very ill after eating a blowfish in the course of a voyage in the Pacific in 1774. Boxfishes (Ostraciontidae) and porcupine fishes (Diodontidae) are related groups, each represented by a number of species.

Further information about the commercial fishes in Western Australian waters is given in the Fisheries section of Chapter VIII, Part 1—*Primary Production* where the principal species of edible fish are listed together with the quantities of each species caught. The section also contains additional information relating to whaling (see *Mammals* earlier in this Part).

THE INVERTEBRATE FAUNA⁽⁶⁾

The invertebrate fauna of Western Australia is large and varied, as one would expect in a third of a continent which extends from temperate to tropical zones and includes both coastal and desert areas. Rather than spread our descriptions too thinly over this enormous field we have restricted ourselves to a brief summary of the position in relation to a few selected groups in which work is being actively carried out.

Several invertebrate species are commercially exploited here, the most important being the marine crayfish (*Panulirus cygnus*) which supports an extensive export fishery. Others commercially important include several species of octopus and squid, the Blue Swimming Crab ('Blue Manna', *Portunus pelagicus*) and several species of prawns. Pearl-shell was fairly extensively fished along the north-west coast but this fishery has now declined.

A summary of the terrestrial and freshwater invertebrate fauna and their ecology is given in Main's *Guide for Naturalists* (1968).

Echinodermata

The echinoderms of Western Australia have been shown by Clark (1946) to be derived from the Indo-Malayan fauna. Most species of northern Australia are widely distributed in the Indian Ocean and Malayan archipelago, while as one passes southward these decrease in proportion to the endemic species until on the south-western coast nearly nine-tenths of the echinoderms are endemic to the region.

All five groups of echinoderms, feather stars (Crinoidea), sea stars (Asteroidea), brittle stars (Ophiuroidea), sea urchins (Echinoidea), and sea cucumbers (Holothuroidea) are well represented. Eighty-five species of sea stars and fifty-five species of sea urchins are recorded from Western Australia including the continental shelf. The other groups have smaller numbers of species.

On the rocky and sandy shores of the South-West about twenty species of sea stars are common in shallow water. One of the most abundant is *Coscinasterias calamaria* which is widely distributed in the Southern Hemisphere. Sea urchins are represented by about twelve common species; on rocky shores the most abundant of these is *Heliocidaris erythrogramma* which has a southern Australian distribution.

In Cockburn Sound, between Garden Island and the mainland south of Fremantle, an abundant but specialised echinoderm fauna exists. This consists mainly of the small sea urchin (*Temnopleurus michaelsoni*), the biscuit urchin (*Peronella lesueurii*), the heart urchin (*Echinocardium cordatum*) and the sea star (*Stellaster inspinosus*). On the south coast, King George Sound has long been known as a rich collecting ground for echinoderms, but the fauna of other bays and inlets is much less well known.

Little is known of the echinoderm fauna of the northern coasts, and almost all that we do know comes from the publications of H. L. Clark (see bibliography at the end of this Part) who collected extensively in the Broome area and made smaller collections in other places. Near Broome, a wide variety of echinoderms was collected in his dredges and along the shore.

Mollusca

The molluscan fauna of the Western Australian coastline has not been recently catalogued, but from the area within 35 miles of Fremantle 270 species of bivalves (Pelecypoda), and univalves (Gastropoda) are recorded. The smaller groups, chitons (Amphineura), octopus and cuttlefish (Cephalopoda) and tusk shells (Scaphopoda) are also represented.

Molluscs dominate the intertidal rocks of the west coast, especially chitons, periwinkles, and limpets; the limpets range from the very large *Patellanax laticostata* to the small *Notoacmea onychitis*. On the north-western coast, rock oysters (*Crassostrea tuber-*

⁽⁶⁾ Written with assistance from Drs R. W. George, E. P. Hodgkin, Barbara Y. Main and B. R. Wilson, and Mrs L. Marsh.

culata) and barnacles take the place of limpets intertidally. The oysters are fished commercially for food on a small scale in places where extensive beds are uncovered at low tide.

Bivalves occur mainly on sandy and muddy bottoms such as those of Cockburn Sound and King George Sound, and along the north-western coast. They are less plentiful on the unstable sandy shores of the open western coast. The pearl-shell fishery of north-west Australia is based on several species, mainly the Black-lipped Pearl-shell (*Pinctada margaritifera*) and the Silver-lip (*P. maxima*). The Shark Bay Pearl-shell (*P. carchariarium*) is abundant in Shark Bay and has been fished there commercially. Commercial beds of the scallop *Amusium balloti* and the mussel *Mytilus edulis planulatus* also occur in Western Australian waters but only sporadic, small-scale attempts to exploit them have been made.

Many species of cowrie shells occur on the rocky shores of the north-west coast while a few species such as *Zoila friendii* and *Austrocyprea reevei* are confined to the south-western corner of the State. The north-west coast also has many endemic species of volute shells such as *Volutoconus hargraevsi*, *Amoria macandrewi* and *Cymbiola nivosa*.

Two kinds of gastropods without visible shells are conspicuous members of the marine fauna off Fremantle. One is the large sea-hare (*Aplysia gigantea*) with a small internal shell; it may be cast up on the beaches in large numbers after winter storms. The other is a nudibranch, with no shell at all, the colourful *Glossodoris westraliensis*, well known to visitors to Rottnest Island.

Coelenterata

This group includes the corals (Anthozoa), the hydroids (Hydrozoa) and jellyfish (Scyphozoa).

Reef-building corals occur on the north-western coast in abundance and form reefs as far south as the Abrolhos Islands (29°S.), and Port Gregory (28°S.) on the mainland. Further south, reef-building corals are few in number and occur as small reefs and as scattered colonies on islands off the coast, but not on the coast itself. The staghorn coral *Acropora* is plentiful around the Abrolhos Islands and at Port Gregory but it has not been found further south except in Pleistocene fossil beds on Rottnest Island. Two or three species of corals extend east of Albany, and one, *Plesiastrea urvillei*, occurs right along the south coast of Australia.

Soft-corals are abundant on the muddy reefs of much of the north-west coast but few species occur on the west coast. The brightly-coloured fan coral *Mopsella* is common on rocky reefs of the west and south coasts.

Jellyfish of a few species, such as the white *Aurelia aurita* and the brown *Phyllorhiza punctata*, are common in the Swan River in summer. *Carybdea*, the small 'sea-wasp', occurs on the open coast.

Crustacea

The most important commercial species of crustacean in Western Australian marine waters is the 'Cray', *Panulirus cygnus*. It occurs from North West Cape in the north to Hamelin Bay in the south. In the tropics five additional species of *Panulirus* occur; these are collectively referred to as 'Green Crays' (*Panulirus versicolor*, *P. ornatus*, *P. homarus*, *P. penicillatus* and *P. polyphagus*). On the southern coast occurs *Jasus lalandii*, which is the commercial species of crayfish in south-eastern Australia, but it is not of economic importance in this State.

The Swan River Prawn or School Prawn (*Metapenaeus dalli*) occurs on the west coast of this State and extends into Indonesian waters. In Exmouth Gulf and in Shark Bay two species of tropical prawns are caught commercially. These are the Tiger Prawn (*Penaeus esculentus*) and the Banana Prawn (*Penaeus merguensis*). The Western King Prawn of the south is *P. latisulcatus*.

The Blue Swimming Crab (*Portunus pelagicus*), plentiful in the summer in the estuaries of the Swan River and at Mandurah, is one of the common commercial crabs of Australia.

Two common species of crab are the Rock Crab (*Leptograpsus variegatus*) and the Ghost Crab (*Ocypode pygoides*). The Rock Crab scrambles among rocks and jetty piles of the west and south coasts, whereas the Ghost Crab digs near-vertical burrows at the edge of the beach and is endemic to the west coast.

Of the many other species of non-commercial crustaceans some groups have been recently monographed by scientific workers. These are the swimming crabs, mantis shrimps and pebble crabs.

Crustacea are also common in inland waters (see *Fauna of Inland Waters* earlier in this Part).

Spiders

Like most other invertebrate groups, the spiders are represented by a large number of genera and species and it is not possible at this stage to give an accurate picture of the relationships of the Western Australian fauna to the rest of Australia. Early work on the Western Australian spiders was restricted to the description and naming of species. Research now is centred on investigations of the biology of various species and the special adaptations of endemic forms to the particular conditions of the Western Australian environment. The most interesting of the spiders, when viewed from this aspect, are the burrowing groups, including primarily the Mygalomorphae ('trapdoor' spiders) and the Lycosidae (Wolf spiders). Some of these forms show special adaptations to semi-arid environments, to reduced food supply, and to flash-flooding, such adaptations being paralleled in many taxonomically unrelated genera. It is also of interest that some families, which in other parts of the world and in the wet forests of Australia are primarily web weavers and litter dwellers, are burrowers in the arid parts of Western Australia (and also in other dry parts of Australia). Such forms are essentially nocturnal and escape the unfavourable conditions of the day by remaining in their burrows and some species seal their burrows during the summer period.

Insects

The more important insect species occurring in Western Australia (particularly those of economic significance) are dealt with in Part 5 of this Chapter.

CONSERVATION OF THE FAUNA

In recent years the need to conserve the Western Australian fauna has received considerable publicity—this need has certainly never been greater than it is at present. In this State where new land is being brought into production for agriculture and the pastoral industry at a rate of approximately one million acres a year, and where the ever-increasing tempo of industrialisation and mining activity is obvious to all through its effect in increased population, the position of the native fauna is serious. This is because human introductions such as sheep and cattle, as well as the more direct effect of the plough and the scrub roller, is radically changing the environment, but also because an increase in human population has meant a higher level of utilisation of wild stocks such as ducks (which form a basis for sport), kangaroos (which form a basis for a lucrative trade in pet meat and hides), and crayfish (which support the most valuable single Australian fishery).

From the early days of settlement in Western Australia, legal provisions were in existence under which land could be reserved but, in early years it was not realised that the preservation of habitat is basic to conservation and that protection of individuals against killing is of insignificant value except in specialised cases (see below). In the early days, protection was afforded to some game animals, such as kangaroos, to prevent them from being shot out, but it was not until land development became widespread in the South-West that the first real attempt was made to set aside a large permanent native fauna and flora reserve. This was in 1894 when 160,000 acres were gazetted between Pinjarra, North Dandalup and the Bannister. Unfortunately, this reserve later became alienated.

From this early attempt at habitat conservation has grown a very conscious need for extensive reserves carefully sited and selected in order to provide security for a representative sample of all the major habitats throughout the State. In 1959, a committee of the Australian Academy of Science produced such a plan for Western Australia and this plan has provided in subsequent years the basis for a policy of land acquisition for this purpose by the two major bodies who control land for conservation, *i.e.* the National Parks Board and The Western Australian Wild Life Authority.

Outside the reserves, fauna gains its protection through the Fauna Conservation Act. This Act replaced an earlier Game Act of 1912-1913 which had the rather different primary purpose of providing some measure of protection for those species of native fauna shot or hunted for sport. Under the Fauna Conservation Act, all native vertebrate terrestrial fauna, except those species declared vermin or declared otherwise unprotected, are protected against being taken, hunted, or confined. Owing to the very complex relationship between many species and their environment, such protective legislation has only a very limited long-term conservative effect in areas of closer settlement or intensive agriculture. On the other hand, in pastoral and forest areas, and in unalienated crown land not in fauna reserves, the legislation is much more valuable. The most important achievement of such protective legislation, however, is that it makes people conscious of the need to protect our native fauna and it is very likely that this educational function is its main justification except:

- (i) where animals occur on small islands or restricted places on the mainland in such numbers or in massed concentrations that they are vulnerable to destruction by man. Local examples are the Noisy Scrub-bird at Two Peoples Bay near Albany, sea birds in nesting concentrations on small islands, and island populations of mammals such as the Quokka on Rottneest or the various wallabies on Bernier and Dorre Islands in Shark Bay.
- (ii) where they are killed in the mass for commercial purposes, *e.g.* Humpback Whales, Fur Seals, Kangaroos;
- (iii) where they are killed for sport, *e.g.* the Bustard (Plains Turkey), ducks;
- (iv) where they are taken in very large numbers for zoos, circuses, or aviculture, *e.g.* finches and parrots.

In addition to its protective role, the Fauna Conservation Act establishes The Western Australian Wild Life Authority which is responsible for:

- (i) the initiation of conservation-oriented research in relation to the fauna;
- (ii) the acquisition, control, planning and management of an adequate system of sanctuaries (*i.e.* land reserved partly or entirely for the purpose of fauna conservation) including the preparation and implementation of working plans for each area; and
- (iii) advising the Minister for Fisheries and Fauna in relation to fauna conservation generally.

In Western Australia today the only terrestrial native fauna subject to any marked degree of human predation are ducks, eagles, emus, kangaroos of three species (the Grey, the Red, and the Euro) and the dingo. Excepting for certain vermin species on which a bonus is payable, figures for the total annual number killed are not available (for the 12 months ended 30 June 1968 bonuses were paid on 5,555 dingoes, 16,046 emus, and 1,493 Wedge-tailed Eagles) and until they are, and details of population size and rate of stock recruitment are known, it will not be possible to say whether these species are in serious danger. At present, only the crudest methods (*i.e.* of observing abundance and then subjectively comparing this with previous experience) can be used to say whether it is necessary to apply protection to prevent a serious decline in numbers.

By contrast, the position of the marine fauna is very different. There, intensive work has been done on both fish and invertebrate stocks in past years and, although there has been some cause for alarm in connection with an apparently depleting crayfish stock, conservative measures have been developed, and there are very good grounds for belief



Block by courtesy of BP

RED-WINGED PARROT
(*Aprosmictus erythropterus*)

Even more shy than the Lorikeet, the Red-winged Parrot is extremely difficult to photograph. The pure white eggs are laid at the bottom of a deep hollow, usually in a Bloodwood tree. When the chicks hatch they are only fed about five times a day, each adult bird arriving at a different time, in contrast to most other parrots where the adults arrive together.



Block by courtesy of BP

COLLARED SPARROWHAWK
(*Accipiter cirrocephalus*)

The Sparrowhawk, or Musket, is the smallest of Australia's hawks, with a body scarcely larger than a closed fist. In colour it is very similar to the Goshawk. At the nest, which is generally placed lower than that of the Goshawk, the Sparrowhawk is fearless. The chicks are very precocious and hop about the branches surrounding the nest long before they are finally feathered. As with the Goshawk, only two of the three or four chicks usually survive the 28-day fledging period.



RED-FLOWERING GUM

(*Eucalyptus ficifolia*)

In nature the Red-flowering Gum is a straggling tree which attains a height of about 30 feet and only rarely has an erect trunk. It occurs in small isolated pockets among stunted jarrah on the south coastal plain in the Denmark area. The flowers are produced during the summer months and are of an intense vermilion colour. although in cultivation they vary from pink to the darkest red.

MARRI

(*Eucalyptus calophylla*)

Marri occurs throughout the jarrah forest of Western Australia and is most common on the better class soils. It reaches a height of some 100 feet with a bole of about 50 feet. It produces masses of white blossoms during late summer and is a popular tree with apiarists. There are a few specimens of this tree which produce pink flowers.

that these have been successful. The great reduction of the population of Humpback Whales due to over predation is a matter of considerable shame—it illustrates well the dilemma of an industry which is faced with the alternative of a low level of fishing over an indefinite period, or a highly lucrative but short period of exploitation as though the stock were not capable of regeneration (a procedure akin to a mining operation). In the case of the whaling industry in Western Australia the position was complicated by the fact that the stock was hunted both by the shore-based Western Australian fishery and by the international pelagic fleets operating in the Antarctic.

At present, our greatest need is information upon which to base proper conservative measures. Protective legislation, no matter how effective it is in protecting individuals, must not be regarded as effective in conservation unless measures to protect the environment are also taken. As a result, the authors believe that the stages of work most urgent at present to conserve the Western Australian fauna are as follows.

- (i) to complete the reservation of lands designated in the report of the Western Australian Sub-committee of the Australian Academy of Science.
- (ii) recognising that these areas are designated upon the best available information as to habitat type, but not upon actual surveys of the fauna, the authors believe that the areas must now be given thorough biological surveys to ensure that populations of all Western Australian species of animals and plants are contained within them; and also to estimate, as far as possible, the sizes of the populations which they contain.
- (iii) to get under way an increased amount of long-term work on the biology of species which are suspected to be vulnerable. Through this work their particular requirements will be discovered and an endeavour can then be made to ensure that the reserves contain these requirements.
- (iv) to insist on proper monitoring for any annual crop taken from vermin or other species subject to human predation so that these populations can be maintained at the level consistent with the State's particular requirements, and yet to avoid their extermination.

In Western Australia, land development has not yet gone too far for the State to preserve a representative section of its fauna and flora for all time. The keys to this are habitat conservation, reserve management, and education in conservation thinking. Through these means, it will also be able to ensure that as much wild life as possible remains in altered environments as well. Indeed, if roadside verges, small township reserves and timber lots on farms are preserved, a surprisingly large number of native creatures will survive. The importance of these minor habitats, often regarded condescendingly by professional biologists who focus their attention on big reservations, cannot be sufficiently stressed. It is in these areas that the ordinary people and tourists gain an acquaintance with the native fauna and flora. Here man and animals will contrive to co-exist in intimate association with each other and so help to reinforce a popular sentiment for conservation.

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Chapter II—continued

Part 5—Entomology in Western Australia

With Particular Reference to Agriculture

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The entomological field in Western Australia is so vast and the number of active workers on the subject so few that much still remains to be learned about the insects found in this State. A wide range of environmental conditions exists, from the tropical north to the temperate south, and the geographical isolation of the State has allowed the development of numerous endemic forms. As may be expected, the insect fauna of the Kimberley Division shows closer affinities with that of North Queensland than with the lower half of the State. The central desert, which reaches the coast to the south along the Great Australian Bight and to the north along the Eighty Mile Beach, forms an effective barrier discernible in the distribution of flora, mammals, insects and birds.

Owing to the limitations of space no attempt has been made to cover all the various insect orders which occur in the State, but the economic importance of various groups and their influence on major agricultural industries have been outlined, and some of the more outstanding forms of general interest have been mentioned. A brief description of some effects of the use of pesticides in the metropolitan area in recent years is also given.

CLASS INSECTA (Insects)

Order Collembola (Springtails)

The springtails include the Lucerne Flea (*Sminthurus viridis*) which was introduced into this State from eastern Australia in about 1910. It has spread to almost all the clover-growing areas in the South-West and is a very serious pasture pest. Partial control is exercised by a predatory mite, *Bdelloides lapidaria*.

Order Odonata (Dragonflies and Damselflies)

These insects are predatory in both the immature and adult stages and are usually regarded as beneficial creatures. However, they sometimes injure vegetable seedlings by ovipositing into furrow-irrigated crops. This has occurred mainly at Carnarvon where surface water is scarce and where irrigated plants are presumably mistaken for aquatic vegetation.

In order to survive in the diverse climatic conditions which exist in Western Australia, some members of the dragonfly group have developed the ability to breed in highly saline waters and to take advantage of ephemeral inland pools.

Orders Orthoptera, Mantodea, Blattodea, Phasmatodea (Grasshoppers, Locusts, Mantids, Cockroaches, etc.)

The grasshoppers and locusts are represented by a large number of different species. The most important pest form is the Small Plague Grasshopper (*Austroicetes cruciata*). The normal habitat of this species lies roughly between the 10 inch and the 15 inch isohyets. For breeding it favours hard bare soil and as extensive areas once utilised for wheat growing have now reverted to grazing, these uncultivated tracts periodically give rise to serious grasshopper swarms, which menace the adjacent wheat lands. The Australian Plague

Locust (*Chortoicetes terminifera*) so troublesome in other States occurs in Western Australia but rarely as a plague species. In the Kimberley the Yellow-winged Locust (*Gastromargus musicus*), the Migratory Locust (*Locusta migratoria*) and the Spur-throated Locust (*Austracris guttulosa*) assume plague proportions, but in the southern agricultural districts they occur in the solitary phase only. The mantids (Mantidae) are represented by many different species. Their well-developed fore-limbs are admirably adapted for catching prey and, like their foliage-feeding relatives the phasmids or leaf insects (Phasmatidae), their colouring harmonises remarkably with the sticks and leaves on which they rest. The cockroach fauna includes a large number of native species as well as several introduced forms. The commonest pest species is the cosmopolitan American Cockroach (*Periplaneta americana*). Some large and quite colourful forms occur in the inland regions with the genus *Polyzosteria* well represented.

Order Isoptera (Termites)

The so-called white ant is a serious pest in all parts of the State. Earth-dwelling types occur mainly, and among the most important species may be cited the large *Mastotermes darwiniensis* of the north and the widely distributed *Coptotermes acinaciformis*. The large mounds of the grass-eating *Nasutitermes triodiae* are characteristic of certain landscapes in the pastoral areas. Heavy annual losses are caused by termite damage and the use of such chemicals as dieldrin, aldrin, chlordane and creosote is recommended for the protection of timber structures.

Order Phthiraptera (Lice)

Indigenous species occur on birds and native mammals, and various introduced forms infest domestic poultry, horses, cattle and sheep.

Order Thysanoptera (Thrips)

This order is represented locally by a large number of native species as well as several introduced forms. The most serious native species is *Thrips imaginis* which may swarm in apple blossoms and seriously affect the crop setting.

Thrips tabaci, often called the Tobacco or Onion Thrips, is a carrier for the plant disease Spotted Wilt. Severe damage to tomato plants may result from this virus.

Order Hemiptera (Bugs, Aphids, Scale Insects)

This group contains a large number of pest species, many of them introduced. A serious vegetable pest is the Green Vegetable Bug (*Nezara viridula*) which is partially controlled by an introduced wasp parasite, *Microphanurus basalis*. The native Rutherglen Bug (*Nysius vinitor*) may at times swarm on vegetables and fruit trees, but seems less serious in this State than on the other side of the continent. The Crusader Bug (*Mictis profana*), so named because of the light-coloured St Andrew's cross on the back of the adult, feeds normally on acacias and other native plants, but it frequently invades cultivated areas and it may be troublesome to young citrus. The Apple Dimple Bug (*Campylomma livida*) is a native species which sometimes causes severe malformation of apples by feeding upon the very small developing fruit.

One native aphid (*Anomalaphis comperei*) has been recorded. The only two districts from which it has so far been collected are Albany and Karridale where it has been found infesting native peppermint (*Agonis flexuosa*). A point of interest about these occurrences is that the aphids were associated with a heavy Argentine Ant infestation in the area. Since the removal of the ants, following dieldrin spraying, no further aphids have been discovered.

Numerous introduced species occur as pests on vegetables, garden plants and fruit trees, e.g. *Myzus persicae* (peaches, potatoes, etc.), *Toxoptera aurantii* (citrus), *Brevicoryne brassicae* (cabbages, cauliflowers, etc.), *Eriosoma lanigerum* (Woolly Aphid of apples). A recent record which may prove of some importance is *Aphis craccivora*. This insect carries a virus disease of subterranean clover known as 'stunt.'

Of the native coccids the gall-forming members of the genus *Apiomorpha* are among the most remarkable. The woody galls in which the female insects pass their days vary from small structures a fraction of an inch across to woody knobs the size of an apple. From an economic point of view, however, the various introduced scale insects demand most attention. Included in the list of pest species are the following:

- San Jose Scale (*Quadraspidiotus perniciosus*), which is a serious pest of apples.
- Citrus Red Scale (*Aonidiella aurantii*), found mainly on citrus but with a wide host range.
- Brown Olive Scale (*Saissetia oleae*), found attacking citrus, stone fruits and garden shrubs.
- White Wax Scale (*Ceroplastes destructor*), which is mainly a pest of citrus but which attacks many cultivated shrubs.
- Soft Brown Scale (*Coccus hesperidum*), which has a wide host range but is of greatest importance on citrus.
- Grass-crown Mealybug (*Antonina graminis*), a widespread and troublesome pest causing damage to lawns particularly in the warmer parts of the State.

Order Coleoptera (Beetles)

This order is the dominant one among existing insects and is represented in Western Australia by many and varied forms. The carnivorous ground beetles (Carabidae) are widely distributed, one of the best-known species being the bright green Stink Beetle (*Calosoma schayeri*). The tiger beetles, of the sub-family Cicindelinae, are of interest not only because of the metallic colouration seen in many forms but because of their association with the inland salt-lakes. The larvae are subterranean and may be collected by digging on the lake margins.

The ladybirds (Coccinellidae) comprise a group of considerable economic importance and in addition to native species the State contains a number specially introduced to combat various scale insects and aphids. Among the best known of the introduced species are *Cryptolaemus montrouzieri* and *Leis conformis*. The larvae of *Cryptolaemus* are covered with a whitish material which makes the insect superficially resemble the mealybugs upon which it feeds. *Leis conformis* in conjunction with the wasp parasite *Aphelinus mali* plays an important role in combating the Woolly Aphid of apple trees. Destructive leaf-eating ladybirds belonging to the genus *Henosepilachna* were once found only in the northern parts of the State where they attack vegetables, especially pumpkins and melons. In 1956, specimens of *Henosepilachna* were collected in Perth. Since then they have become established in several suburban areas, but how the introduction occurred is not known.

The jewel beetles (Buprestidae) contain some of the most colourful beetles to be found anywhere in the world. Western Australia is particularly rich in species and at times the beetles may be found in large numbers on flowering mallee and sand plain flora. One of the commonest is the metallic green *Stigmodera gratiosa*, and one of the largest is *Julodimorpha bakewelli*, measuring almost three inches in length. Although the beetle larvae are wood borers, closely resembling the 'bardee' in appearance and habits, they are of little economic importance.

The cockchafers or scarabs (Scarabaeidae) are represented by a great diversity of forms. Several species may swarm on to flowering fruit trees and roses in the early summer and are popularly known as Spring Beetles. The bronze-coloured *Colymbomorpha lineata* is a common pest of apple trees during the blooming period and the Saddle-backed Beetle (*Phyllotocus ustulatus*) sometimes visits citrus blossoms in large numbers. An introduced species commonly known as the Black Beetle (*Heteronychus arator*) has gained a firm footing in the State and is a troublesome pest of lawns and turf. It is also growing in importance as a pasture and vegetable pest. A native species of *Colpochilodes* has caused spasmodic damage to cereal crops and clover pastures in the southern portions of the State.

The longicorn beetles (Cerambycidae) are a group of wood-boring insects represented by a number of different species. They are often blamed for the death of forest eucalypts, although investigations have shown that heavy beetle infestations are usually secondary

and that healthy trees are seldom seriously affected by the beetles. The larval stage of this group is the so-called 'bardee', one time prized by the Aborigines as food. They are not a pest of structural timber as they do not attack seasoned material.

The leaf beetles (Chrysomelidae) may superficially resemble ladybirds in general appearance as some of them are rounded and quite brightly coloured. Two species have been introduced into the State for the purpose of combating St John's Wort, a troublesome weed in some districts. *Chrysomela gemellata* and *C. hyperici* were originally introduced into Australia from the South of France and liberated in Victoria with very satisfactory results. The local colonies were obtained from the latter source and have become established in several districts. In some situations a reduction in St John's Wort can be attributed definitely to beetle activity, but in many areas the picture is obscure due to the extensive use of chemical sprays.

Common pest species in eastern Australia are the Pumpkin Beetles (*Aulacophora hilaris* and *Rhaphidopalpa palmerstoni*). These beetles are found in the north of the State but do not extend into the cooler latitudes.

The weevils (Curculionidae) are a very specialised group characterised by the presence of a rostrum or 'snout' which bears the mouth and antennae. The genus *Leptopius* contains a number of large greyish weevils, many of which breed in association with acacias. One of the best known members of the family is *Catasarcus rufipes* which feeds on eucalypt foliage and may disfigure young street trees. The almost world-wide Rice Weevil (*Sitophilus oryzae*) is our principal pest of stored grain, but the Granary Weevil (*S. granarius*) also occurs. Two common orchard pests are the introduced Apple Weevil (*Otiorrhynchus cribricollis*) and Fuller's Rose Weevil (*Pantomorus cervinus*).

Order Neuroptera (Lacewings)

This order contains a number of useful insects, for many of the neuropterous larvae feed upon scale insects and other pests. The family Myrmeleontidae has a number of large, rather dragonfly-like species, the larval stages of which build conical sand pits and are commonly known as ant lions. Amongst the most remarkable of the local lacewings are two members of the family Nemopteridae in which the hind wings are greatly modified. In the genus *Croce* they are long and thread-like and in the Spoonwinged Lacewing (*Chasmodon hutti*) they are spoon-shaped or paddle-shaped.

Order Diptera (Flies, Mosquitoes, etc.)

This group contains a vast number of species, many of which are of major economic importance.

The mosquitoes are well represented, the commonest species being the Brown House Mosquito (*Culex fatigans*) and the Yellow-fever Mosquito (*Aedes aegypti*). The latter species is the carrier for dengue fever in the northern portion of the State. The anophelines are represented by the widely distributed *Anopheles annulipes* and several much rarer forms. *A. annulipes*, together with *Aedes alboannulatus*, have played an important part in the spread of the rabbit virus *Myxomatosis*.

Of the introduced flies, those causing most trouble are the Australian Sheep Blowfly (*Lucilia cuprina*) and the Mediterranean Fruit Fly (*Ceratitis capitata*). The Buffalo Fly (*Haematobia exigua*) is a serious stock pest in the Kimberley Division of the State, but so far has not become established in the cattle areas of the south. It is believed to have originally reached Australia on buffaloes introduced from Asia.

The common House Fly (*Musca domestica*) is widespread as is also the native Bush Fly (*Musca vetustissima*). Despite its common occurrence and extremely wide range, the natural breeding habits of the latter fly are not fully known.

Modern insecticides such as DDT, dieldrin and the various organic phosphates gave outstanding control of various fly pests for several years. The widespread development of resistance in both housefly and blowfly populations has greatly complicated the matter, however, and drawn attention to the importance of preventive measures, such as sanitation in the case of houseflies, and the Mules operation and crutching in the case of the sheep blowfly.

The March flies (Tabanidae) are well represented but, although their blood-sucking habits render them annoying, both to livestock and humans, they are not a serious pest.

Of the many useful flies may be mentioned the blowfly-like tachinids which parasitise caterpillars, grasshoppers and other pests and the bee flies (Bombyliidae) which parasitise the eggs of other insects. The maggots of the bombylid fly (*Cryptomorpha flaviscutellaris*) are commonly found in the egg pods of the Small Plague Grasshopper (*Austroicetes cruciata*).

Order Siphonaptera (Fleas)

A number of introduced as well as native fleas occur in this State. *Echidnophaga myrmecobii*, found originally on native mammals, is a very common parasite of rabbits in the drier parts of the State. The Poultry Stickfast Flea (*E. gallinacea*) closely resembles the former species but is mainly a pest of poultry and domestic animals. The Oriental Rat Flea (*Xenopsylla cheopis*), the Human Flea (*Pulex irritans*) and the Cat and Dog Fleas (*Ctenocephalides felis* and *C. canis*) are among the most important introduced species.

Order Lepidoptera (Moths, Butterflies, etc.)

The primitive swift moths (Hepialidae) are represented locally by a number of very beautiful forms. The larvae are wood borers but do not occur in sufficient numbers to constitute a serious forestry pest. Several large and striking members of the genus *Aenetus* occur in the lower South-West.

A group of small native moths of the family Pyralidae, sub-family Crambinae and commonly known as pasture webworm moths (*Hednota pedionoma*, *H. crypsichroa*, etc.) is a serious pest of cereal crops (excepting oats) and grass pastures. Depredations are controlled by planting on clean fallow, but the recent trend towards ley farming has greatly favoured these pests.

A family of considerable interest to the orchardist is the Tortricidae, for to this group belong the Codling Moth (*Cydia pomonella*) and the Oriental Fruit Moth (*C. molesta*). Outbreaks of Codling Moth have occurred on a number of occasions, but drastic eradication measures have so far prevented this major apple pest from becoming permanently established and have given Western Australia the distinction of being the only large apple-producing country where the moth is not a major problem.

One of the best-represented families is the Noctuidae (cutworms) which contains several important pests. Included under this heading are the Climbing Cutworm (*Heliothis punctigera*), the Cluster Caterpillar (*Spodoptera litura*), the Rough Bollworm (*Earias huegeli*), the Brown Cutworm (*Agrotis munda*) and the Southern Army Worm (*Persectania ewingii*). The first three species are serious pests in the cotton areas of the north. The Fruit-sucking Moth (*Othreis materna*) also belongs to this group and causes heavy losses in citrus fruit grown around pastoral homesteads in the Kimberley and the North-West. In almost all cases where moths and butterflies are regarded as pests it is only the caterpillar stage which is destructive. The Fruit-sucking Moth, however, has a rasp-like proboscis capable of piercing orange and citrus skins and then sucking up the juice. Fortunately the creatures do not normally range to the citrus areas of the South-West.

One of the most remarkable members of the family Agaristidae is the Whistling Moth (*Hecatesia fenestrata*). The male of this species is active just at sunset and makes a loud clicking noise during its fast circling flight.

Other common moth pests are the Cabbage Moth (*Plutella maculipennis*), the Potato Moth (*Phthorimaea operculella*) and the Apple Looper Moth (*Chloroclystis laticostata*).

The beautiful *Carthaea saturnioides* with its large eye spots on the wings superficially resembles the Emperor moths. Its range is restricted to south-west Australia and the creature is much prized by collectors.

The butterfly fauna of the State lacks many large and showy forms. Some of the northern species such as *Hypolimnas bolina nerina* are quite colourful but the State has nothing to compare with the conspicuous and beautiful species found in the tropics of eastern Australia.

The blues (Lycaenidae) are well represented and the association of many larvae with ant nests renders the group a particularly interesting one.

The skippers (Hesperiidae) are relatively drab-coloured butterflies with strong powers of flight. Over twenty species are recorded from the State and some forms are endemic to the South-West.

Only one butterfly is of economic importance and that is the introduced Cabbage White Butterfly (*Pieris rapae*) which reached this State in 1943. It attacks cabbages, cauliflowers and related plants as well as one or two other strong-tasting herbs such as watercress. The butterfly belongs to the whites, or Pieridae, which group contains a number of native species. Several members of this family, including the introduced Cabbage White, display extraordinary powers of flight and the native Caper White (*Anaphaeis java teutonia*) has been observed to carry out mass migrations of remarkable proportions on the eastern side of the continent.

Order Hymenoptera (Bees, Wasps, Ants)

The wood wasps and Sirex wasps (Siricidae) include several pests which have been established in New Zealand and Tasmanian pine forests. Imported timber (including four million super. feet of prefabricated housing material) has been fumigated from time to time following the location of infested material.

The saw flies (Tenthredinidae) are represented locally by a number of native forms. The larvae of the genus *Perga* may often be seen in caterpillar-like clusters amongst the foliage of eucalypts. An introduced saw fly (*Caliroa cerasi*) is a common pest on pear and plum trees. The smaller parasitic wasps (ichneumonids, chalcids and their allies) are well represented and play an important role in combating many insect pests. Some attack caterpillars, some aphids and scale insects and other insect eggs, so that without their aid the problem of pest control would be even more difficult than at present.

The ant fauna (Formicidae) of the State is extremely varied. One of the best-known native species is the Meat Ant or Mound Ant (*Iridomyrmex detectus*) which often nests on gravel paths and road-sides. Among the most remarkable of the local ants may be listed *Camponotus inflatus*, the Honey-pot Ant of the interior, and *Myrmecia regularis* of the karri forest area which has the frog *Metacrinia nicholli* as a tolerated guest in its nest. The Honey-pot Ant derives its name from the fact that certain individuals in the nest store honey until their abdomens become inflated to the size of grapes. This honey is then regurgitated to other ants as required. These ants were once prized by the natives as a food delicacy.

Two important introduced ant pests are the Argentine Ant (*Iridomyrmex humilis*) and the Singapore Ant (*Monomorium destructor*). The Argentine Ant was once widespread in the metropolitan area, Albany and Bunbury, with several other country outbreaks. The insect has been reduced in recent years, however, as a result of a large-scale control campaign. A five-year control scheme against the ant, with provision for an annual expenditure of \$210,000 was inaugurated in 1954. The scheme involved the spraying with dieldrin of all known infested areas, which were originally estimated to cover approximately twenty-five thousand acres. During the course of the campaign further outbreaks were discovered, giving an estimated total of forty-five thousand acres and, in consequence, a year's extension of the campaign was authorised by Parliament. As a result of this a total of over forty-four thousand acres was sprayed and the ant menace was removed from the city and suburbs and most country districts. However, an area of almost impenetrable swamp country north of Perth still harbours the ants. To prevent spread from this area and to deal with any survivals or later introductions, a 'continuance scheme' financed from Consolidated Revenue was approved. Approximately eight thousand acres consisting of survivals and new infestations in metropolitan and country areas have been treated under this programme.

The social wasps (Vespidae) were once known only from the northern portion of the State. About 1949, however, colonies of *Polistes variabilis* were located in various parts of the Perth suburban area and they have now extended to some of the orcharding districts in the Darling Range. How the introduction occurred is not known.

The burrowing wasps, including the sand wasps (Pompilidae), the flower wasps (Scoliidae) and solitary ants (Mutillidae) are well represented. The latter are, of course, not true ants but the wingless females bear a superficial resemblance to ants which is further accentuated by their ability to inflict a painful sting. The flower wasps are particularly numerous and winged males carrying wingless females are common around flowering plants in the early summer. Of the solitary ants the black and white *Ephutomorpha cribricollis* is the best known. Most of the wasps mentioned are beneficial, for they store caterpillars and other insects in mud nests and underground burrows to serve as food for the wasp grubs.

The majority of native bees are solitary forms although some, like the Colletidae, often choose a common site for nest burrowing and hundreds of tunnels may be located close to one another.

The leaf-cutting bees (Megachilidae) often attract notice from their habit of cutting circular pieces from rose leaves and other foliage for use in nest construction.

The only native social bees belong to the genus *Trigona* which does not occur in the southern portions of the State.

CLASS ARACHNIDA (Spiders, Mites, Ticks, etc.)

Creatures grouped under the above heading are, of course, not true insects and will be dealt with only very briefly. Several forms are of considerable economic importance, as for example the Cattle Tick (*Boophilus microplus*) and the Fowl Tick (*Argas persicus*). The Cattle Tick is confined to the Kimberley Division and its range corresponds roughly with that of the Buffalo Fly. The Ornate Kangaroo Tick (*Amblyomma triguttatum*) is a common species. It is occasionally collected as an accidental parasite on domestic animals and man.

The most serious mite pest is the Red-legged Earth Mite (*Halotydeus destructor*) which is very destructive to young legumes and other seedlings. It may be particularly troublesome on subterranean clover pastures. Other mites of importance to orchardists and market gardeners are the spider mites (Tetranychidae) which include such cosmopolitan species as the Two-spotted Mite (*Tetranychus urticae*) and the Bryobia Mite (*Bryobia rubrioculus*).

Spiders constitute a large group, most of which are useful on account of their insectivorous habits, although bites from some of the larger species may produce painful after-effects. The most dangerous local spider is the Red-backed Spider (*Latrodectus mactans hasselti*). This species, whose bite may even prove fatal, is easily recognised by the conspicuous red streak down the centre of the abdomen.

Scorpions of various kinds are widely distributed over the State and the larger ones may be able to inflict a painful sting. There is one record of a baby dying at Pemberton from the effects of scorpion venom but no other reports of serious after-effects are available and, generally speaking, the group is of little local importance.

THE EFFECT OF PESTICIDES ON BENEFICIAL FORMS OF LIFE

Nature lovers and conservationists in many parts of the world are concerned at the ever-increasing use of pesticides and the detrimental effects that many of these chemicals may have upon a wide range of wildlife. The indiscriminate use of pesticides can have serious effects upon many forms of wildlife and also present a grave hazard to public health. Unfortunately, however, these dangers have often been overstressed and many of the incidents recorded to support the banning of chemicals for pest destruction have either been based on false premises or taken out of context.

The largest single pest-control programme ever undertaken in Western Australia involved the Argentine Ant (see section *Order Hymenoptera* earlier in this Chapter). Thousands of gallons of dieldrin have been used to treat infestations in many parts of south-west Australia. The view has been widely expressed that the removal of the Argentine Ant from large sections of the Perth metropolitan area has been responsible for a

great increase in many household and garden pests, and particularly house flies. There is no doubt that, like most ants, the Argentine Ant is a scavenger and that consequently it would remove much material suitable for fly breeding and may devour some of the maggots themselves.

On the other hand, dieldrin and chlordane have been widely recommended for fly control and could be expected to reduce fly activity immediately after spraying. This actually occurred in many areas and although the house fly problem was quite intense during much of the main ant-spraying period, no evidence has been produced to actually link this fact with the campaign against the Argentine Ant.

As far as other pests are concerned, there is some evidence to suggest that certain caterpillars, springtails and perhaps cockroaches increased, possibly as a result of parasite destruction, but the picture was somewhat obscured by the fact that outbreaks were not always restricted to sprayed areas.

The reduction in certain insectivorous birds, particularly Willy Wagtails, was also alleged following the ant spraying but, although some deaths did occur where birds were noted to fly into the spray mist, the general bird population was not seriously affected.

Where heavy spraying was carried out in swamp country some water birds were unfortunately killed, and dead foxes, rats and snakes were also noted. Frogs suffered heavily, in both swamps and home gardens. The Burrowing Frog or Whoop Frog (*Heleioporus eyrei*), once common in metropolitan gardens, diminished greatly in numbers, probably due to Argentine Ant spraying.

It was anticipated that some temporary upsets in the natural balance might follow large-scale spraying of dieldrin and chlordane and indeed this matter was investigated during and after a preliminary experimental treatment at South Perth. Although, in some cases, the immediate results were quite spectacular there was nothing to suggest that such upsets would be permanent. In fact, conditions in most areas have apparently returned to normal, perhaps with the exception of the frog population, although the Whoop Frog can now be heard in most of its former haunts.

In order to minimise the chance of future trouble from the use of dangerous chemicals, all pesticides must be registered under the Health Act. It is provided that very dangerous chemicals may be banned entirely, while others may be limited in concentration and made available to skilled operators only. Residue checks on foodstuffs and other sources of contamination are also undertaken.

FURTHER SOURCES OF INFORMATION

The difficulties confronting anyone trying to review in a few pages the entomological fauna of such a large State as Western Australia will be better appreciated if it is remembered that in the *Western Australian Year-Book* for 1898-99 the late A. M. Lea expressed the opinion that there were about thirty thousand species of insects indigenous to this State. Many additions have been made in the last sixty years and one is faced with the problem of deciding which creatures warrant special mention and which must be excluded for lack of space. The general reader interested in consulting other short reviews of the local insect fauna is referred to A. M. Lea's article in the 1898-99 Year Book under the title of 'The Insects of Western Australia'; in the Year Book for 1900-01 the late H. M. Giles wrote 'A Glimpse of Western Australian Entomology'.

Two short summaries have also appeared in conjunction with science conferences in this State. The Handbook and Review published for the 1926 meeting of the Australasian Association for the Advancement of Science contained an article by L. J. Newman and the Handbook for the 1947 meeting of the Australian and New Zealand Association for the Advancement of Science printed a short summary of the local insects by L. Glauert.

Readers interested in more technical summaries are referred to Professor G. E. Nicholl's 'The Composition and Biographical Relation of the Fauna of Western Australia' (*A.N.Z.A.A.S.*, Vol. XXI, 1933, p. 93), the relevant volumes of *Die Fauna Südwest-Australiens* by Michaelsen and Hartmeyer, 1907-1930, and the report of the Swedish expedition under Dr E. Mjöberg.

More detailed information relating to the forms of economic importance will be found in the publications of the Western Australian Department of Agriculture.

Books covering the general aspects of Australian entomology include:

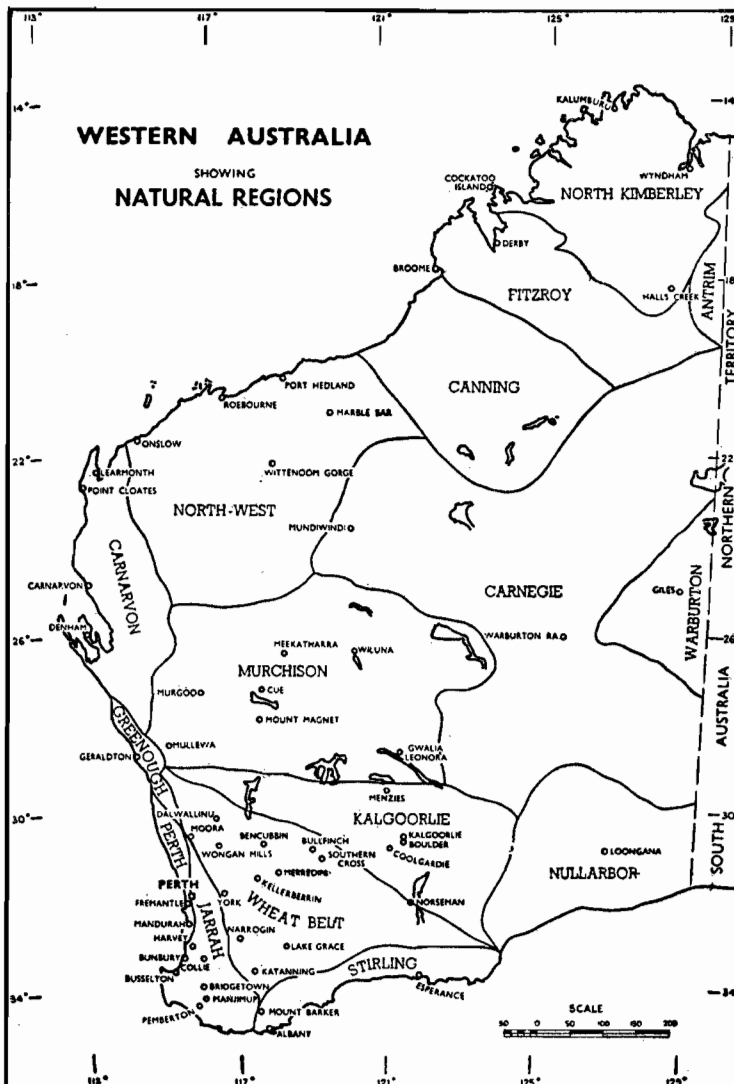
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Chapter II—continued

Part 6—Natural Regions

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The physical features, geology, climate, flora and fauna of Western Australia have been outlined earlier in this Chapter and the subdivision of the State into 'natural regions' may now be considered. A Natural Region is one clearly marked off from neighbouring regions by topographical, geological, climatic, or biological conditions, or by combinations of these, so that, as far as Man's activities are concerned, they have different economic possibilities.



CHARACTERISTICS OF THE NATURAL REGIONS OF WESTERN AUSTRALIA

The subdivision of Western Australia into Natural Regions (see map on page 93) has been described by E. de C. Clarke in *Jour. Roy. Soc. West. Aust.* vol. XII, pp. 117-32. A summary of the characteristics of these different Natural Regions (reprinted by courtesy of the University of Western Australia Press from Clarke, Prider and Teichert: *Elements of Geology for Western Australian Students*) is given below.

NATURAL REGION	TOPOGRAPHY	GEOLOGY	RAINFALL	WATER SUPPLY (a)	VEGETATION, ETC.
ANTRIM (<i>geographic</i>)	Tableland	Cambrian sediments and lavas	Summer, monsoonal, 20 in to 40 in	Catchments, wells and artesian	Grassland and savannah
NORTH KIMBERLEY (<i>geographic</i>)	Dissected stony tableland	Younger Precambrian	Summer, monsoonal, 30 in or more	Streams, springs, catchments	Luxuriant in valleys, sparse on tableland
FITZROY (<i>chief river</i>)	Very wide valleys and low hills	Palaeozoic (largely Permian)	Summer, monsoonal, 20 in to 30 in	Catchments and artesian	Grassland and savannah
CANNING (<i>A. W. Canning, surveyor and explorer</i>)	Sand ridges and table-top hills	Palaeozoic and Mesozoic	Summer, 15 in or less	Springs, pools, artesian water? (undeveloped)	'Spinifex' (species of <i>Triodia</i>) and desert shrubs
CARNEGIE (<i>David Carnegie, explorer</i>)	Sand ridges and table-top hills	? Tertiary (sandy) and ? Younger Precambrian	Variable and unreliable, probably about 5 in	Catchments	'Spinifex' and desert shrubs
WARBURTON (<i>Warburton Range</i>)	Hills (some over 3,000 feet) separated by sandy country	Older Precambrian	Variable and unreliable, perhaps about 5 in. Probably better than Carnegie Region owing to high hills	Catchments, some springs	'Mulga' (species of <i>Acacia</i>) and 'Spinifex'
NORTH-WEST (<i>common usage</i>)	Rugged hills; rivers in well-defined valleys	Younger and Older Precambrian. Many economic minerals	Variable, unreliable, 15 in or less	Wells, catchments, pools	'Spinifex' few shrubs and trees
MURCHISON (<i>common usage</i>)	Ridge hills and breakaways. Rivers in shallow beds. Salt 'lakes'	Older Precambrian. Economic minerals especially gold	Summer or winter, unreliable, 10 in or less	Wells (potable groundwater)	'Mulga'. Eucalypts scarce except along rivers

KALGOORLIE ... (chief town)	Less hilly than Murchison. Salt 'lakes'. No defined water-courses except salt lake system	Like Murchison Region	Mainly winter, unreliable, 10 in or less	Catchments. Ground water too salty for use	Eucalypt forest, especially Salmon Gum (<i>E. salmonophloia</i>), Gimlet (<i>E. salubris</i>) and Red Morrel (<i>E. longicornis</i>)
WHEAT BELT ... (common usage)	Same as Kalgoorlie Region	Older Precambrian, but few 'greenstones'	Winter, reliable, 10 in to 20 in	Similar to Kalgoorlie Region, but ground water potable in many places; therefore wells frequent	Eucalypt forest—Salmon Gum, Gimlet, and Morrel
JARRAH (chief timber)	More dissected than Wheat Belt Region, especially near Darling Scarp	Like Wheat Belt Region but there is an extensive cuirass of laterite	Winter, reliable, 25 in to 40 in	Streams and springs	Forest of Jarrah (<i>E. marginata</i>), Wandoo (<i>E. redunca</i>), Karri (<i>E. diversicolor</i>) and Marri (<i>E. calophylla</i>)
CARNARVON (chief town)	Elevated plain with table-top hills	Palaeozoic, Mesozoic, Tertiary and later	Summer or winter, very unreliable, about 10 in	Artesian in many places. Catchments, pools	Sparse scrub in north, denser in south
GREENOUGH ... (river)	Sandstone tableland	Mesozoic and older	Winter, 15 in to 20 in	Springs, wells and catchments	Scrub
PERTH ... (chief town)	Coastal plain	Mesozoic and later	Winter, reliable, 20 in to 35 in	Springs, wells, artesian	Scrub, swamp and forest
STIRLING ... (prominent range)	Undulating tableland with abrupt ranges	Siliceous Tertiary sediments with inliers of Younger and Older Precambrian	Winter, 15 in or less	Catchments, stream water generally too salty for use	Heath and swamp
NULLARBOR ... (geographic)	Tableland, no hills	Calcareous Tertiary sediments	Winter, 10 in or less	Catchments. Sub-artesian	Poor grassland

(a) 'Wells' refers to those that draw on ground water, but are not artesian. 'Catchments' refers to water collected on the surface—naturally in gnammas holes, artificially by conserving the run-off. 'Pools' refers to pools in watercourses and includes rock holes.

CHAPTER III—CONSTITUTION AND GOVERNMENT

Western Australia is one of the six federated sovereign States which, together with the Northern Territory and the Australian Capital Territory, constitute the Commonwealth of Australia. Thus, in addition to having its own Parliament and executive government, it is represented in the federal legislature. As well as government at the Federal and State levels, there is a third system, that of local government, which functions through City Councils, Town Councils and Shire Councils.

OUTLINE OF CONSTITUTIONAL DEVELOPMENT

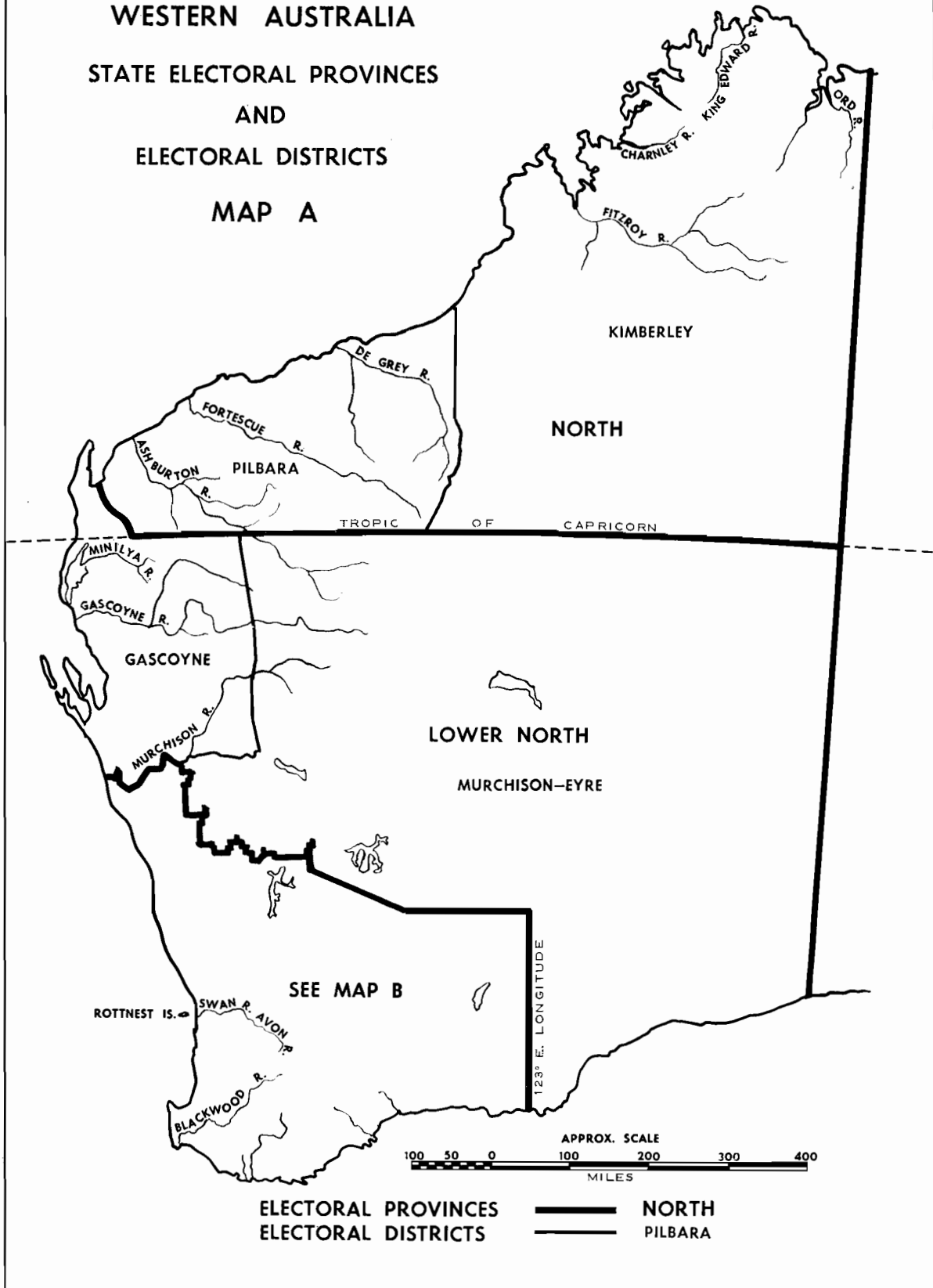
A Legislative Council was established in Western Australia shortly after its foundation as a Crown Colony and sat for the first time in February 1832. The Council was non-elective and consisted of the Governor and four senior officials. In 1839, membership was increased to nine when the Governor nominated four unofficial members. Additional appointments were made from time to time until the dissolution of the nominee Legislative Council in 1870 with the inauguration of representative government as provided for in the Australian Colonies Government Act of 1850. This Act, which enabled the establishment of representative governments in other Australian Colonies, withheld the privilege from Western Australia until such time as the Colony should be able to defray all costs of government from its own revenues, and it was not until 1870 that it was felt that Western Australia was able to satisfy this condition. The new Legislative Council, elections for which took place in October of that year, consisted of twelve elected members, three nominees and three officials. The number of members of the Council was increased in 1874 to 21, of whom 14 were elected, in 1882 to 24, of whom 16 were elected and in 1886 to 26, comprising 17 elected members, 5 nominees and 4 officials.

Following the passage by the Legislative Council of a Constitution Act in 1889 and subsequent representations made in London by delegates sent from the Colony, responsible government was granted to Western Australia by an Imperial Act assented to on 15 August 1890. Provision was made for the establishment of a Parliament of two Houses, to be known as the 'Legislative Council' and the 'Legislative Assembly', to replace the old Council. Proclamation of responsible government was made in Perth on 21 October 1890 and election of the thirty members of the Legislative Assembly took place in November and December. The fifteen members of the Legislative Council were nominated by the Governor, as provided in the Constitution Act, and the Parliament was officially opened on 30 December 1890. The Constitution Act of 1889, while prescribing a Council which was originally nominative, contained a provision that, after the expiration of six years or on the population of the Colony reaching 60,000, the Council should become fully elective. The required population was attained in 1893 and an amendment to the Act in that year enabled the election of twenty-one members to the Legislative Council, and at the same time increased the Legislative Assembly to thirty-three members. By an amendment of 1899, membership of the Legislative Council was raised to thirty and of the Legislative Assembly to fifty. Provision was made for the Legislative Assembly to be increased to fifty-one members by the *Constitution Acts Amendment Act (No. 2), 1965*. The increase in numbers, however, did not become effective until the State general election in 1968.

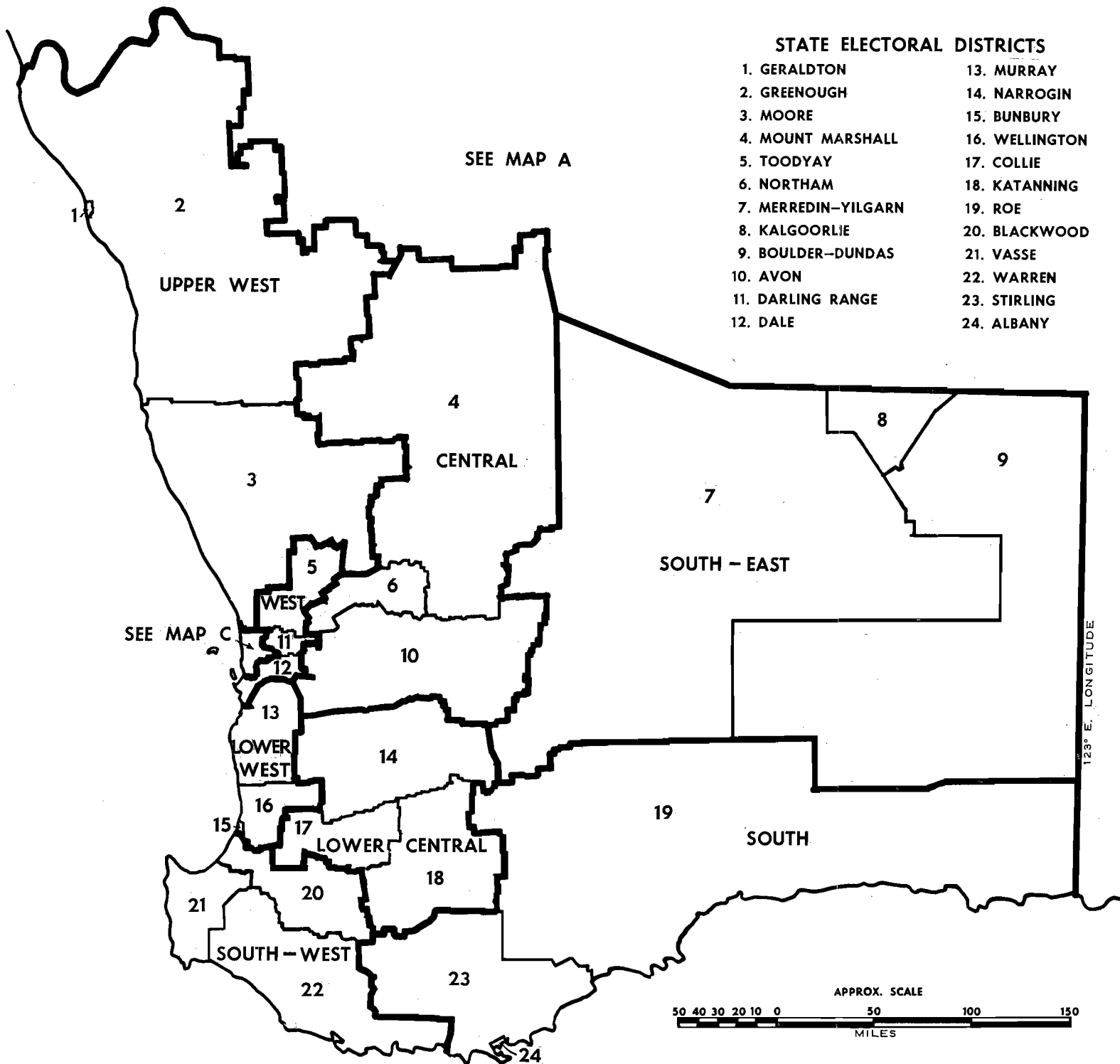
On 1 January 1901, Western Australia and the five other Australian Colonies were federated under the name of the 'Commonwealth of Australia', authority for the union having been given by the Commonwealth of Australia Constitution Act which was passed by the British Parliament in 1900. By a provision of the Constitution Act the constituent parts of the Commonwealth previously designated 'Colonies' became known as

WESTERN AUSTRALIA
 STATE ELECTORAL PROVINCES
 AND
 ELECTORAL DISTRICTS

MAP A

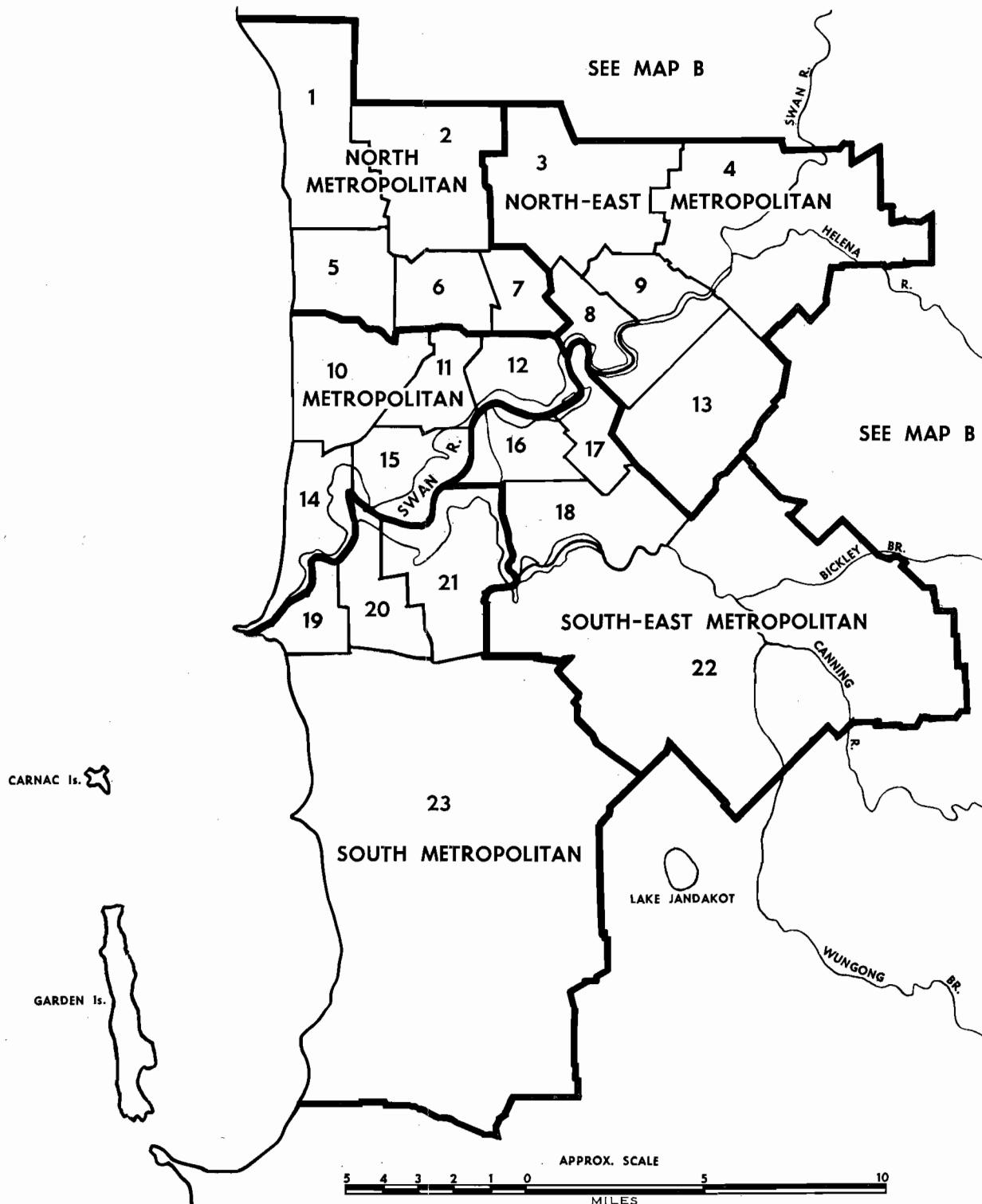


STATE ELECTORAL PROVINCES AND ELECTORAL DISTRICTS



MAP B

STATE ELECTORAL PROVINCES AND ELECTORAL DISTRICTS



STATE ELECTORAL DISTRICTS

1. KARRINYUP
2. BALCATT
3. MIRRABOOKA
4. SWAN
5. WEMBLEY
6. MOUNT HAWTHORN
7. MOUNT LAWLEY
8. MAYLANDS
9. ASCOT
10. FLOREAT
11. SUBIACO
12. PERTH
13. BELMONT
14. COTTESLOE
15. NEDLANDS
16. SOUTH PERTH
17. VICTORIA PARK
18. CLONTARF
19. FREMANTLE
20. MELVILLE
21. EAST MELVILLE
22. CANNING
23. COCKBURN

MAP C

'States'. Under the Constitution, powers are divided between the Parliaments of the Commonwealth and of the States by conferring power in respect of specific subjects on the Commonwealth either exclusively or jointly with the States, leaving the remaining powers to the States.

Procedure in both Commonwealth and State Parliaments is based on British practice. The legislatures consist of the Sovereign, represented by the Governor-General of Australia or the Governor of the State, and the elected members. In the field of executive government the British 'Cabinet' system has also been adopted. The members of the Cabinets must hold seats in the legislature as elected members. The Cabinet is responsible to the Parliament and continues in office only while holding the confidence of the Parliament. All Cabinet Ministers are members of the Executive Council, the supreme group of advisers to the Crown, and the Cabinet thus provides the executive government of the Commonwealth or the State. The Executive Council is presided over by the Governor-General of Australia or the Governor of the State and at its meetings, which are formal and official in character, the decisions of the Cabinet are given legal form, appointments are made, resignations accepted, proclamations issued and regulations approved.

VICE-REGAL REPRESENTATION

The Governor-General of Australia

Under the Commonwealth Constitution, ultimate executive power is vested in the Crown and is exercised by the Governor-General as the direct representative of the Sovereign. Appointment to the office is made by the Crown after consultation with the Prime Minister of the Commonwealth. The present Governor-General is His Excellency the Right Honourable Baron Casey, P.C., G.C.M.G., C.H., D.S.O., M.C., K.St.J., who was sworn in on 22 September 1965. During the absence from Australia of the Governor-General it is usual for the senior among the State Governors to be appointed Administrator.

The Governor of Western Australia

The Governor of Western Australia is the personal representative of the Sovereign in the State and exercises the powers of the Crown in State matters. He is the titular head of the Government and performs the official and ceremonial functions attaching to the Crown. The present Governor of Western Australia is His Excellency Major-General Sir Douglas Kendrew, K.C.M.G., C.B., C.B.E., D.S.O. In the event of the Governor's absence from Western Australia the Lieutenant-Governor of the State is appointed Administrator. If there is no Lieutenant-Governor it is customary for the Chief Justice of Western Australia to be appointed Administrator.

The last Governor of Western Australia as a Colony was Lieutenant-Colonel Sir Gerard Smith, K.C.M.G., whose term of office expired on 29 June 1900 and the first Governor of the State was Captain Sir Arthur Lawley, K.C.M.G., who was sworn in on 1 May 1901. The names and dates of assumption of office of Governors, Lieutenant-Governors and Administrators from the foundation of the Colony to 1951 are shown in the *Official Year Book of Western Australia*, No. 1—1957. Subsequent appointments appear in Year Book No. 4 of 1964 and later issues. The Honourable Sir Albert Wolff, K.C.M.G. was commissioned as Lieutenant-Governor on 26 May 1968 and since that date has performed the functions of Administrator of the State during absences of the Governor.

THE FEDERAL PARLIAMENT

The legislative power of the Commonwealth is vested in a Federal Parliament which consists of Her Majesty the Queen (represented by the Governor-General), a Senate and a House of Representatives. Subject to the Constitution, the Commonwealth Parliament is empowered to make laws concerning, among other things, defence, external affairs, customs and excise, trade and commerce with other countries and among the States, taxation, borrowing of money on public credit, currency and coinage, banking, insurance,

navigation, fisheries, quarantine, posts and telegraphs, census and statistics, immigration, naturalisation and aliens, copyrights and trade marks, bankruptcy, marriage, divorce and matrimonial causes, social services, and conciliation and arbitration for the prevention and settlement of industrial disputes extending beyond the limits of any one State. The Constitution provides that, when a law of a State is inconsistent with a law of the Commonwealth, the Commonwealth law shall prevail and the State law shall, to the extent of the inconsistency, be invalid.

The qualifications necessary for membership of the Commonwealth Parliament and for voting at federal elections are described in the *Official Year Book of the Commonwealth of Australia*.

The payment of allowances to Senators and Members of the House of Representatives is provided for in the Constitution and a superannuation scheme is established under the provisions of the *Parliamentary Retiring Allowances Act 1948-1966*.

The Senate

The Senate consisted originally of thirty-six members, six Senators being returned from each State. The Parliament is authorised by the Constitution to increase or decrease the number of members. The growth of the population since Federation having been such as to warrant a considerable enlargement of the Parliament, a Representation Act was passed in 1948 to provide for increased membership by raising from six to ten the number of Senators from each State. At the same time the alternative system of counting of votes in elections for the Senate was altered by the Commonwealth Electoral Act to one of proportional representation, a summarised description of which is given in the *Official Year Book of the Commonwealth of Australia*, No. 38, pages 82-3.

Members are elected on the basis of adult suffrage by the people of the State which they represent. As provided by the *Commonwealth Electoral Act 1918-1966*, enrolment as an elector is compulsory for all qualified persons except those who are aboriginal natives of Australia. Aborigines, although entitled to enrol, are not required to do so. Voting is compulsory for all enrolled persons in terms of an amendment of 1924 which operated for the first time at elections held on 14 November 1925. The term of office of a Senator is normally six years. One-half of the members retire at the end of every third year and are eligible for re-election.

The Western Australian membership of the Senate as from 1 July 1968, as a result of the election held on 25 November 1967, is shown in the following table.

WESTERN AUSTRALIAN MEMBERS OF THE SENATE

Due to retire on 30 June 1971		Due to retire on 30 June 1974	
Name	Political party	Name	Political party
Branson, G. H.	Lib.	Prowse, E. W.	C.P.
Cant, H. G. J.	A.L.P.	Sim, J. P.	Lib.
Drake-Brockman, T. C., D.F.C.	C.P.	Wilkinson, L. D.	A.L.P.
Scott, M. F.	Lib.	Willesee, D. R.	A.L.P.
Wheeldon, J. M.	A.L.P.	Withers, R. G.	Lib.

A.L.P. = Australian Labor Party. C.P. = Country Party. Lib. = Liberal Party.

The House of Representatives

State membership of the House of Representatives is on a population basis with the proviso that each State shall have at least five members. The Constitution provides further that the number of members of the House of Representatives shall be, as nearly as practicable, double the number of Senators. With the enlargement of the Senate from thirty-six to sixty members, the membership of the House of Representatives was increased,

from the date of the 1949 elections, from seventy-four to 121, not including a member for the Australian Capital Territory, which achieved representation for the first time at this election, and a member for the Northern Territory, which had been represented since 1922. Western Australia's population growth had been such as to necessitate an increase in representation from five to eight, and this number was raised to nine in 1955 as a result of a redistribution following the Census of 30 June 1954. At the same time, the total number of members of the House of Representatives was increased to 122, excluding the two members for the Territories.

Members of the House of Representatives are elected for the duration of the Parliament, which is limited to three years, by the people of the electorate which they represent. As provided by the *Commonwealth Electoral Act 1918-1966*, enrolment as an elector is compulsory for all qualified persons except those who are aboriginal natives of Australia. Aborigines, although entitled to enrol, are not required to do so. Voting is on the preferential system and is compulsory for all enrolled persons in terms of an amendment of 1924 which operated for the first time at elections held on 14 November 1925.

Elections for the House of Representatives were held on 26 November 1966. All Western Australian electorates were contested, but the sitting member was returned in each case. The following table shows the Western Australian membership of the House at 31 December 1968.

WESTERN AUSTRALIAN MEMBERS OF THE HOUSE OF REPRESENTATIVES

Electorate	At 31 December 1968							Political party
	Name							
Canning	Hallett, J. M.	....	....	....	C.P.
Curtin	Hasluck, Rt. Hon. P. M. C.	....	....	....	Lib.
Forrest	Freeth, Hon. Gordon	....	....	....	Lib.
Fremantle	Beazley, K. E.	....	....	....	A.L.P.
Kalgoorlie	Collard, F. W.	....	....	....	A.L.P.
Moore	Maisey, D. W.	....	....	....	C.P.
Perth	Chaney, Hon. F. C., A.F.C.	....	....	....	Lib.
Stirling	Webb, C. H.	....	....	....	A.L.P.
Swan	Cleaver, Richard	....	....	....	Lib.

A.L.P. = Australian Labor Party. C.P. = Country Party. Lib. = Liberal Party.

THE STATE PARLIAMENT

The Crown, represented by the Governor, and the Parliament, comprising a Legislative Council and a Legislative Assembly, constitute the legislature of Western Australia.

Executive government is based, as in the case of the Commonwealth and in other States, on the system which evolved in Great Britain in the eighteenth century and which is generally known as the 'Cabinet' system. The Cabinet consists of Ministers of the Crown chosen for the Ministry from members of Parliament belonging to the political party, or coalition of parties, which is in the majority in the Legislative Assembly. The Constitution requires that at least one of the Ministers be selected from members of the Legislative Council. In Western Australia, as in the other Australian States, the office of principal Minister is designated 'Premier'.

Since 1890, when responsible government was granted to Western Australia, there have been twenty-three separate Ministries as shown in the following table. No organised political party existed in the Colony until the formation of a Labour party in the 1890s. A Labour Ministry assumed office in 1904. As no previous Ministry had a specific party designation, the table has been annotated accordingly.

MINISTRIES FROM 1890

Name of Premier	Political party	Date of assumption of office	Duration			
			Years	Months	Days	
Forrest	(a)	1890—29 December	10	1	17	
Throssell		1901—15 February	—	3	12	
Leake		27 May	—	5	25	
Morgans		21 November	—	1	2	
Leake		23 December	—	6	8	
James		1902—1 July	2	1	9	
Daglish		Labour	1904—10 August	1	—	15
Rason		Liberal	1905—25 August	—	8	12
Moore		"	1906—7 May	4	4	9
Wilson		"	1910—16 September	1	—	21
Scaddan	Labour	1911—7 October	4	9	20	
Wilson	Liberal	1916—27 July	—	11	1	
Lefroy	"	1917—28 June	1	9	20	
Colebatch	"	1919—17 April	—	1	—	
Mitchell	Nat. and C.P. (coalition)	17 May	4	10	30	
Collier	Labour	1924—16 April	6	—	8	
Mitchell	Nat. and C.P. (coalition)	1930—24 April	3	—	—	
Collier	Labour	1933—24 April	3	3	27	
Willcock	"	1936—20 August	8	11	11	
Wise	"	1945—31 July	1	8	1	
McLarty	L.C.L. and C.P. (coalition)	1947—1 April	5	10	22	
Hawke	Labour	1953—23 February	6	1	10	
Brand	L.C.L. and C.P. (coalition)	1959—2 April	Still in office (b)			

C.P. = Country Party. L.C.L. = Liberal and Country League (c). Nat. = Nationalist.

(a) No specific party designation. (b) As at 31 December 1968. (c) The name of the Party was changed to *The Liberal Party of Australia (Western Australian Division) Incorporated* on 15 July 1968.

The Constitution Act of 1889 provided for a Ministry of five members. This number was increased to six by an amendment to the Act in 1896, to eight by another amendment in 1927, and to ten by the *Acts Amendment (Increase in Number of Ministers of the Crown) Act, 1950*. The present Ministry consists of twelve members, as authorised by the *Constitution Acts Amendment Act, 1965*. The names of the Ministers and the portfolios held by them are shown in the following list.

THE MINISTRY AT 31 DECEMBER 1968 (a)

Name of Minister	Title of office
Hon. David Brand, M.L.A.	Premier, Treasurer and Minister for Tourists
Hon. Crawford David Nalder, M.L.A.	Deputy Premier and Minister for Agriculture and Electricity
Hon. Charles Walter Michael Court, O.B.E., M.L.A.	Minister for Industrial Development and the North-West
Hon. Edgar Henry Mead Lewis, M.L.A.	Minister for Education and Native Welfare
Hon. Arthur Frederick Griffith, M.L.C.	Minister for Mines and Justice, and Leader of the Government in the Legislative Council
Hon. William Stewart Bovell, M.L.A.	Minister for Lands, Forests and Immigration
Hon. Ross Hutchinson, D.F.C., M.L.A.	Minister for Works and Water Supplies
Hon. Leslie Arthur Logan, M.L.C.	Minister for Local Government, Town Planning and Child Welfare
Hon. James Frederick Craig, M.L.A.	Chief Secretary and Minister for Police and Traffic
Hon. Desmond Henry O'Neil, M.L.A.	Minister for Housing and Labour
Hon. Raymond James O'Connor, M.L.A.	Minister for Transport and Railways
Hon. Graham Charles MacKinnon, M.L.C.	Minister for Health and Fisheries and Fauna

(a) Membership has remained unchanged since the Ministry of twelve was first constituted on 17 August 1965.

The right to vote at parliamentary elections was extended to women by the *Constitution Acts Amendment Act, 1899* and membership of either House was provided for by the *Parliament (Qualification of Women) Act, 1920*. The first woman member of any Australian Parliament was Mrs Edith Dircksey Cowan, O.B.E., who was elected to the Legislative Assembly in March 1921 as member for West Perth. Mrs A. F. G. (later Dame Florence) Cardell-Oliver, M.L.A. for Subiaco, became the first woman Cabinet Minister in Australia when she joined the McLarty Ministry in 1947.

Payment of members was introduced in 1900 by a Payment of Members Act and a superannuation fund is established under the *Parliamentary Superannuation Act, 1948-1964*, which came into operation on 1 January 1949.

The Legislative Council

The Legislative Council consists of thirty members, each of the fifteen Electoral Provinces into which the State is divided being represented by two members. Election is for a term of six years and one-half of the members retire every three years.

The qualifications of a candidate for election to the Legislative Council are that he or she shall be at least 21 years of age, shall have resided in Western Australia for a minimum of one year, be a natural-born or naturalised British subject, and be enrolled, or qualified for enrolment, as an elector. No person may hold office as a Member of the Legislative Council and a Member of the Legislative Assembly at the same time. A Judge of the Supreme Court, the Sheriff of Western Australia, a minister of religion, an undischarged bankrupt, a debtor against whose estate there is a subsisting order in bankruptcy, or a person who has been attainted or convicted of treason or felony may not be elected to the Legislative Council. The qualifications for election as a Member of the Legislative Council are thus identical with those necessary for election as a Member of the Legislative Assembly.

The *Electoral Act, 1907-1967* requires that to qualify for enrolment as an elector a person shall be at least 21 years of age, be a natural-born or naturalised British subject, shall have lived in the Commonwealth of Australia for six months continuously, and shall have lived in Western Australia for three months continuously and in the district for which he claims enrolment for a continuous period of one month immediately preceding the date of his claim. A person is disqualified from enrolment if he is of unsound mind, has been attainted of treason, has been convicted and is serving sentence for any offence punishable by imprisonment for one year or longer, is the holder of a temporary entry permit for the purposes of the *Migration Act 1958-1966* (Commonwealth) or is a prohibited immigrant under that Act. Enrolment is compulsory under the *Electoral Act Amendment Act, 1964* for all qualified persons except those who are aboriginal natives of Australia. Aborigines, although entitled to enrol, are not required to do so. Voting at elections is on the preferential system and, as provided by the foregoing Act, is compulsory for all enrolled persons.

The *Electoral Districts Act Amendment Act, 1963* provided for the appointment of Electoral Commissioners to make a redivision of the State into fifteen Electoral Provinces, instead of ten Provinces as formerly. The Commissioners, who comprised the Chief Justice of Western Australia as Chairman, the Surveyor-General, and the Chief Electoral Officer, were appointed in terms of a Commission issued on 5 March 1964 and their report, together with maps showing the tentative proposals and the final determinations of the Commissioners, was published in an issue of the *Government Gazette of Western Australia* dated 29 May 1964.

The *Electoral Districts Act Amendment Act, 1965* requires the Commissioners to adjust the boundaries of the fifteen Electoral Provinces having regard to their proposed division of the State into fifty-one Electoral Districts instead of fifty Districts as formerly. The Act requires that the division be made on a basis of a Metropolitan Area; an Agricultural, Mining and Pastoral Area; and a North-West-Murchison-Eyre Area.

The Commissioners made their final report on 1 July 1966. This report, together with maps showing the final determinations of the Commissioners for the redivision and for the adjustment of the boundaries of the Electoral Provinces, was published in the

Government Gazette of Western Australia dated 21 July 1966. The following table gives the names of the Electoral Provinces and the Electoral Districts, as finally determined, contained within each Province. The table also shows the area of each Province and District and the number of electors therein at 12 November 1965, the date the *Electoral Districts Act Amendment Act, 1965* came into operation. The boundaries of the several Electoral Provinces and Electoral Districts are shown on Map 'A' facing page 96 and accompanying Maps 'B' and 'C'.

ELECTORAL PROVINCES AND ELECTORAL DISTRICTS

Electoral province	Component electoral districts	Area (sq miles)	Number of electors (a)
METROPOLITAN AREA			
Metropolitan	{ Cottesloe (b)	6.8	12,514
	{ Floreat	10.4	10,692
	{ Nedlands	7.1	12,115
	{ Perth	5.6	12,484
	{ Subiaco	4.6	12,206
Total, Metropolitan Province (b)		34.5	60,011
North Metropolitan	{ Balcatta	13.4	10,603
	{ Karrinyup	13.1	10,506
	{ Mount Hawthorn	5.2	12,121
	{ Mount Lawley	4.0	11,885
	{ Wembley	7.2	10,804
Total, North Metropolitan Province		42.9	55,919
North-East Metropolitan	{ Ascot	8.7	11,880
	{ Belmont	13.7	10,401
	{ Maylands	4.3	11,613
	{ Mirrabooka	16.6	10,809
	{ Swan	25.8	11,605
Total, North-East Metropolitan Province		69.1	56,308
South Metropolitan	{ Cockburn	97.4	11,162
	{ East Melville	11.5	11,850
	{ Fremantle	4.7	11,335
	{ Melville	6.4	11,726
Total, South Metropolitan Province		120.0	46,073
South-East Metropolitan	{ Canning	69.3	11,196
	{ Clontarf	9.5	11,742
	{ South Perth	5.9	11,897
	{ Victoria Park	5.3	11,880
Total, South-East Metropolitan Province		90.0	46,715
AGRICULTURAL, MINING AND PASTORAL AREA			
Central	{ Avon	5,409	5,893
	{ Mount Marshall	15,577	6,074
	{ Northam....	1,260	5,782
Total, Central Province		22,246	17,749
Lower Central	{ Collie	1,622	5,674
	{ Katanning	3,330	5,470
	{ Narrogin....	4,457	5,995
Total, Lower Central Province		9,409	17,139
Lower West	{ Bunbury	8.6	5,837
	{ Murray	1,537.0	6,029
	{ Wellington	979.0	5,567
Total, Lower West Province		2,524.6	17,433
South	{ Albany	10.1	5,510
	{ Roe	23,751.0	5,914
	{ Stirling	5,101.0	5,727
Total, South Province		28,862.1	17,151

For footnotes, see end of table.

ELECTORAL PROVINCES AND ELECTORAL DISTRICTS—*continued*

Electoral province	Component electoral districts	Area (sq miles)	Number of electors (a)
AGRICULTURAL, MINING AND PASTORAL AREA— <i>continued</i>			
South-East	{ Boulder-Dundas Kalgoorlie Merredin-Yilgarn	20,625 1,748 32,300	6,328 6,341 5,669
Total, South-East Province		54,673	18,338
South-West	{ Blackwood Vasse Warren	2,254 1,449 4,556	5,544 5,459 6,088
Total, South-West Province		8,259	17,091
Upper West	{ Geraldton Greenough Moore	10.9 18,868.0 8,919.0	5,629 6,148 5,996
Total, Upper West Province		27,797.9	17,773
West	{ Dale Darling Range Toodyay	394 189 1,159	5,814 5,653 5,582
Total, West Province		1,742	17,049

NORTH-WEST-MURCHISON-EYRE AREA

Lower North	{ Gascoyne Murchison-Eyre	65,125 398,725	2,055 2,078
Total, Lower North Province		463,850	4,133
North	{ Kimberley Pilbara	268,350 87,750	2,741 1,881
Total, North Province		356,100	4,622

SUMMARY

Metropolitan Area	356.5	265,026
Agricultural, Mining and Pastoral Area	155,514	139,723
North-West-Murchison-Eyre Area	819,950	8,755

(a) At 12 November 1965. See letterpress preceding table. (b) Includes Rott-
nest, Garden and Carnac Islands.

A conjoint election for the Legislative Council and the Legislative Assembly took place on 23 March 1968. In the Legislative Council the Hon. E. M. Heenan (Australian Labor Party) was defeated by Mr (now Hon.) G. W. Berry (Liberal and Country League) in the Lower North Province and the Hon. H. R. Robinson (Liberal and Country League) was defeated by Mr (now Hon.) R. F. Cloughton (Australian Labor Party) in the North Metropolitan Province. The Hon. Sir Keith Watson (Liberal and Country League) did not seek re-election to the Legislative Council and was replaced in the Metropolitan Province by Mr (now Hon.) I. G. Medcalf (Liberal and Country League). The strengths of the political parties in the Legislative Council was therefore unchanged.

The table on page 104 shows the composition of the Legislative Council as a result of the election of 23 March 1968. Retiring members of the Council were not required to vacate their seats until 21 May 1968 in accordance with the *Constitution Acts Amendment Act, 1899-1965*.

MEMBERS OF THE LEGISLATIVE COUNCIL FROM 22 MAY 1968 (a)

Name	Political party	Electoral province
DUE TO RETIRE IN 1971 (a)		
Abbey, Hon. C. R.	L.C.L.	West
Baxter, Hon. N. E.	C.P.	Central
Brand, Hon. G. E. D.	L.C.L.	Lower North
Ferry, Hon. V. J., D.F.C.	L.C.L.	South-West
Garrigan, Hon. J. J.	A.L.P.	South-East
Griffith, Hon. A. F.	L.C.L.	North Metropolitan
Griffiths, Hon. C. E.	L.C.L.	South-East Metropolitan
Heitman, Hon. Jack	L.C.L.	Upper West
Hislop, Hon. J. G., M.B., Ch.B., F.R.C.P., F.R.A.C.P.	L.C.L.	Metropolitan
House, Hon. E. C., D.F.C., D.F.M.	C.P.	South
Hutchison, Hon. Ruby F.	A.L.P.	North-East Metropolitan
Lavery, Hon. F. R. H.	A.L.P.	South Metropolitan
McNeill, Hon. Neil, B.Sc (Agric.)	L.C.L.	Lower West
Perry, Hon. T. O.	C.P.	Lower Central
Wise, Hon. F. J. S.	A.L.P.	North

DUE TO RETIRE IN 1974 (a)

Berry, Hon. G. W.	L.C.L.	Lower North
Cloughton, Hon. R. F., B.A.	A.L.P.	North Metropolitan
Diver, Hon. L. C.	C.P.	Central
Dolan, Hon. John	A.L.P.	South-East Metropolitan
Logan, Hon. L. A.	C.P.	Upper West
MacKinnon, Hon. G. C.	L.C.L.	Lower West
Medcalf, Hon. I. G., E.D., LL.B.	L.C.L.	Metropolitan
Strickland, Hon. H. C.	A.L.P.	North
Stubbs, Hon. R. H. C.	A.L.P.	South-East
Thompson, Hon. Ronald	A.L.P.	South Metropolitan
Thompson, Hon. S. T. J.	C.P.	Lower Central
Thomson, Hon. J. M.	C.P.	South
White, Hon. F. R.	C.P.	West
Willesee, Hon. W. F.	A.L.P.	North-East Metropolitan
Willmott, Hon. F. D.	L.C.L.	South-West

SUMMARY

Australian Labor Party (A.L.P.)	....	....	10
Country Party (C.P.)	....	....	8
Liberal and Country League (L.C.L.) (b)	....	....	12

(a) Section 8 of the *Constitution Acts Amendment Act, 1899-1965* provides that a retiring member shall vacate his seat on 21 May in the year of retirement. (b) The name of the Party was changed to *The Liberal Party of Australia (Western Australian Division) Incorporated* on 15 July 1968.

The Legislative Assembly

There are fifty-one members of the Legislative Assembly, each member representing one of the fifty-one Electoral Districts into which the State is divided for the purpose. Members are elected for the duration of the Parliament, which is limited to three years.

A candidate for election must have resided in Western Australia for twelve months, be at least 21 years of age, be a natural-born or naturalised British subject, and be enrolled or qualified for enrolment, as an elector at Legislative Assembly elections. No person is qualified to be a Member of the Legislative Assembly if he is a member of the Legislative Council, a Judge of the Supreme Court, the Sheriff of Western Australia, a minister of religion, an undischarged bankrupt, a debtor against whose estate there is a subsisting order in bankruptcy, or has been attainted or convicted of treason or felony.

The qualifications and disqualifications applying to enrolment as an elector of the Legislative Assembly are the same as those prescribed for electors of the Legislative Council and enumerated in the preceding section *The Legislative Council*. As provided by the *Electoral Amendment Act, 1919* enrolment is compulsory for all qualified persons except those who are aboriginal natives of Australia. Aborigines, although entitled to enrol, are not required to do so. Voting at elections is on the preferential system and is compulsory for all enrolled persons as provided by the *Electoral Act Amendment Act, 1936*.

The following table shows the membership of the Legislative Assembly after the elections held on 23 March 1968.

MEMBERS OF THE LEGISLATIVE ASSEMBLY
AFTER GENERAL ELECTIONS OF 23 MARCH 1968

Name	Political party	Electoral district
Bateman, Thomas Henry	A.L.P.	Canning
Bertram, Ronald Edward, A.A.S.A.	A.L.P.	Mount Hawthorn
Bickerton, Arthur William	A.L.P.	Pilbara
Bovell, Hon. William Stewart	L.C.L.	Vasse
Brady, John Joseph	A.L.P.	Swan
Brand, Hon. David	L.C.L.	Greenough
Burke, Terrence Joseph	A.L.P.	Perth
Burt, Richard Paull Septimus	L.C.L.	Murchison-Eyre
Cash, Earl Douglas, B.A., J.P.	L.C.L.	Mirrabooka
Court, Hon. Charles Walter Michael, O.B.E.	L.C.L.	Nedlands
Craig, Hon. James Frederick	C.P.	Toodyay
Davies, Ronald	A.L.P.	Victoria Park
Dunn, Kenneth Wathen	L.C.L.	Darling Range
Evans, Hywel David, B.A.	A.L.P.	Warren
Evans, Thomas Daniel	A.L.P.	Kalgoorlie
Fletcher, Harry Arthur	A.L.P.	Fremantle
Gayfer, Harry Walter	C.P.	Avon
Graham, Hon. Herbert Ernst	A.L.P.	Balcatta
Grayden, William Leonard	L.C.L.	South Perth
Guthrie, Hon. Hugh Norman	L.C.L.	Subiaco
Hall, Jack	A.L.P.	Albany
Harman, John Joseph	A.L.P.	Maylands
Henn, Guy Gavin, M.R.C.S., L.R.C.P.	L.C.L.	Wembley
Hutchinson, Hon. Ross, D.F.C.	L.C.L.	Cottesloe
Jamieson, Colin John	A.L.P.	Belmont
Jones, Thomas Henry	A.L.P.	Collie
Kitney, Ronald Wilfred	C.P.	Blackwood
Lapham, Stanley Edward, A.A.S.A.	A.L.P.	Karrinyup
Lewis, Hon. Edgar Henry Mead	C.P.	Moore
Manning, Iven Wemyss	L.C.L.	Wellington
Manning, William Allan, A.A.S.A., A.C.I.S.	C.P.	Narrogin
May, Donald George	A.L.P.	Clontarf
McIver, Kenneth Finlay	A.L.P.	Northam
McPharlin, Walter Raymond	C.P.	Mount Marshall
Mensaros, Andrew	L.C.L.	Floreat
Mitchell, Clayton Clealand Bickley	C.P.	Stirling
Moir, Arthur McAlister	A.L.P.	Boulder-Dundas
Nalder, Hon. Crawford David	C.P.	Katanning
Norton, Daniel	A.L.P.	Gascoyne
O'Connor, Hon. Raymond James	L.C.L.	Mount Lawley
O'Neil, Hon. Desmond Henry	L.C.L.	East Melville
Ridge, Keith Alan	L.C.L.	Kimberley
Runciman, Ewart	L.C.L.	Murray
Rushton, Edgar Cyril	L.C.L.	Dale
Sewell, William Hawkins	A.L.P.	Geraldton
Stewart, Jack McKay	L.C.L.	Merredin-Yilgarn
Taylor, Alexander Donald, B.A.	A.L.P.	Cockburn
Toms, John Mervin	A.L.P.	Ascot
Tonkin, Hon. John Trezise	A.L.P.	Melville
Williams, Maurice Clifford	L.C.L.	Bunbury
Young, William Gordon	C.P.	Roe

The strengths of the political parties in the Legislative Assembly as a result of the elections thus became:

Australian Labor Party (A.L.P.)	....	....	23
Country Party (C.P.)	....	....	9
Liberal and Country League (L.C.L.)	....	....	19

On 15 July 1968 the Liberal and Country League changed the name of the Party to *The Liberal Party of Australia (Western Australian Division) Incorporated*.

ELECTIONS, ELECTORS ON ROLL AND VOTES RECORDED

The Federal Parliament

General elections for the House of Representatives were held on 26 November 1966. The Liberal-Country Party Government was returned to office with a majority of forty seats, instead of twenty-two seats as in the previous parliament.

Elections for the Senate took place on 25 November 1967. As a result, Government representation in the Senate from 1 July 1968 was reduced from twenty-nine to twenty-eight.

FEDERAL PARLIAMENT—ELECTORS ON ROLL AND VOTES RECORDED

Electoral division	Number of electors enrolled			Number of electors who voted			Percentage of enrolled electors who voted			Number of informal ballot papers
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons	
HOUSE OF REPRESENTATIVES—GENERAL ELECTIONS OF 26 NOVEMBER 1966										
Canning	23,426	21,845	45,271	22,291	20,825	43,116	95·15	95·33	95·24	1,951
Curtin	19,914	24,339	44,253	18,949	22,917	41,866	95·15	94·16	94·61	1,580
Forrest	22,716	21,294	44,010	21,831	20,486	42,317	96·10	96·21	96·15	1,524
Fremantle	27,815	29,318	57,133	26,201	28,296	54,497	94·20	96·51	95·39	2,135
Kalgoorlie	19,586	16,055	35,641	17,114	14,826	31,940	87·38	92·35	89·62	1,020
Moore	23,391	21,652	45,043	22,210	20,674	42,884	94·95	95·48	95·21	1,502
Perth	14,607	16,179	30,786	13,743	15,009	28,752	94·09	92·77	93·39	2,046
Stirling	35,205	37,264	72,469	33,276	35,849	69,125	94·52	96·20	95·39	2,797
Swan	27,774	30,717	58,491	26,140	28,933	55,073	94·12	94·19	94·16	1,963
Total, Western Australia	214,434	218,663	433,097	201,755	207,815	409,570	94·09	95·04	94·57	16,518

SENATE—ELECTION OF 25 NOVEMBER 1967

Canning	24,153	22,643	46,796	23,227	21,675	44,902	96·17	95·72	95·95	3,132
Curtin	19,835	24,134	43,969	18,963	22,606	41,569	95·60	93·67	94·54	2,275
Forrest	22,944	21,690	44,634	22,169	20,973	43,142	96·62	96·69	96·66	2,778
Fremantle	27,629	30,027	57,656	26,533	28,723	55,256	96·03	95·66	95·84	3,174
Kalgoorlie	19,606	16,437	36,043	17,795	15,096	32,891	90·76	91·84	91·25	2,679
Moore	24,251	22,519	46,770	23,010	21,395	44,405	94·88	95·01	94·94	2,641
Perth	14,196	16,082	30,278	13,245	14,891	28,136	93·30	92·59	92·93	2,755
Stirling	36,744	38,783	75,527	34,449	37,057	71,506	93·75	95·55	94·68	4,694
Swan	28,725	31,559	60,284	26,901	29,696	56,597	93·65	94·10	93·88	3,704
Total, Western Australia	218,083	223,874	441,957	206,292	212,112	418,404	94·59	94·75	94·67	27,832

The State Parliament

At the conjoint election for the Legislative Council and the Legislative Assembly which was held on 23 March 1968 the Liberal-Country Party Government, led by the Honourable David Brand, was returned to office, its majority in the Legislative Assembly being reduced from eight seats to five seats. Government representation in the Legislative Council was unchanged.

The conjoint election was the first to be made on the basis of the Electoral Provinces and Electoral Districts as redefined by the Electoral Commissioners in their final report published in the *Government Gazette of Western Australia* dated 21 July 1966 (see letterpress on pages 101-2). Membership of the Legislative Council remained at thirty but the Legislative Assembly increased from fifty members to fifty-one members as provided by the *Constitution Acts Amendment Act (No. 2), 1965*.

All Ministers holding office prior to the election were re-elected to Parliament and retained the portfolios held by them in the previous Parliament.

LEGISLATIVE COUNCIL AND LEGISLATIVE ASSEMBLY
CONJOINT ELECTION OF 23 MARCH 1968

LEGISLATIVE COUNCIL

Electoral area (a) and province	Electors on roll			Electoral area (a) and province	Electors on roll		
	Males	Females	Persons		Males	Females	Persons
Metropolitan Area—				Agricultural, Mining and Pastoral Area (continued)—			
Metropolitan (b)	28,371	34,248	62,619	South-East (b)	9,889	8,562	18,451
North Metropolitan	30,785	33,293	64,078	South-West (b)	9,133	8,487	17,620
North-East Metropolitan (b)	30,320	32,319	62,639	Upper West (b)	9,969	8,901	18,870
South Metropolitan	25,113	26,030	51,143	West	9,818	9,824	19,642
South-East Metropolitan	24,340	27,331	51,671	Total	76,428	70,983	147,411
Total	138,929	153,221	292,150	North-West-Murchison-Eyre Area—			
Agricultural, Mining and Pastoral Area—				Lower North	2,516	1,937	4,453
Central (b)	9,310	8,439	17,749	North (b)	3,015	2,093	5,108
Lower Central	9,017	8,413	17,430	Total	5,531	4,030	9,561
Lower West (b)	9,665	9,233	18,898	WHOLE STATE	220,888	228,234	449,122
South (b)	9,627	9,124	18,751	Electors on roll in contested provinces	101,589	106,828	208,417
Electors on roll in contested provinces				Electors on roll in uncontested provinces	119,299	121,406	240,705
Electors on roll in uncontested provinces				Total number of electors on roll	220,888	228,234	449,122
Total number of electors on roll				Total number of votes recorded	(c)	(c)	(d)192,342
Total number of votes recorded				Percentage of votes recorded to electors on roll in contested provinces	(c)	(c)	92.29

LEGISLATIVE ASSEMBLY

Electoral area (a) and district	Electors on roll			Electoral area (a) and district	Electors on roll		
	Males	Females	Persons		Males	Females	Persons
Metropolitan Area—				Agricultural, Mining and Pastoral Area (continued)—			
Ascot	6,028	6,379	12,407	Collie	2,944	2,708	5,652
Balcatta	7,012	7,117	14,129	Dale	3,579	3,553	7,132
Belmont	5,953	6,271	12,224	Darling Range	3,347	3,510	6,857
Canning	6,974	7,306	14,280	Geraldton	3,106	3,048	6,154
Clontarf	5,920	6,839	12,759	Greenough (e)	3,497	2,937	6,434
Cockburn	7,030	6,791	13,821	Kalgoorlie (e)	3,239	2,891	6,130
Cottesloe	5,551	7,441	12,992	Katanning (e)	2,945	2,772	5,717
East Melville	6,375	6,976	13,351	Merredin-Yilgarn	3,362	2,743	6,105
Floreat	5,747	6,189	11,936	Moore	3,366	2,916	6,282
Fremantle	5,845	5,872	11,717	Mount Marshall (e)	3,213	2,788	6,001
Karrinyup	5,641	6,287	11,928	Murray	3,478	3,173	6,651
Maylands	5,579	6,396	11,975	Narrogin (e)	3,128	2,933	6,061
Melville	5,863	6,391	12,254	Northam	3,044	2,878	5,922
Mirrabooka	6,720	7,068	13,788	Roe	3,679	3,139	6,818
Mount Hawthorn	6,150	6,400	12,550	Stirling (e)	3,231	2,910	6,141
Mount Lawley	5,788	6,814	12,602	Toodyay	2,892	2,761	5,653
Nedlands	5,610	6,994	12,604	Vasse (e)	2,894	2,885	5,779
Perth	6,043	6,444	12,487	Warren	3,249	2,926	6,175
South Perth	5,853	6,670	12,523	Wellington (e)	3,017	2,832	5,849
Subiaco	5,420	7,180	12,600	Total	76,428	70,983	147,411
Swan	6,040	6,205	12,245	North-West-Murchison-Eyre Area—			
Victoria Park (e)	5,593	6,516	12,109	Gascoyne	1,421	1,153	2,574
Wembley (e)	6,194	6,675	12,869	Kimberley	1,623	1,164	2,787
Total	138,929	153,221	292,150	Murchison-Eyre (e)	1,095	784	1,879
Agricultural, Mining and Pastoral Area—				Pilbara (e)	1,392	929	2,321
Albany	2,717	3,075	5,792	Total	5,531	4,030	9,561
Avon (e)	3,053	2,773	5,826	WHOLE STATE	220,888	228,234	449,122
Blackwood	2,990	2,676	5,666	Electors on roll in contested districts	175,109	184,681	359,790
Boulder-Dundas (e)	3,288	3,228	6,216	Electors on roll in uncontested districts	45,779	43,553	89,332
Bunbury	3,170	3,228	6,398	Total number of electors on roll	220,888	228,234	449,122
Electors on roll in contested districts				Total number of votes recorded	(c)	(c)	(f)331,325
Electors on roll in uncontested districts				Percentage of votes recorded to electors on roll in contested districts	(c)	(c)	92.09

(a) As defined in the Electoral Districts Act, 1947-1965. (b) Uncontested Province. (c) Not available. (d) Includes 8,631 informal votes. (e) Uncontested District. (f) Includes 10,255 informal votes.

The table on page 107 shows the number of electors enrolled in each Province and in each District. The numbers of effective and informal votes recorded throughout the State at the election are also shown.

It will be seen from the table that the number of electors enrolled in each District in the Metropolitan Area was approximately twice the number in each District in the Agricultural, Mining and Pastoral Area. This is accounted for by a requirement of the *Electoral Districts Act, 1947-1965* that the Electoral Commissioners, in determining the quota of electors for each District, should reckon every two electors in the Metropolitan Area as one elector, at the same time giving full representation to each elector in the Agricultural, Mining and Pastoral Area. The number of Districts in the North-West-Murchison-Eyre Area was fixed by the Act at four.

LEGISLATION DURING 1967

The Federal Parliament

The legislative enactments of the Commonwealth Parliament in 1967 are listed in summarised form on pages 69-73 of the *Official Year Book of the Commonwealth of Australia*, No. 54—1968.

The State Parliament

During the third session of the twenty-fifth Parliament, which lasted from 27 July to 24 November 1967, the Western Australian legislature enacted eighty Public Statutes and, in addition, dealt with one Bill which was introduced but not passed.

The full text of the legislation enacted is contained in the volumes of *The Acts of the Parliament of Western Australia*, to which reference should be made if complete details are required. To provide a brief review of the Statutes of 1967, a short summary of the main provisions is given in this section. Supply, Appropriation and Loan Acts are listed without further detail.

Acts Passed during 1967

Acts Amendment (Superannuation and Pensions) Act—Increases pensions payable under the *Superannuation and Family Benefits Act, 1938-1965*; the *Superannuation Act, 1871-1962*; and the *Government Employees' Pensions Act, 1948-1962*. Makes other miscellaneous provisions.

Albany Harbour Act Amendment Act—Changes the name of the body corporate constituted under the Act from Albany Harbour Board to Albany Port Authority. Provides that the Port Authority may, with the prior approval of the Governor, undertake the construction, completion and extension within the port of any port works, the total cost of which does not exceed \$10,000. Makes other miscellaneous provisions.

Alumina Refinery Agreement Act Amendment Act—Approves the third supplementary agreement between the State of Western Australia and Western Aluminium No Liability whereby amendments are made to the principal agreement in the *Alumina Refinery Agreement Act, 1961-1966*. Makes other miscellaneous provisions.

Appropriation Act

Brands Act Amendment Act—Provides that no pig that has attained the age of ten weeks shall be removed from the run for the purposes of sale or slaughter unless it has been first identified by the placing of a tattoo-mark, in the form of the owner's registered brand, on its forequarter. Varies the provisions relating to the branding of sheep and makes other miscellaneous provisions.

Bulk Handling Act—Repeals and replaces the *Bulk Handling Act, 1935-1963*.

Bunbury Harbour Board Act Amendment Act—Changes the name of the body corporate constituted under the Act from Bunbury Harbour Board to Bunbury Port Authority. Provides that the Port Authority may, with the prior approval of the Governor, undertake the construction, completion and extension within the port of any port works, the total cost of which does not exceed \$10,000. Makes other miscellaneous provisions.

Child Welfare Act Amendment Act—Makes provision for reciprocal arrangements with another State or Territory of the Commonwealth for the care and control of State wards moving interstate. Provides for the licensing of child minding centres and makes other miscellaneous provisions.

Child Welfare Act Amendment Act (No. 2)—Provides for the name, age and address of a child and particulars of the offence with which the child was charged to be supplied on request, after the conclusion of the hearing, to any person having a sufficient reason in cases where the child, since attaining the age of sixteen years, had been convicted of any one of specified offences and is subsequently convicted of the same or another of such offences. Authorises the publication of such details in these cases.

Chiropodists Act Amendment Act—Establishes the right of appeal to a court of petty sessions against decisions of The Chiropodists' Registration Board pertaining to the registration of a person as a chiropodist. Amends the prescribed qualifications of a person entitled to be registered as a chiropodist and makes other miscellaneous provisions.

Clean Air Act Amendment Act—Increases the size of the Air Pollution Control Council from thirteen to fourteen members in addition to the Chairman and provides that one member shall be the person for the time being holding the office of State Mining Engineer. Makes other miscellaneous provisions.

Country High School Hostels Authority Act Amendment Act—Increases from \$200,000 to \$300,000 the maximum sum which the Country High School Hostels Authority is empowered to borrow in any one year with the approval of the Treasurer of the State.

Country Towns Sewerage Act Amendment Act—Empowers the Governor to grant to a local authority, in whose district a sewerage area is situated, permission to levy a general rate beyond the limits prescribed by the Local Government Act where it appears, after enquiry, that the maximum general rate will not permit a sufficient amount to be provided for the construction, alteration, repair or maintenance of works in that sewerage area, and for the payment of the instalments of capital debt and interest on any of the works with respect to which any debt is owing.

Cremation Act Amendment Act—Dispenses with the requirement for the approval of the Commissioner of Public Health to be obtained for the removal of the ashes of a dead human body after cremation from the crematorium for disposal by an authorised person otherwise than by burial in the site of the crematorium.

Dampier Solar Salt Industry Agreement Act—Approves and ratifies an agreement between the State of Western Australia and Dampier Salt Limited relating to the establishment and carrying on at and in the vicinity of Dampier of a solar salt industry and certain other allied and ancillary industries.

Dentists Act Amendment Act—Varies the provisions relating to qualifications for registration of a person as a dentist.

Discharged Servicemen's Badges Act—Prohibits a person who is not a member of a discharged servicemen's association specified in the Act from wearing, without lawful excuse, a badge or a colourable imitation of a badge, issued by the association for the purpose of identifying its members.

Dog Act Amendment Act—Provides that the owner of a dog which is found in a food shop commits an offence. Exempts a person who is blind or partially blind from this provision by entitling such a person to be accompanied by a dog, *bona fide* used by him as a guide dog, in any building or place open to or used by the public for any purpose or in any public transport.

Dried Fruits Act Amendment Act—Varies the provisions relating to elections of representatives of the growers for appointment to the Dried Fruits Board. Amends the procedure for the appointment of a deputy to any member of the Board and provides for appointments to fill casual vacancies on the Board.

Education Act Amendment Act—Empowers the Minister for Education under specified circumstances to exempt a child from attendance at school for a period to engage in employment of a nature that is related to the child's education at the school attended. Removes the requirement for a parent of a specified handicapped child to contribute towards the child's education or maintenance at an institution.

Education Act Amendment Act (No. 2)—Increases financial assistance to non-government schools. Provides for contributions towards tuition fees, commencing with the 1968 school year, on the basis of \$10 annually for a student in any year of a course of primary education, in addition to amounts previously approved for students engaged in a course of secondary education. Defines the students in respect of whom the contribution is payable.

Electoral Act Amendment Act—Varies the qualifications for enrolment as an elector for the Legislative Council and the Legislative Assembly. Reduces the punishments for certain electoral offences. Provides for a report to be furnished by the Chief Electoral Officer to the Minister, after each general election for the Assembly, showing the number of electors on each of the rolls made up for the election. Makes other miscellaneous provisions.

Evaporites (Lake MacLeod) Agreement Act—Approves and gives effect to an agreement between the State of Western Australia and Texada Mines Pty. Limited relating to the production of potash and other evaporites at or near Lake MacLeod in the Shire of Carnarvon.

Evidence Act Amendment Act—Permits the appointment by an authority of a foreign country of a person to take or receive evidence in the State, other than for use in criminal proceedings.

Evidence Act Amendment Act (No. 2)—Provides for the admissibility of certain documentary evidence in any civil proceedings, and for the admissibility of certain trade or business records in any criminal proceedings, under specified conditions.

Explosives and Dangerous Goods Act Amendment Act—Provides for the appointment of a Deputy Chief Inspector of Explosives. Removes from the provisions of the Act the sale of certain harmless fireworks, and the sale to a person of or above the age of eighteen years of any distress signal rockets or other distress or signalling device or any other prescribed manufactured firework. Makes other miscellaneous provisions.

Fauna Protection Act Amendment Act—Amends the name of the principal Act to the 'Fauna Conservation Act'. Reconstitutes The Fauna Protection Advisory Committee under the name of The Western Australian Wild Life Authority and provides for the membership of the body to be enlarged. Empowers the Authority, with the approval of the Minister, to classify sanctuaries, and to prepare a management scheme for each

sanctuary. Prohibits the taking of prescribed game; the processing of fauna for sale; or the carrying on of a processing establishment, without a licence. Makes other miscellaneous provisions.

Fisheries Act Amendment Act—Extends the conditions, under which the Director of Fisheries may refuse to grant a fish processor's licence, to include cases where he is not satisfied that the better interests of the fishing industry will be served, having regard to the number of processing establishments for which licences are then in force, and to the sizes and natures of those establishments. Makes other miscellaneous provisions.

Government Railways Act Amendment Act—Empowers any classified government railways officer to witness specified statutory declarations. Repeals the prohibition on the granting of a lease for the purpose of or the sale of spirituous and fermented liquors in railway restaurant cars.

Indecent Publications Act Amendment Act—Increases the penalty for offences against the Act. Removes from the provisions of the Act any work of recognised artistic or scientific merit, in addition to works of recognised literary merit as previously provided. Prescribes limitations on proceedings in certain cases.

Iron Ore (Hanwright) Agreement Act—Approves an agreement between the State of Western Australia and Joint Venturers, Hancock Prospecting Pty. Ltd. and Wright Prospecting Pty. Ltd., relating to the mining, transport, shipment and processing of iron ore from deposits, in the main, south and south-east of Wittenoorn in the Pilbara. Gives authority for the Joint Venturers to complete their investigations and sets out conditions for future development.

Iron Ore (Mount Newman) Agreement Act Amendment Act—Approves a variation agreement amending the principal agreement between the State of Western Australia and Mt. Newman Iron Ore Company Limited in the *Iron Ore (Mount Newman) Agreement Act, 1964*. Makes other miscellaneous provisions.

Iron Ore (Nimngarra) Agreement Act—Approves an agreement between the State of Western Australia and Sentinel Mining Company Inc. relating to the mining, transport, shipment and processing of iron ore and manganese from deposits at Nimngarra and Mount Rove in the Pilbara. Gives authority for the company to complete its investigations and sets out conditions for future development.

Justices Act Amendment Act—Varies the period in which a person may apply for a rehearing of the complaint in cases where a summons served by prepaid registered post does not come to the notice of the defendant prior to his being convicted of a complaint for a simple offence against the Traffic Act, any other prescribed Act, or regulations, etc. made under these Acts. Provides for apportionment of fines between joint offenders in certain cases and makes other miscellaneous provisions.

Kwinana-Mundijong-Jarrahdale Railway Extension Act—Authorises the construction and maintenance of a railway 3 miles 55 chains in length as an extension of the Kwinana-Mundijong-Jarrahdale Railway.

Land Act Amendment Act—Increases from six to twelve months the period within which any town or suburban lot put up for sale by public auction, but passed in as unsold, is available for purchase at the upset price. Extends the definition of a 'discharged member of the forces' for whom a rebate of rental is available in respect of any conditional purchase lease of Crown land of which he is the lessee. Makes other miscellaneous provisions.

Legal Contribution Trust Act—Establishes a body corporate known as the Legal Contribution Trust. Provides that every legal practitioner shall deposit and maintain on deposit to the credit of the Trust not less than a prescribed proportion of his trust account. Establishes a fund known as the Solicitors' Guarantee Fund for the purpose of compensating persons who suffer pecuniary loss by reason of professional defalcation. Makes other miscellaneous provisions.

Legal Practitioners Act Amendment Act—Increases from two to four the maximum number of articulated clerks that the Crown Solicitor of the State or the Deputy Commonwealth Crown Solicitor in the State may have articulated to him at the same time. Makes other miscellaneous provisions.

Legal Practitioners Act Amendment Act (No. 2)—Complements the Legal Contribution Trust Act of 1967. Amends the provisions relating to the keeping of trust accounts by legal practitioners. Makes other miscellaneous provisions.

Licensing Act Amendment Act—Empowers the Licensing Court to grant to the holder of an Australian wine licence a permit to serve light meals on a part of the licensed premises. Authorises the Commissioner of Railways to grant to an officer employed by him, or employed by the Commonwealth Railways Commissioner, a licence for the sale of liquor in and from a railway dining car or a buffet car, for consumption on the train only. Makes other miscellaneous provisions.

Loan Act

Local Government Act Amendment Act—Provides that, except in cases of emergency, tenders shall be called by the council for goods or services to a value of \$2,000 or more, instead of \$1,000 or more, as previously provided. Makes it an offence to continue unlawful building works following the service of a notice to the builder to stop all work specified in the notice. Provides for the seizure and impounding of any device used for surf riding where the device is being used contrary to council by-laws. Makes it an offence to discard or deposit refuse or litter in any street, public place or public reserve other than in a receptacle provided for the purpose. Makes other miscellaneous provisions.

Lotteries (Control) Act Amendment Act—Empowers the Lotteries Commission to grant to a religious body or charitable organisation a permit to operate a device commonly known as a chocolate wheel at a bazaar or fair proposed to be held by the religious body or charitable organisation.

Main Roads Act Amendment Act—Provides for the contributions to the Main Roads Trust Account to include such moneys as are payable under the Traffic Act. Amends the provisions relating to the purposes for which moneys standing to the credit of the Main Roads Trust Account shall be applied. Stipulates that the Railway Crossing Protection Fund Account, established under the *Traffic Act Amendment Act (No. 2), 1966*, shall be continued and maintained under the Main Roads Act, and provides for certain contributions to the Account from the Main Roads Trust Account. Makes other miscellaneous provisions.

Marketable Securities Transfer Act Amendment Act—Amends the interpretation of the term 'broker' for the purposes of the Act and deletes interpretations relating to 'broker's agent' and 'corresponding law'.

Marketing of Lamb and Hogget Act—Provides for the marking at an abattoir of the carcass of a sheep as lamb or hogget where it is determined as such by the manner prescribed. Makes it an offence to sell or offer for sale as lamb or hogget any meat taken from a sheep slaughtered in the State unless the carcass was branded as lamb or hogget, respectively. Makes other miscellaneous provisions.

Married Persons and Children (Summary Relief) Act Amendment Act—Amends the interpretation of a 'dependant' to include a person who is under the age of eighteen years, instead of sixteen years as previously provided. Varies the constitution of the court for the hearing of an application for an interim order, to provide for the application to be heard by a Stipendiary Magistrate. Empowers the Director of the Child Welfare Department to apply for a maintenance order in respect of a ward of the State in cases when, at the time of committal, no order was then made for the maintenance of the child. Makes other miscellaneous provisions.

Metropolitan Water Supply, Sewerage, and Drainage Act Amendment Act—Increases penalties for breaches of the Act. Empowers the Minister to make by-laws in respect of the discharge of liquid trade or factory waste into the sewers. Provides authority for the connection of an existing sewer, or construction of a sewer, for the purpose of draining non-rateable land and makes other miscellaneous provisions.

Motor Vehicle (Third Party Insurance) Act Amendment Act—Varies the jurisdiction of the chairman of the Third Party Claims Tribunal. Clarifies the jurisdiction of the Tribunal in relation to proceedings to compromise claims. Empowers the Tribunal to direct the investment of any damages awarded to a person under a legal disability. Makes other miscellaneous provisions.

Ord River Dam Catchment Area (Straying Cattle) Act—Vests in the Crown all cattle, including horses and mules, found after 1 January 1969 at large within the area of land specified. Authorises the disposal of any such cattle in such manner as the Minister directs.

Parliamentary Salaries and Allowances Act—Repeals the *Parliamentary Allowances Act, 1911–1965* and the *Members of Parliament, Reimbursement of Expenses Act, 1953–1965*. Establishes the Parliamentary Salaries Tribunal and sets out its powers and functions, which include the determination, at intervals of not more than three years, of the remuneration to be paid to Ministers of the Crown and to officers and Members of Parliament. Makes other miscellaneous provisions.

Petroleum Act—Repeals the *Petroleum Act, 1936*. Regulates the exploration for and exploitation of petroleum on land within the State. Declares that all petroleum on or below the surface of all land within the State is the property of the Crown. Provides for the issue of permits to explore for petroleum in the State and for the issue of licences for the recovery of petroleum. Stipulates that a royalty at a prescribed rate shall be paid in respect of all petroleum recovered in the permit area or licence area. Makes other miscellaneous provisions.

Petroleum Act Amendment Act—Provides that a permit to explore for petroleum may be renewed for part of the area which is the subject of the application, instead of the whole of the area as originally provided.

Petroleum (Registration Fees) Act—Provides for the payment of a fee in respect of a memorandum of transfer or a memorandum of approval of an instrument entered in the register under the *Petroleum Act, 1967*.

Petroleum (Submerged Lands) Act—Regulates the exploration for and exploitation of petroleum resources of certain submerged land adjacent to the Western Australian coast. Provides for the issue of permits to explore for petroleum in the adjacent area and for the issue of licences for the recovery of petroleum in the adjacent area. Prescribes fees and royalties payable and makes other miscellaneous provisions.

Petroleum (Submerged Lands) Registration Fees Act—Provides for the payment of a fee in respect of a memorandum of transfer or a memorandum of approval of an instrument entered in the register under the *Petroleum (Submerged Lands) Act, 1967*.

Physiotherapists Act Amendment Act—Varies the provisions relating to persons entitled to be registered as a physiotherapist.

Plant Diseases Act Amendment Act—Authorises the Minister, by notice published in the *Government Gazette of Western Australia*, to change the name of a committee appointed under the Act to administer a fruit fly foliage baiting scheme, where the change in name is requested by the relevant incorporated Fruit Growers' Association or the municipality concerned.

Poisons Act Amendment Act—Makes allowance for the exemption from the provisions of the Poisons Act of a substance containing any poisonous or hazardous substance adequately controlled under other State legislation. Sets out criteria by which a substance may be declared to be a poison or hazardous substance.

Poisons Act Amendment Act (No. 2)—Increases the penalty for offences against the Act relating to a drug of addiction or a specified drug.

Police Act Amendment Act—Removes the sale, attempted disposal, or exposure to view in a public place of any obscene book from the list of offences for which a person committing any of same shall be deemed a rogue and a vagabond.

Police Act Amendment Act (No. 2)—Complements the *Poisons Act Amendment Act (No. 2), 1967*. Extends the provisions of the relevant section of the Act to clearly cover 'specified drugs'. Increases penalties for offences relating to opium and dangerous drugs to the amounts prescribed in the Poisons Act.

Prevention of Pollution of Waters by Oil Act Amendment Act—Makes it an offence to discharge oil, or a mixture containing oil, into any waters within the jurisdiction of the Act by reason of a wrongful or negligent act or omission in a transfer operation. Makes other miscellaneous provisions.

Public Service Act Amendment Act—Provides that a female officer may be granted approval to continue to hold office after her marriage, and that a married woman may be appointed to an office within the Public Service. Makes other miscellaneous provisions.

Public Works Act Amendment Act—Amends the provisions relating to the letting or leasing of a public work other than a railway, or of land held or acquired for a public work, that is not required for immediate use.

Railway (Collie-Griffin Mine Railway) Discontinuance Act—Authorises the closure of portion of the Collie-Griffin Mine Railway. Makes other miscellaneous provisions.

Railway (Midland-Walkaway Railway) Discontinuance Act—Authorises the closure of two sections of the Midland-Walkaway Railway. Makes other miscellaneous provisions.

Reserves Act—Excises portions of various reserves and specifies the purpose for which each portion so excised is to be used. Authorises the release from trust and sale of specified areas. Amalgamates seven Class 'A' reserves into one composite reserve and vests the reserve in the National Parks Board of Western Australia, in trust, for the purpose of a National Park. Makes other miscellaneous amendments to certain reserves.

Shipping and Pilotage Act—Repeals the *Shipping and Pilotage Act, 1855–1954* and the *Ports and Harbours Act, 1917* and re-enacts, with amendments, both Statutes as one consolidated Act.

Soil Conservation Act Amendment Act—Increases the membership of the Soil Conservation Advisory Committee by two members to a total of ten members. Makes other miscellaneous provisions.

Stamp Act Amendment Act—Amends the rate of stamp duty on receipts. Empowers the Treasurer to exempt certain security documents from stamp duty. Abolishes the exemption from payment of stamp duty on transfers of scrip or shares of an incorporated mining company carrying on business of mining within the State. Provides for the payment of stamp duty on receipts in relation to certain bank deposits. Makes other miscellaneous provisions.

Statute Law Revision Act—Repeals ninety-one spent, unnecessary or superseded Acts. Declares that four specified Acts were repealed on the respective dates shown in this enactment.

Stock Diseases Act Amendment Act—Extends the purposes for which the Governor may make regulations under the Act to cover the eradication of disease in any animal. Declares that the regulations may be made so as to apply generally or in certain cases, at all times or at specified times, throughout the State or in specified parts of the State, and to stock from another State or Territory of the Commonwealth or specified part of another State or Territory. Makes other miscellaneous provisions.

Supply (Act No. 1); Supply (Act No. 32).

Taxi-cars (Co-ordination and Control) Act Amendment Act—Provides that the Governor may, on the recommendation of the Taxi Control Board, make regulations authorising the infliction and collection by prescribed persons of penalties for minor offences against the Act. Gives a person alleged to have committed a minor offence the right to decline to be dealt with under the regulations. Varies the provisions relating to the transfer of licences and makes other miscellaneous provisions.

Town Planning and Development Act Amendment Act—Declares that an agreement to sell any portion of a lot is not rendered illegal or void by reason only that the agreement was entered into before the approval of the Town Planning Board was obtained to the subdivision of the land comprising the lot, providing the agreement was entered into subject to the approval of the Board to the subdivision and providing application to the Board for the subdivision is made within a period of three months after the date of the agreement.

Traffic Act Amendment Act—Provides that if a local authority by resolution of its Council so requires, the Minister may, by notice published in the *Government Gazette of Western Australia*, confer and impose on the Commissioner of Police all the powers and duties of the local authority under the Traffic Act (other than those relating to road construction) in respect of its district. Sets out the financial basis of any such changeover of authority. Varies provisions relating to the Metropolitan Traffic Trust Account and the Central Road Trust Fund and makes other miscellaneous amendments.

Weights and Measures Act Amendment Act—Prescribes detailed requirements under the Act in relation to pre-packed articles and makes other miscellaneous provisions.

Workers' Compensation Act Amendment Act—Amends from seven to ten thousand dollars the maximum sum from which the total amount received by a worker as weekly payments may be deducted to ascertain the lump sum payment for redemption of a weekly payment in cases of permanent total incapacity resulting from an accident.

THE JUDICATURE

The two major factors in the development of the Australian legal system have been its British origin and the Commonwealth Constitution of 1900. This statute, an Act of the Imperial Parliament in London, limited the legislative power of State Parliaments in some respects and created a federal legislature. Since 1942, however, the Imperial Parliament can legislate for Australia only at Australia's request. The sources of Australian law of today are, therefore, found in Commonwealth and State legislation, in some Imperial legislation, and in the common law. Independence of the judiciary is an essential part of the Australian legal system.

Commonwealth Courts

Under the provisions of section 71 of the Commonwealth Constitution the judicial power of the Commonwealth is vested in a Federal Supreme Court called the High Court of Australia and in such other courts as the Parliament creates or invests with federal jurisdiction.

The *High Court of Australia* is the principal Commonwealth Court and has both original and appellate jurisdiction. The Court is constituted by the *Judiciary Act* 1903–1968 and consists of a Chief Justice and six other Justices. The Principal Registry is at Melbourne, Victoria and there is a District Registry in each of the other State capital cities, where sittings of the Court are held from time to time as required. A Full Court may consist of any two or more Justices sitting together, but the Act specifies cases where a Full Court shall be comprised of not less than three Justices and, in some circumstances, a greater number. The High Court is the ultimate court of appeal in Australian jurisdiction but formerly, appeal from a judgment of the High Court could be made, subject to leave being given, to the Judicial Committee of the Privy Council in London. From 1 September 1968, when the *Privy Council (Limitation of Appeals) Act* 1968 became operative, applications for leave of appeal from a decision of the High Court may be made only in respect of purely State matters as distinct from matters involving the Australian Constitution or Federal laws.

The *Commonwealth Industrial Court* was established by an amendment of 1956 to the Conciliation and Arbitration Act which gives the Court power to deal with judicial matters, as distinct from the functions of conciliation and arbitration performed by the Commonwealth Conciliation and Arbitration Commission. The Commonwealth Industrial Court comprises a Chief Judge and not more than six other Judges, in terms of the *Conciliation and Arbitration Act* 1904–1968. The Act provides that, except in certain specified circumstances, the jurisdiction of the Court shall be exercised by not less than two Judges. Although, in general, decisions of the Industrial Court are final, appeal may be made to the High Court, subject to a grant of leave by the High Court.

The *Federal Court of Bankruptcy* is constituted under the *Bankruptcy Act* 1966–1968 which provides that the Court shall consist of a Judge or two Judges. The Act also extends jurisdiction in bankruptcy to certain Courts of the States, and in Western Australia it is exercised by the Supreme Court of the State.

State Courts of Western Australia

The *Supreme Court of Western Australia*, as constituted under the *Supreme Court Act*, 1935–1964, consists of a Chief Justice and such other Judges, not exceeding six in number, as may from time to time be appointed. The jurisdiction of the Court is exercised by a single Judge unless it is provided that an action must be brought before a Full Court. Any two or more Judges together comprise a Full Court except at a sitting as a court of criminal appeal, when there must be an uneven number of Judges. In addition to appeals in criminal cases, matters within the jurisdiction of the Full Court include applications for a new trial or to set aside a judgment, cases referred by a Judge for the consideration of the Full Court and special cases where all parties agree that a hearing should be before the Full Court. The Act provides for sittings of the Court as a circuit court in proclaimed districts and enables the appointment of days in each year for hearings in these districts.

Appeal from a judgment of the Supreme Court of Western Australia lies to the High Court of Australia, subject to the provisions of the *Judiciary Act 1903-1968* (Commonwealth), and may also be made direct to the Privy Council.

At 31 December 1968 the composition of the Supreme Court was as shown below.

Chief Justice—

The Honourable Sir Albert Wolff, K.C.M.G.

Puisne Judges—

The Honourable J. E. Virtue

The Honourable R. V. Nevile

The Honourable G. B. D'Arcy

The Honourable John Hale

Senior Puisne Judge—

The Honourable Sir Lawrence Jackson

The Honourable O. J. Negus

The *Western Australian Industrial Appeal Court* is constituted under the provisions of the *Industrial Arbitration Act Amendment Act (No. 2), 1963*, which came into operation on 1 February 1964. The Act abolishes the former Court of Arbitration. The Western Australian Industrial Appeal Court consists of three Judges, one of whom is President of the Court. The President and the other members are nominated by the Chief Justice of Western Australia. Certain of the functions, powers and jurisdiction conferred on the Court may be exercised by any member, on the nomination of the President, sitting or acting alone. An appeal lies to the Court from any decision of The Western Australian Industrial Commission or the Commission in Court Session, but only on the ground that such decision is erroneous in law or is in excess of jurisdiction. (Reference to the constitution, powers and functions of The Western Australian Industrial Commission is made in Chapter X, Part 1.)

OVERSEAS REPRESENTATION IN WESTERN AUSTRALIA

At 31 December 1968 there were eighteen countries represented in Western Australia by a consular agent, vice-consul, consul, consul-general, or deputy high commissioner, as follows.

Austria—R. Allingham, C.B.E., Consul, Queen's Chambers, 97 William Street, Perth 6000.

Belgium—E. Blanckensee, Consul, 81 St George's Terrace, Perth 6000.

Denmark—J. C. Garnsworthy, Vice-Consul, 25 Henry Street, Fremantle 6160.

El Salvador—L. Lopez-Duke, Consul, 49a Newry Street, Floreat Park 6014.

Finland—A. J. Shears, Consul, 'Casablanca', 196 Adelaide Terrace, Perth 6000.

France—M. R. Brisbout, Consular Agent, 3 Pakenham Street, Fremantle 6160.

Germany, Federal Republic of—T. A. James, Consul, National Mutual Life Building, 81 St George's Terrace, Perth 6000.

Greece—C. P. Belegris, Consul, 132 Mounts Bay Road, Perth 6000.

Guatemala—P. Smetana, Consul, 379-383 Hector Street, Tuart Hill 6060.

Italy—Dr S. Terenzio, Consul, 10-10a King's Park Road, West Perth 6005.

Japan—K. Okazaki, Consul-General, 36 King's Park Road, West Perth 6005.

Netherlands—M. van Oordt, Consul, 27-29 St George's Terrace, Perth 6000.

Norway—E. A. M. Wright, Consul, 88 Thomas Street, West Perth 6005.

Philippines—G. V. Mummery, Consul, 1095 Hay Street, Perth 6000.

Portugal—C. G. Dudley, Vice-Consul, 98 St George's Terrace, Perth 6000.

Sweden—V. O. Fabricius, Consul, 89 St George's Terrace, Perth 6000.

United Kingdom—B. A. F. Pennock, Deputy High Commissioner, A.N.Z. House, 84 St George's Terrace, Perth 6000.

United States of America—E. A. Cleveland, Consul, M.L.C. Building, 171-177 St George's Terrace, Perth 6000.

In addition, the Grand Duchy of Luxembourg is represented in Western Australia by the Consul for Belgium.

STATE REPRESENTATION OVERSEAS AND IN OTHER STATES

Western Australia has been represented in the United Kingdom by an Agent-General since 1892, the first appointment to the post being that of Sir Malcolm Fraser. An Office is maintained at Western Australia House, 115 Strand, London, W.C.2. Its functions include the representation of all government departments which have business in Britain and Europe, the purchase of government stores and equipment, the attraction of migrants, the encouragement of overseas private investment in Western Australia, and the provision of various types of assistance to visitors from Western Australia. In addition, the Office acts as agent for the State Treasury and as a receiving agency for The Rural and Industries Bank of Western Australia. Western Australia's European Public Relations Office also operates from Western Australia House. The Agent-General for Western Australia, the Honourable G. P. Wild, M.B.E., is the personal representative in Britain of the State Premier.

Branches of the Tourist Bureau have been established in New South Wales at 128 King Street, Sydney, in Victoria at 2 Royal Arcade, Melbourne, in South Australia at 34 King William Street, Adelaide, and in the Northern Territory at Western Australia House, Cavenagh Street, Darwin.

THE LOCAL GOVERNMENT SYSTEM

The function of local government in Western Australia is performed by a number of Councils exercising powers conferred by the Parliament of the State. Each of these authorities consists of members elected by a local community and is responsible for the provision of many of the services necessary for the organisation and welfare of the community which it represents.

As early as 1838 an Act providing a measure of local government was passed and under its provisions the management and control of the town of Perth was vested in a body of trustees. The first elected Town Trust was constituted at Perth in 1842 under an Act of 1841 for the 'Improvement of Towns in Western Australia'. The Trust was dissolved in 1858 and replaced by a City Council, the town of Perth having been constituted a city when it became the seat of a Bishop in 1856.

Legislation was enacted in 1871 establishing Municipalities and Road Boards throughout the Colony. The existing Statute regulating the operations of the local authorities is the *Local Government Act, 1960-1968*, which is administered through a Department of Local Government by the Minister for Local Government. This Act consolidates the law relating to local government in Western Australia, and by its provisions the Municipal Corporations Act, the Road Districts Act and a number of other, less important, Acts were repealed. The legislation came into operation on 1 July 1961 and from that date new designations were applied to many local government districts, bodies and offices. Former Municipalities, other than cities, became known as, 'Towns' and Road Districts were renamed 'Shires'. Municipalities which already had city status remained 'Cities'. The executive body in each local government district became a 'Council', City Councils and Town Councils being presided over by a Mayor, and Shire Councils by a President. The chief non-elective executive office of a City or a Town is that of 'Town Clerk' and of a Shire, that of 'Shire Clerk'.

At 31 December 1968 there were 6 Cities, 12 Towns and 126 Shires in Western Australia.

Local Government Districts

The only unincorporated area in Western Australia is King's Park, a public reserve of almost one thousand acres in Perth, all other land being incorporated within the district of a City, Town or Shire.

On presentation of a petition signed by a prescribed minimum number of ratepayers, the number varying with the subject matter, the Governor may by Order constitute any part of the State as a Town; constitute any unincorporated area as a Shire; constitute as a new Shire any part of an existing Shire; divide a Shire into two or more Shires; sever

portion of a district and annex the portion to an adjoining district, or constitute the portion as a new Town or Shire; annex to a district any adjacent unincorporated areas; divide a district into wards; or abolish a district and dissolve the local governing authority.

The Act establishes a Local Government Boundaries Commission of three members, one being an officer of the Department of Local Government, who is Chairman of the Commission. The other members must be persons having experience in local government and nominated by associations of local government authorities. The Minister may refer to the Commission any question concerning the constitution or alteration of the constitution of local government districts. Every case where authorities are unable to agree on a matter of amalgamation or severance of territory must be referred to the Commission.

On the petition of the local authority concerned, the Governor may by Order declare to be a City any district which satisfies certain specified requirements. These requirements are that, during the three years immediately preceding the declaration, it shall have maintained a population of not less than 30,000 persons if situated in the metropolitan area as declared for the purposes of the Act, or not less than 20,000 persons if situated outside that area; and have maintained a gross revenue of \$200,000 for each of the three years. In addition the district must be clearly distinguishable as a centre of population having a distinct civic centre with adequate halls and cultural facilities, and must have sufficient residential, commercial and industrial centres to justify its declaration as a separate city. The six Cities in Western Australia are all situated in the Perth Statistical Division and five of them had been granted city status before the requirements imposed by the present legislation became operative. These five Cities are Perth (proclaimed in 1856), Fremantle (1929), Subiaco (1952), Nedlands (1959), and South Perth (1959). The Town of Melville was declared a city on 3 May 1968, having satisfied the requirements for city status provided by the Local Government Act.

The boundaries of local government districts as they existed at 31 December 1966 are delineated on the map of the State at the back of the Year Book and the names and designations as at that date are listed on the pages immediately preceding the Index.

In March 1966, the Government appointed a Special Committee to consider local government boundaries. This Committee, which was not intended to supersede the Local Government Boundaries Commission, was required to:

- ' (a) make an assessment of the resources of each municipality in the State . . . ;
- (b) consider whether the municipalities throughout the State as at present constituted are able to operate and to have a community interest in financial, statistical and administrative matters that would bind the body of rate-payers in the particular area into a unit of government that is efficient, economical and satisfactory, not only to the local people, but to the Government of the State;
- (c) recommend any changes in boundaries which are considered desirable to ensure that each municipality has available to it reasonable financial resources so that it may conform to the ideal set out in paragraph (b);
- (d) recommend any other changes in structure or organisation which are considered desirable to permit the development of municipal districts with reasonably sufficient financial resources;
- (e) recommend any measures considered likely to benefit local authorities;
- (f) to consider the advisability of the establishment of County Councils.'

The reports of the Local Government Assessment Committee were submitted to the Premier on 20 May 1968 and the recommendations were still under consideration by the Government at 31 December 1968.

Constitution and Electoral Provisions

The provisions of the Local Government Act relating to the composition of a City Council or a Town Council require that, in addition to the Mayor, there shall be, where the population is less than 1,000, six councillors; where the population is between 1,000

and 5,000, nine councillors; and if the population exceeds 5,000, twelve councillors if the district is not divided into wards but, where the district is divided into wards, three councillors for each ward. It is provided that a Shire Council shall consist of not less than five nor more than thirteen members, including the President.

Two methods of election to the office of Mayor or of President are prescribed. In the case of a City or Town, election is usually by a poll of the electors enrolled for the district. The President of a Shire is usually elected by the councillors from among their own number. It is provided, however, that a City or Town may adopt the system of election of the Mayor by the councillors, and that a Shire may conduct a poll of its electors for election to the office of President. The question of the adoption of the alternative system must, in all cases, be determined by submission to a poll of the electors, after delivery to the Mayor or the President of a resolution of a majority of the councillors or a petition signed by one-tenth of the electors, or by fifty electors, whichever is the greater. If not less than 15 per cent of eligible electors vote at the poll and a majority of the valid votes cast are in favour of the proposed alteration, the Governor may order its adoption.

The Act constitutes the office of Deputy Mayor, in the case of a City or a Town, and of Deputy President in the case of a Shire, and requires that the Council shall elect one of the councillors to the office.

Provision is made for local government elections to be held on the fourth Saturday in May of each year but in specified circumstances the Governor may, by proclamation, appoint a Saturday in May, earlier than the fourth Saturday, to be the election date. Membership of a Council is elective in all cases, the qualified electors being adult natural-born or naturalised British subjects who own or occupy rateable land in the district. The preferential system of voting is used and representation is generally on the basis of wards into which the district may be divided. Plural voting applies, an elector being entitled, in accordance with the rateable value of the property owned or occupied by him, to a number of votes which may not, however, exceed four in elections for Mayor or President, or two in elections for councillor. The Act contains provisions enabling nominees of corporations owning land in a district to vote at local government elections and to be elected to membership of the Council. Subject to disqualification on certain specified grounds, all adult persons who are natural-born or naturalised British subjects owning or occupying rateable land within the district are eligible for election to the Council of the district whether as Mayor, President or councillor.

The term of office of a Mayor or a President is two years if elected by the electors of the district, or one year if elected by the Council. Councillors are elected for a term of three years, some of their number, varying with the total membership of the Council, retiring each year. On the expiration of their term of office, all members, including the Mayor and the President, are eligible for re-election if not subject to any of the disqualifications contained in the Act.

It is provided that, if in a particular district there should at any time be no Council or not sufficient councillors to form a quorum, a Commissioner may be appointed to exercise all the powers of the local authority.

Functions of Local Authorities

The functions and powers of local authorities are extremely diverse in character. They are prescribed in detail in the Local Government Act and some of the more important of them are referred to in later Chapters of the Year Book. For example, reference to local government activity in the fields of road construction and maintenance will be found in Chapter VI Part 1 and Chapter IX Part 3, the provision of parks, gardens and recreation grounds in Chapter VII Part 1, libraries in Chapter V Part 2, public transport facilities in Chapter IX Part 3, water supplies in Chapter VII Part 2, town planning and building control in Chapter V Part 4, and the licensing of vehicles and road traffic control in Chapter IX Part 3. Among the many other powers of local authorities are those relating to hospitals and nursing services, kindergartens, hostels for school children, community centres, dental clinics, infant and maternal health centres, day nurseries, jetties, swimming

baths, swimming pools, sanitation and disposal of refuse, fire prevention, eradication of noxious weeds and vermin, electricity generation, aerodromes, abattoirs, quarries, pounds and cemeteries. Under the provisions of the Health Act local authorities are responsible for certain aspects of health administration.

The operations of any local government authority may be subject to investigation by a person appointed by the Governor or the Minister and having, for the purposes of the inquiry, the powers of a Royal Commission.

Financial Provisions

Financial powers of local authorities, although derived mainly from the Local Government Act, are also provided by other statutes, including the Health Act, the Water Boards Act, the Vermin Act, the Fire Brigades Act, the Cemeteries Act, the Library Board of Western Australia Act, the Argentine Ant Act and the Noxious Weeds Act. Revenue from vehicle licence fees payable under the provisions of the Traffic Act is another important item in local government finance.

Before the commencement of the Local Government Act on 1 July 1961, a number of rates, in addition to those authorised by local government legislation, were imposed as separate levies. These included health, sanitary and sewerage rates, water rates and vermin rates, as well as rates relating to fire brigades, cemeteries, libraries and the control of Argentine Ants and noxious weeds. Under the provisions of the Local Government Act, the local authorities may include these separate levies in the general rate provided for in the Act.

The general rate for any year is determined, subject to certain statutory limits, by dividing the anticipated total financial requirement for that year by the total value of rateable property in the district. In assessing this value, every local authority must adopt valuations made by the Taxation Department, by the water supply authority for the district, or by a qualified valuer (or valuers) appointed by the Council. The Act provides for the constitution of Valuation Appeal Courts, to which appeals may be made on matters concerning valuations of property and liability for rates as assessed by the Council.

Valuations may be on the basis of either 'unimproved value' or 'annual value'. The unimproved value generally represents the price which the rated land might be expected to realise if sold on the open market and, as the term implies, excludes any improvements. The annual value is an estimate of the annual rental value of the property including improvements, but with a prescribed deduction to cover rates, repairs, insurance and other related expenditure. Generally, City Councils and Town Councils are required to assess the general rate on the basis of annual value, and Shire Councils on unimproved value. It is provided, however, that any Council may, under certain specified conditions, adopt the alternative basis. Although in general a Council is required to levy a rate which is uniform throughout its district, it may differentiate in rating by charging a higher rate in a specified area where expenditure, including loan interest and repayments, is incurred in providing special services for the benefit of that area.

Local authorities are authorised to raise loans for works and undertakings and for the liquidation of existing loan debts. Borrowing by means of a special bank overdraft is permissible, with the consent of the Minister, for the installation of sewerage connections or septic tanks and, with the approval of the Governor, for other works or undertakings. Money may also be borrowed by the sale of debentures, repayment being either by the system of reducible principal or by means of a sinking fund. Payments to debenture holders are made at prescribed intervals. Under the system of reducible principal, the local authority undertakes to pay both principal and interest by fixed instalments. Where redemption is by means of a sinking fund, the local authority is required to establish and maintain the necessary fund at the State Treasury. Interest on the loan is normally paid half-yearly and the full amount of the loan is repaid at maturity.

The extent of loan raisings for works and undertakings is controlled by a provision which, except with the specific approval of the Governor, imposes a limit on the borrowings of an authority. This limit is determined by deducting the net total debt on existing loans from a sum equal to ten times the amount obtained by subtracting from the average of

the ordinary revenue of the authority during the preceding two years the average, for the same period, of its annual expenditure on the servicing of loans. The legislation allows that balances standing to the credit of sinking funds for loan repayment, as well as amounts actually repaid, may be deemed to be repayments for the purposes of calculating net total debt. In the case of borrowings to liquidate existing loans, it is provided that the money raised shall not exceed the outstanding balance of the loan.

Before a loan may be raised by the issue of debentures, approval of the borrowing must be obtained from the State Treasury and the local authority must then publish in a newspaper and in the *Government Gazette* a notification of its intention to borrow money, including a statement of the amount of the proposed loan, its purpose and other relevant matters. Except in the case of a loan to liquidate an existing loan debt, the ratepayers of the district may demand that the proposition be submitted to a poll. If less than 15 per cent of the ratepayers vote at the poll, the raising of the loan is approved. Where not less than 15 per cent of ratepayers vote and the majority are against the loan, or the number of votes against the loan is equal to the number of those in favour, the raising of the loan is forbidden.

Certain of the works and undertakings for which loan moneys may be used are specified in the Local Government Act. They include the construction of streets, roads and bridges, sewers, drains and water works; the erection or purchase of electric lighting plant, gas works and stone quarries; the provision of hostels for school children, libraries and other recreational facilities; the construction of civic and other buildings; and the purchase of land, materials and equipment. Where a particular work or undertaking is not specified in the Act the Governor may approve of it as a project for which money may be borrowed.

The financial transactions of local government authorities are subject to annual audit either by an auditor (or auditors) appointed by the Council or by a government inspector appointed by the Minister. To qualify for the office of auditor, a person must be a member of a specified institute or society of accountants and be registered as an auditor under the Companies Act. Appointment is for a term not exceeding two years, at the end of which time the holder of the office is eligible for reappointment.

The financial year for all Councils ends on 30 June.

Details of the revenue and expenditure of local authorities during the five-year period ending with the financial year 1966-67 are given in the section *Local Government Finance* in Chapter VI, Part 1.

CHAPTER IV—POPULATION AND VITAL STATISTICS

Part 1—Population

NOTE. Population censuses prior to the Commonwealth Census of 1911 were undertaken by the Governments of the several Australian Colonies. In the Western Australian Census it was the practice to exclude full-blood Aborigines from the tabulations. At the 1911 Census and later enumerations full-blood Aborigines were excluded from the tabulations in accordance with the requirements of section 127 (now repealed) of the Australian Constitution. All tables and text on pages 123-36 therefore exclude particulars of full-blood Aborigines. See also references to Aborigines on page 124 and Aboriginal Population on page 140.

All Census figures shown in this Part are final unless otherwise indicated. Population estimates for dates and periods up to 30 June 1966 are final; later estimates are subject to revision after the 1971 Census.

The State of Western Australia, although comprising almost one-third of the total area of Australia, contains less than 8 per cent of the population.

At the end of 1829, the year of establishment of the Colony, there were 1,000 persons in Western Australia. Progress in the early years was slow, and in 1849 the population was still less than 5,000. Transportation of convicts, begun in the following year, resulted in some acceleration, but it was not until the discovery of gold in the Kimberley in 1885 and the rich finds at Coolgardie in 1892 and at Kalgoorlie in 1893 that any marked increase took place. This development was so rapid that, in the last decade of the century, the population was almost quadrupled, from 48,500 at the end of 1890 to 180,000 in 1900, representing an average annual rate of increase of 14·01 per cent. The rate of growth in those years has never been approached in the present century, as will be seen from the table on page 140, but the average annual rate of increase of Western Australia's population from the beginning of the century to the end of 1967, 2·42 per cent, has been higher than that of any other State and of the Commonwealth as a whole, 1·74 per cent.

The growth of Western Australia's population from the year 1880 is illustrated in the graph on page 139.

THE CENSUS

The first systematic census of the Colony of Western Australia was taken in 1848, since when there have been thirteen enumerations, at the dates shown in the table on page 124. The Census of 1881 was the first taken simultaneously in all the Australian Colonies and formed part of the first simultaneous census of the British Empire.

The first census of the Commonwealth of Australia conducted under the authority of the *Census and Statistics Act 1905* was taken in 1911. The Act provided that a census should be taken in that year 'and in every tenth year thereafter'. In 1930 this provision was amended by the addition of the words 'or at such other time as is prescribed'. The depressed economic conditions of 1931 caused the postponement of the third Australian census to 1933, and because of war conditions the fourth Australian census was not taken until 1947. Consideration was then given to holding future censuses in the series of years originally provided for by the Act. However, it was thought that the interval from 1947 to 1951 was too short, and it was therefore decided to take the fifth census in 1954, at the mid-point of the period from 1947 to 1961. The sixth census was held in 1961. Owing to the administrative demand for more frequent counts of the population the seventh census was taken in 1966.

Scope of the Census

The Australian Census is conducted on a strictly *de facto* basis, i.e. it records the population actually in Australia, persons being enumerated at the place where they spent the night of the census, and the population so recorded being credited to that place whether or not it is the usual place of residence.

The Census covers the population of the Commonwealth and the dwellings in which it lives. The only persons excluded from the census tabulations are full-blood Australian Aborigines (see the following section *Aborigines*) and diplomatic representatives of overseas countries and their families and staffs having diplomatic immunity in accordance with international practice.

The term 'dwelling', as defined in the Census and Statistics Act, means 'a building, erection, or tenement, whether permanent or temporary, which is wholly or partly used for the purpose of human habitation and includes any ship or other vessel in any port of the Commonwealth or in any inland waters thereof, or any ship or vessel on a passage between any two Commonwealth ports'.

Tables dealing with dwellings recorded at the census will be found in Chapter V, Part 4.

Aborigines. Before an amendment to the Australian Constitution in 1967, it was provided by section 127 that 'in reckoning the numbers of the people of the Commonwealth, or of a State or other part of the Commonwealth, aboriginal natives shall not be counted'. This provision was deleted following a referendum held on 27 May 1967 which resulted in a large majority of votes in favour of its repeal. The enabling Act, the *Constitution Alteration (Aboriginals)* 1967, came into operation on 10 August 1967.

With regard to the original provision, Commonwealth legal authorities were of the opinion that persons of the half-blood were not 'aboriginal natives' within the meaning of the Constitution, and *a fortiori* that persons of less than half Aboriginal blood were not Aboriginal natives. Accordingly, only persons having Aboriginal blood to a degree greater than one-half have been excluded from the census tabulations. Dwellings occupied solely by full-blood Aborigines so defined have similarly been excluded.

A table showing the Aboriginal population in each State and Territory in 1961 and 1966 appears on page 141.

Recorded Population

The population recorded in Western Australia at each census from 1848, its relation to the Australian population, and the masculinity are shown in the following table.

POPULATION AT EACH CENSUS DATE—1848-1966
WESTERN AUSTRALIA AND AUSTRALIA

Date of Census	Western Australia			Australia	Western Australia	
	Males	Females	Persons	Persons (a)	Proportion of Australia (per cent)	Masculinity (b)
1848—10 October	2,818	1,804	4,622	326,445	1.42	156.21
1854—30 September	7,779	3,964	11,743	671,436	1.75	196.24
1859—31 December	9,522	5,315	14,837	1,097,305	1.35	179.15
1870—31 March ...	15,375	9,410	24,785	1,606,057	1.54	163.39
1881—3 April ...	17,062	12,646	29,708	2,250,194	1.32	134.92
1891—5 April ...	29,807	19,975	49,782	3,177,823	1.57	149.22
1901—31 March ...	112,875	71,249	184,124	3,773,801	4.88	158.42
1911—3 April ...	161,565	120,549	282,114	4,455,005	6.33	134.02
1921—4 April ...	177,278	155,454	332,732	5,435,734	6.12	114.04
1933—30 June ...	233,937	204,915	438,852	6,629,839	6.62	114.16
1947—30 June ...	258,076	244,404	502,480	7,579,358	6.63	105.59
1954—30 June ...	330,358	309,413	639,771	8,986,530	7.12	106.77
1961—30 June ...	375,452	361,177	736,629	10,508,186	7.01	103.95
1966—30 June ...	426,691	409,982	836,673	11,550,462	7.24	104.08

(a) Figures for dates prior to 3 April 1881 are estimates.

(b) Number of males to each 100 females.

Characteristics of the Population

Masculinity. The sharp rise in masculinity between the Census of 1848 and the three succeeding enumerations, as shown in the preceding table, was doubtless a result of the transportation of convicts which began in 1850 and continued until 1868. During this period a total of 9,668 convicts, all of whom were males, were brought to the Colony. The high levels of masculinity disclosed by the Censuses of 1891 and 1901 may be attributed to the influx of a predominantly male population following the gold discoveries of 1885 and later years.

The masculinity of Western Australia's population has continued to be high. At 30 June 1966, it stood at 104·08 and was higher than in any other State and significantly higher than the Commonwealth figure of 101·43.

Age. The following table shows the numbers and proportions of the population of Western Australia in selected age groups at each census from 1933. The age groups have been chosen as representing, in a general sense, such sectors as the pre-school population, children of school age, minors, women of child-bearing age, the economically active population, and those beyond normal working age.

POPULATION IN SELECTED AGE GROUPS—CENSUSES, 1933 TO 1966

Age last birthday (years)	Number in each age group (a)					Per cent of total				
	Census, 30 June—					Census, 30 June—				
	1933	1947	1954	1961	1966	1933	1947	1954	1961	1966
MALES										
Under 6	24,743	31,749	45,350	50,559	52,840	10·58	12·30	13·73	13·47	12·38
6-12	29,116	29,717	44,075	56,195	63,328	12·45	11·51	13·34	14·97	14·84
6-15	40,205	41,261	59,028	78,270	89,044	17·19	15·99	17·87	20·85	20·87
Under 18	73,091	81,352	113,847	141,371	157,932	31·24	31·52	34·46	37·65	37·01
Under 21	85,924	92,636	126,605	157,345	180,202	36·73	35·89	38·32	41·91	42·23
15-44	114,045	116,353	142,694	150,826	181,273	48·75	45·08	43·19	40·17	42·48
15-64	158,713	168,675	208,670	228,248	265,023	67·84	65·36	63·16	60·79	62·11
65 and over	13,978	20,386	22,262	24,593	28,331	5·98	7·90	6·74	6·55	6·64
All ages	233,937	258,076	330,358	375,452	426,691	100·00	100·00	100·00	100·00	100·00
FEMALES										
Under 6	23,833	30,518	43,871	47,888	50,180	11·63	12·49	14·18	13·26	12·24
6-12	28,049	28,911	41,897	54,243	60,036	13·69	11·83	13·54	15·02	14·64
6-15	38,853	40,023	56,210	75,024	84,790	18·96	16·38	18·17	20·77	20·68
Under 18	70,369	78,667	109,142	134,811	150,276	34·34	32·19	35·27	37·33	36·65
Under 21	82,608	90,538	121,393	150,128	171,055	40·31	37·04	39·23	41·57	41·72
15-44	98,083	110,993	131,254	143,056	168,419	47·87	45·41	42·42	39·61	41·08
15-64	134,980	157,458	189,062	213,573	247,244	65·87	64·43	61·10	59·13	60·31
65 and over	10,833	20,235	25,027	30,504	35,895	5·29	8·28	8·09	8·45	8·76
All ages	204,915	244,404	309,413	361,177	409,982	100·00	100·00	100·00	100·00	100·00
PERSONS										
Under 6	48,576	62,267	89,221	98,447	103,020	11·07	12·39	13·95	13·36	12·31
6-12	57,165	58,628	85,972	110,438	123,364	13·03	11·67	13·44	14·99	14·74
6-15	79,058	81,284	115,238	153,294	173,834	18·01	16·18	18·01	20·81	20·78
Under 18	143,460	160,019	222,989	276,182	308,208	32·69	31·85	34·85	37·49	36·84
Under 21	168,532	183,174	247,998	307,473	351,257	38·40	36·45	38·76	41·74	41·98
15-44	212,128	227,346	273,948	293,882	349,692	48·34	45·24	42·82	39·90	41·80
15-64	293,693	326,133	397,732	441,821	512,267	66·92	64·90	62·17	59·98	61·23
65 and over	24,811	40,621	47,289	55,097	64,226	5·65	8·08	7·39	7·48	7·68
All ages	438,852	502,480	639,771	736,629	836,673	100·00	100·00	100·00	100·00	100·00

(a) Recorded ages adjusted by the distribution of ages 'not stated'.

AGE DISTRIBUTION OF THE POPULATION—CENSUSES, 1933 TO 1966

Age last birthday (years)	Population in each age group (a)					Percentage distribution				
	Census, 30 June—					Census, 30 June—				
	1933	1947	1954	1961	1966	1933	1947	1954	1961	1966
0-4	40,297	52,452	74,978	81,916	84,810	9.18	10.44	11.72	11.12	10.14
5-9	40,793	44,592	67,079	80,754	89,219	9.30	8.87	10.48	10.96	10.66
10-14	39,258	38,682	52,693	77,041	86,151	8.95	7.70	8.24	10.46	10.30
15-19	40,152	39,939	45,251	57,738	79,294	9.15	7.95	7.07	7.84	9.48
20-24	40,169	38,434	43,602	47,877	59,508	9.15	7.65	6.82	6.50	7.11
25-29	40,010	36,126	49,479	44,321	54,047	9.12	7.19	7.73	6.02	6.46
30-34	35,948	38,585	48,520	49,647	49,418	8.19	7.68	7.58	6.74	5.91
35-39	29,014	38,178	42,690	50,634	54,190	6.61	7.60	6.67	6.87	6.48
40-44	26,835	36,084	44,406	43,665	53,235	6.11	7.18	6.94	5.93	6.36
45-49	24,014	32,471	40,636	45,275	45,049	5.47	6.46	6.35	6.15	5.38
50-54	21,960	25,064	35,647	40,376	44,850	5.00	4.99	5.57	5.48	5.36
55-59	18,940	22,606	25,234	34,833	39,482	4.32	4.50	3.94	4.73	4.72
60-64	16,651	18,646	22,267	27,455	33,194	3.79	3.71	3.48	3.73	3.97
65-69	12,010	15,809	17,502	20,240	24,675	2.74	3.15	2.74	2.75	2.95
70-74	7,281	11,934	13,340	15,742	17,222	1.66	2.38	2.09	2.14	2.06
75 and over	5,520	12,878	16,447	19,115	22,329	1.26	2.56	2.57	2.59	2.67
Total	438,852	502,480	639,771	736,629	836,673	100.00	100.00	100.00	100.00	100.00
Under 21	168,532	183,174	247,998	307,473	351,257	38.40	36.45	38.76	41.74	41.98
21-64	245,509	278,685	344,484	374,059	421,190	55.94	55.46	53.84	50.78	50.34
65 and over	24,811	40,621	47,289	55,097	64,226	5.65	8.08	7.39	7.48	7.68
Total	438,852	502,480	639,771	736,629	836,673	100.00	100.00	100.00	100.00	100.00

(a) Recorded ages adjusted by the distribution of ages 'not stated'.

AGE DISTRIBUTION OF THE POPULATION (a)—CENSUSES, 1961 AND 1966

Age last birthday (years)	Census, 30 June 1961				Census, 30 June 1966				
	Total persons	Per cent of total	Males	Females	Persons				
					Total	Per cent of total	Increase or decrease (b) since 1961		
							Numerical	Per cent	
0-4	81,916	11.12	43,524	41,286	84,810	10.14	2,894	3.53	
5-9	80,754	10.96	45,791	43,428	89,219	10.66	8,465	10.48	
10-14	77,041	10.46	44,022	42,129	86,151	10.30	9,110	11.82	
15-19	57,738	7.84	40,714	38,580	79,294	9.48	21,556	37.33	
20-24	47,877	6.50	31,032	28,476	59,508	7.11	11,631	24.29	
25-29	44,321	6.02	28,135	25,912	54,047	6.46	9,726	21.94	
30-34	49,647	6.74	25,488	23,930	49,418	5.91	-229	-0.46	
35-39	50,634	6.87	28,204	25,986	54,190	6.48	3,556	7.02	
40-44	43,665	5.93	27,700	25,535	53,235	6.36	9,570	21.92	
45-49	45,275	6.15	22,907	22,142	45,049	5.38	-226	-0.50	
50-54	40,376	5.48	22,747	22,103	44,850	5.36	4,474	11.08	
55-59	34,833	4.73	20,634	18,848	39,482	4.72	4,649	13.35	
60-64	27,455	3.73	17,462	15,732	33,194	3.97	5,739	20.90	
65-69	20,240	2.75	12,023	12,652	24,675	2.95	4,435	21.91	
70-74	15,742	2.14	7,513	9,709	17,222	2.06	1,480	9.40	
75-79	10,065	1.37	5,020	6,895	11,915	1.42	1,850	18.38	
80-84	5,811	0.79	2,481	3,986	6,467	0.77	656	11.29	
85-89	2,474	0.34	991	1,928	2,919	0.35	445	17.99	
90-94	651	0.09	252	604	856	0.10	205	31.49	
95-99	107	0.01	49	109	158	0.02	51	47.66	
100 and over	7	0.00	2	12	14	0.00	7	100.00	
Total	736,629	100.00	426,691	409,982	836,673	100.00	100,044	13.58	

(a) Recorded ages adjusted by the distribution of ages 'not stated'.

(b) Minus sign (—) denotes decrease.

Birthplace; Nationality. The category 'British' nationality, as used in the table below, includes all persons who, by virtue of section 7 of the *Nationality and Citizenship Act 1948-1966*, are deemed to be British subjects. It also includes persons who, under the provisions of the Act, are Australian citizens or citizens of any other country declared by regulation 5A of the Citizenship Regulations to be 'a country within the Commonwealth of Nations'. In addition, for the purpose of this table, Irish nationality is included with 'British'.

BIRTHPLACE AND NATIONALITY OF THE POPULATION—CENSUSES, 1961 AND 1966

Classification	Census, 30 June 1961		Census, 30 June 1966					
	Total persons	Per cent of total	Males	Females	Persons			
					Total	Per cent of total	Increase or decrease (a) since 1961	
							Numerical	Per cent
BIRTHPLACE								
Australia—								
Western Australia	501,770	68.12	276,471	227,156	553,627	66.17	51,857	10.33
Elsewhere in Australia	70,412	9.56	41,727	42,528	84,255	10.07	13,843	19.66
Total	572,182	77.68	318,198	319,684	637,882	76.24	65,700	11.48
New Zealand	1,913	0.26	1,431	1,237	2,668	0.32	755	39.47
Europe—								
United Kingdom and Republic of Ireland	83,365	11.32	54,932	49,188	104,120	12.44	20,755	24.90
Austria	1,068	0.14	621	489	1,110	0.13	42	3.93
Germany	5,583	0.76	2,939	2,996	5,935	0.71	352	6.30
Greece	4,088	0.55	3,113	2,330	5,443	0.65	1,355	33.15
Italy	25,249	3.43	16,005	12,136	28,141	3.36	2,892	11.45
Latvia	1,247	0.17	633	501	1,134	0.14	-113	-9.06
Netherlands	11,163	1.52	5,755	4,614	10,369	1.24	-794	-7.11
Poland	4,711	0.64	2,775	1,952	4,727	0.56	16	0.34
Union of Soviet Socialist Republics (b)	1,672	0.23	836	792	1,628	0.19	-44	-2.63
Yugoslavia	5,876	0.80	4,641	2,860	7,501	0.90	1,625	27.65
Other	5,761	0.78	4,402	2,618	7,020	0.84	1,259	21.85
Total	149,783	20.33	96,652	80,476	177,128	21.17	27,345	18.26
Other birthplaces	12,751	1.73	10,410	8,585	18,995	2.27	6,244	48.97
GRAND TOTAL	736,629	100.00	426,691	409,982	836,673	100.00	100,044	13.58
NATIONALITY								
British (c)—								
Born in Australia	572,182	77.68	318,198	319,684	637,882	76.24	65,700	11.48
Born outside Australia	130,708	17.74	90,412	77,089	167,501	20.02	36,793	28.15
Total, British (c)	702,890	95.42	408,610	396,773	805,383	96.26	102,493	14.58
Foreign—								
Austrian	431	0.06	224	103	327	0.04	104	24.13
Dutch	7,367	1.00	2,148	1,837	3,985	0.48	3,382	45.91
German	1,897	0.26	956	570	1,526	0.18	371	19.56
Greek	1,882	0.26	1,499	1,066	2,565	0.31	683	36.29
Italian	13,905	1.89	6,723	6,099	12,822	1.53	1,083	7.79
Polish	1,783	0.24	560	400	960	0.11	823	46.16
Spanish	49	0.01	336	150	486	0.06	437	891.84
U.S. American	464	0.06	1,214	730	1,944	0.23	1,480	318.97
Yugoslav	2,177	0.30	1,957	1,080	3,037	0.36	860	39.50
Stateless	914	0.12	388	239	627	0.07	287	31.40
Other	2,870	0.39	2,076	935	3,011	0.36	141	4.91
Total, Foreign	33,739	4.58	18,081	13,209	31,290	3.74	2,449	7.26
GRAND TOTAL	736,629	100.00	426,691	409,982	836,673	100.00	100,044	13.58

(a) Minus sign (—) denotes decrease.

(b) Includes Ukraine.

(c) See letterpress immediately preceding table.

Religion; Marital Status. The Census and Statistics Act provides that there shall be no penalty for failure to answer the question on religion, and a statement to this effect is contained in the census schedule. This doubtless accounts for the high proportion of non-reply, amounting to 10·43 per cent of the population in 1961 and 10·85 per cent in 1966.

RELIGION AND MARITAL STATUS OF THE POPULATION—CENSUSES, 1961 AND 1966

Classification	Census, 30 June 1961		Census, 30 June 1966						
	Total persons	Per cent of total	Males	Females	Persons			Increase or decrease (a) since 1961	
					Total	Per cent of total	Numerical	Per cent	
RELIGION									
Christian—									
Baptist	8,961	1·22	5,118	5,602	10,720	1·28	1,759	19·63	
Brethren	857	0·12	393	406	799	0·10	58	6·77	
Catholic (b)	74,121	10·06	48,389	50,729	99,118	11·85	24,997	33·72	
Catholic, Roman (b)	106,052	14·40	60,705	53,836	114,541	13·69	8,489	8·00	
Church of England	289,863	39·35	159,309	156,844	316,153	37·79	26,290	9·07	
Churches of Christ	10,261	1·39	5,369	6,127	11,496	1·37	1,235	12·04	
Congregational	8,026	1·09	4,016	4,359	8,375	1·00	349	4·35	
Lutheran	4,460	0·61	2,640	2,513	5,153	0·62	693	15·54	
Methodist	76,465	10·38	39,423	41,417	80,840	9·66	4,375	5·72	
Orthodox	9,057	1·23	6,560	5,275	11,835	1·41	2,778	30·67	
Presbyterian	40,583	5·51	22,080	21,975	44,055	5·27	3,472	8·56	
Salvation Army	4,545	0·62	2,388	2,534	4,922	0·59	377	8·29	
Seventh-day Adventist	3,790	0·51	1,927	2,430	4,357	0·52	567	14·96	
Protestant (undefined)	5,234	0·71	3,470	3,209	6,679	0·80	1,445	27·61	
Other (including Christian undefined)	8,756	1·19	5,818	6,346	12,164	1·45	3,408	38·92	
Total, Christian	651,031	88·38	367,605	363,602	731,207	87·39	80,176	12·32	
Non-Christian—									
Hebrew	2,782	0·38	1,510	1,486	2,996	0·36	214	7·69	
Other	836	0·11	768	298	1,066	0·13	230	27·51	
Total, Non-Christian	3,618	0·49	2,278	1,784	4,062	0·49	444	12·27	
Indefinite	2,028	0·28	1,558	1,216	2,774	0·33	746	36·79	
No religion	3,156	0·43	5,060	2,759	7,819	0·93	4,663	147·75	
Total replies	659,833	89·57	376,501	369,361	745,862	89·15	86,029	13·04	
No reply	76,796	10·43	50,190	40,621	90,811	10·85	14,015	18·25	
GRAND TOTAL	736,629	100·00	426,691	409,982	836,673	100·00	100,044	13·58	
MARITAL STATUS									
Never married—									
Under 15 years of age	239,711	32·54	133,337	126,843	260,180	31·10	20,469	8·54	
15 years of age and over	123,813	16·81	91,188	60,192	151,380	18·09	27,567	22·27	
Total	363,524	49·35	224,525	187,035	411,560	49·19	48,036	13·21	
Married	323,294	43·89	185,239	183,053	368,292	44·02	44,998	13·92	
Married but permanently separated (c)	9,830	1·33	5,534	5,986	11,520	1·38	1,690	17·19	
Divorced	6,524	0·89	3,741	3,774	7,515	0·90	991	15·19	
Widowed	33,457	4·54	7,652	30,134	37,786	4·52	4,329	12·94	
GRAND TOTAL	736,629	100·00	426,691	409,982	836,673	100·00	100,044	13·58	

(a) Minus sign (—) denotes decrease.

(b) As stated in individual census schedules.

(c) Legally or otherwise.

Occupational Status; Industry; Occupation. Classifications of the population according to occupational status, industry, and occupation, as recorded at the Census of 30 June 1966, will be found in Chapter X.

Dwellings. Particulars of dwellings, as revealed by the census, are given in Chapter V.

INTERCENSAL INCREASES

The following table shows the population of Western Australia at each census from 1891 to 1966, and the intercensal gains or losses by natural increase and by migration. It also shows the average annual gains or losses in each intercensal period and in the whole period 1891-1966.

POPULATION—ANALYSIS OF INTERCENSAL INCREASES: 1891-1966

Period (a)	Population at beginning of period	Natural increase (b)		Net migration (c)		Total increase		Population at end of period
		Total	Annual average	Total	Annual average	Number	Annual average	
1891-1901 (10 years)	49,782	15,901	1,590	118,441	11,844	134,342	13,434	184,124
1901-1911 (10 years)	184,124	44,246	4,425	53,744	5,374	97,990	9,799	282,114
1911-1921 (10 years)	282,114	51,850	5,185	-1,232	-123	50,618	5,062	332,732
1921-1933 (12½ years)	332,732	60,127	4,908	45,993	3,755	106,120	8,663	438,852
1933-1947 (14 years)	438,852	69,439	4,960	-5,811	-415	63,628	4,545	502,480
1947-1954 (7 years)	502,480	65,576	9,368	71,715	10,245	137,291	19,613	639,771
1954-1961 (7 years)	639,771	79,432	11,348	17,426	2,489	96,858	13,837	736,629
1961-1966 (5 years)	736,629	53,122	10,624	46,922	9,384	100,044	20,009	836,673
1891-1966 (75½ years)	49,782	439,693	5,843	347,198	4,614	786,891	10,457	836,673

(a) For Census dates, see table on page 124. (b) Excess of births registered over deaths registered. (c) Interstate and overseas. Minus sign (—) indicates loss by migration.

The following table shows the increases in the populations of the several States and Territories, and of Australia as a whole, during each of the eight intercensal periods from 1891 to 1966.

POPULATION—INTERCENSAL INCREASES (a): STATES AND TERRITORIES, 1891-1966

State or Territory	1891-1901 (10 years)	1901-1911 (10 years)	1911-1921 (10 years)	1921-1933 (12½ years)	1933-1947 (14 years)	1947-1954 (7 years)	1954-1961 (7 years)	1961-1966 (5 years)
NUMERICAL INCREASE								
New South Wales (b)	227,709	293,602	453,637	500,476	383,991	438,691	493,484	316,809
Victoria	60,982	114,481	215,729	288,981	234,440	397,640	477,772	289,413
Queensland	104,411	107,684	150,159	191,562	158,881	211,844	200,569	144,857
South Australia	42,813	50,212	86,602	85,789	65,124	151,021	172,246	122,535
Western Australia	134,342	97,990	50,618	106,120	63,628	137,291	96,858	100,044
Tasmania	25,808	18,736	22,569	13,819	29,479	51,674	41,588	21,095
Northern Territory	-87	-1,501	557	983	6,018	5,601	10,626	10,338
Australian Capital Territory	(c)	(c)	858	6,375	7,958	13,410	28,513	37,185
AUSTRALIA	595,978	681,204	980,729	1,194,105	949,519	1,407,172	1,521,656	1,042,276
PROPORTIONAL INCREASE (per cent)								
New South Wales (b)	20.20	21.67	27.55	23.83	14.76	14.70	14.41	8.09
Victoria	5.35	9.53	16.40	18.87	12.88	19.35	19.48	9.88
Queensland	26.52	21.62	24.79	25.34	16.77	19.15	15.21	9.54
South Australia	13.57	14.01	21.20	17.33	11.21	23.38	21.61	12.64
Western Australia	269.86	53.22	17.94	31.89	14.50	27.32	15.14	13.58
Tasmania	17.60	10.86	11.80	6.46	12.95	20.10	13.47	6.02
Northern Territory	-1.78	-31.20	16.83	25.42	124.08	51.54	64.52	38.15
Australian Capital Territory	(c)	(c)	50.06	247.86	88.95	79.33	94.06	63.21
AUSTRALIA	18.75	18.05	22.01	21.97	14.32	18.57	16.93	9.92
AVERAGE ANNUAL RATE OF INCREASE (per cent)								
New South Wales (b)	1.86	1.97	2.46	1.76	0.99	1.98	1.94	1.57
Victoria	0.52	0.91	1.53	1.42	0.87	2.56	2.58	1.90
Queensland	2.38	1.98	2.24	1.86	1.11	2.53	2.04	1.84
South Australia	1.28	1.32	1.94	1.31	0.76	3.05	2.83	2.41
Western Australia	13.97	4.36	1.66	2.29	0.97	3.51	2.03	2.58
Tasmania	1.63	1.04	1.12	0.51	0.87	2.65	1.82	1.18
Northern Territory	-0.18	-3.67	1.57	1.87	5.93	6.12	7.37	6.68
Australian Capital Territory	(c)	(c)	4.14	10.71	4.65	8.70	9.93	10.29
AUSTRALIA	1.73	1.67	2.01	1.63	0.96	2.46	2.26	1.91

(a) Minus sign (—) denotes decrease. (b) Includes Australian Capital Territory prior to 1911. (c) Part of New South Wales prior to 1911.

GEOGRAPHICAL DISTRIBUTION

Urban and Rural Populations

For the purpose of presenting statistics obtained at the Census of 30 June 1966, new methods were used in the delimitation of metropolitan areas and certain other urban centres. Briefly, these are as follows:

- (i) Around each capital city and each town with a population of 75,000 or more *two* boundaries were drawn.

The *outer* boundary, which is fixed, circumscribes the area in close economic and social contact with the main city or town. These areas are designated Statistical Divisions (for State capital cities) or Statistical Districts (for Canberra and some other cities). The *inner* boundary indicates the area within which, at the time of the Census, there was a density of at least 500 persons per square mile. This density is determined for each Census collector's district (the smallest geographical area available). From Census to Census as urbanisation proceeds this *inner* boundary will move outwards to encompass peripheral development. Some specified areas of lower density (*e.g.* industrial areas) are classified as urban on other grounds.

- (ii) The principal urban centre within each Capital City Statistical Division is designated the 'Metropolitan Area'.
- (iii) Population clusters of 1,000 or more persons having a minimum density of 500 persons per square mile are designated Urban Centres.

In determining the outer boundary of each Capital City Statistical Division the aim was to delimit, for at least two or three decades, the region expected to be in close contact with the inner urban area, after making allowances for further urban development, including satellite towns, improvements in transport, and other factors.

The Perth Statistical Division and its component local government areas are shown on the map of Western Australia at the back of the Year Book. The area of the Division at 30 June 1966 was 2,072 square miles.

The Perth Metropolitan Area (delimited by the *inner* boundary as described above) embraced an area of 164.1 square miles at 30 June 1966. It comprised the Cities of Fremantle, Nedlands, Perth, South Perth, and Subiaco; the towns of Claremont, Cottesloe, East Fremantle, Midland, and Mosman Park; the Shires of Bassendean and Peppermint Grove; part of the Town of Melville (declared a City with effect from 3 May 1968), and parts of the Shires of Bayswater, Belmont, Canning, Cockburn, Gosnells, Mundaring, Perth, Swan-Guildford, and Wanneroo.

A detailed statement on the concepts and criteria adopted in the delimitation of metropolitan areas and other urban centres is contained in *Field Count Statement No. 4—Population: Principal Urban Centres of Australia* published November 1966 by the Commonwealth Statistician, Canberra.

Comparable information for the 1961 Census has been prepared, using the new concepts. Because the 1961 Census collectors' districts were not always suitable for this purpose, some estimations have had to be made.

The following tables show, for 1961 and 1966, a division of the population of each State and Territory into *Urban* and *Rural* on the basis of the new concepts. *Metropolitan Urban* refers to Metropolitan Areas as defined above. *Other Urban* represents the aggregation of the populations of Urban Centres outside the Metropolitan Areas, as in the table on page 132. *Rural* comprises the remaining portion of each State or Territory. The term *Migratory* refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

URBAN AND RURAL POPULATIONS (a)—STATES AND TERRITORIES
CENSUSES, 1961 AND 1966
(Persons)

State or Territory	Urban			Rural	Migratory	Total population
	Metro-politan	Other	Total			
CENSUS, 30 JUNE 1961						
New South Wales	2,197,022	1,118,057	3,315,079	591,343	10,591	3,917,013
Victoria	1,858,534	580,939	2,439,473	486,031	4,609	2,930,113
Queensland	587,634	540,870	1,128,504	388,336	1,988	1,518,828
South Australia	580,449	178,227	758,676	206,726	3,938	969,340
Western Australia	423,930	124,427	548,357	185,255	3,017	736,629
Tasmania	110,217	125,925	236,142	113,319	879	350,340
Northern Territory .....	.....	19,056	19,056	7,775	264	27,095
Australian Capital Territory	55,746	.....	55,746	3,082	.....	58,828
AUSTRALIA	5,813,532	2,687,501	8,501,033	1,981,867	25,286	10,508,186
CENSUS, 30 JUNE 1966						
New South Wales	2,446,345	1,211,472	3,657,817	566,946	9,059	4,233,822
Victoria	2,110,168	643,598	2,753,766	462,772	2,988	3,219,526
Queensland	718,822	558,115	1,276,937	384,689	2,059	1,663,685
South Australia	727,916	173,796	901,712	188,590	1,573	1,091,875
Western Australia	499,969	140,267	640,236	193,399	3,038	836,673
Tasmania	119,469	141,512	260,981	109,779	675	371,435
Northern Territory .....	.....	28,753	28,753	8,385	295	37,433
Australian Capital Territory	92,308	.....	92,308	3,705	.....	96,013
AUSTRALIA	6,714,997	2,897,513	9,612,510	1,918,265	19,687	11,550,462

(a) See letterpress preceding table for definitions of *Urban*, *Rural*, etc. Figures in table subject to revision.

URBAN AND RURAL POPULATIONS (a)—STATES AND TERRITORIES
PERCENTAGE DISTRIBUTION: CENSUSES, 1961 AND 1966
(Per cent)

State or Territory	Urban			Rural	Migratory	Total
	Metro-politan	Other	Total			
CENSUS, 30 JUNE 1961						
New South Wales	56.09	28.54	84.63	15.10	0.27	100.00
Victoria	63.43	19.83	83.26	16.59	0.16	100.00
Queensland	38.69	35.61	74.30	25.57	0.13	100.00
South Australia	59.88	18.39	78.27	21.33	0.41	100.00
Western Australia	57.55	16.89	74.44	25.15	0.41	100.00
Tasmania	31.46	35.94	67.40	32.35	0.25	100.00
Northern Territory .....	.....	70.33	70.33	28.70	0.97	100.00
Australian Capital Territory	94.76	.....	94.76	5.24	.....	100.00
AUSTRALIA	55.32	25.58	80.90	18.86	0.24	100.00
CENSUS, 30 JUNE 1966						
New South Wales	57.78	28.61	86.40	13.39	0.21	100.00
Victoria	65.54	19.99	85.53	14.37	0.09	100.00
Queensland	43.21	33.55	76.75	23.12	0.12	100.00
South Australia	66.67	15.92	82.58	17.27	0.14	100.00
Western Australia	59.76	16.76	76.52	23.12	0.36	100.00
Tasmania	32.16	38.10	70.26	29.56	0.18	100.00
Northern Territory .....	.....	76.81	76.81	22.40	0.79	100.00
Australian Capital Territory	96.14	.....	96.14	3.86	.....	100.00
AUSTRALIA	58.14	25.09	83.22	16.61	0.17	100.00

(a) See page 130 for definitions of *Urban*, *Rural*, etc. Figures in table subject to revision.

The following table shows the population of urban centres in Western Australia at the Censuses of 1961 and 1966. For *Metropolitan* and *Other Urban* centres, which are delineated by moving boundaries (see letterpress on page 130), boundaries for 1961 have been redrawn according to the new criteria. The urban populations (partly estimated) within these boundaries are shown in this table for comparison with the 1966 population. The intercensal increase or decrease between 1961 and 1966 may reflect population change within the original 1961 boundary; urban growth beyond the original boundary; or the merging of *Other Urban* areas with the *Metropolitan Area*.

POPULATION—METROPOLITAN, OTHER URBAN, RURAL, AND MIGRATORY (a)
CENSUSES, 1961 AND 1966

Area	Population				Intercensal increase or decrease		
	Census, 30 June—				Number	Per cent	Average annual rate (per cent)
	1961	1966					
	Persons	Males	Females	Persons			
Perth Metropolitan Area (a)	423,930	244,762	255,207	499,969	76,039	17.94	3.35
Other urban centres (a)—							
Kalgoorlie-Boulder	21,247	10,358	9,550	19,908	1,339	6.30	1.29
Bunbury	13,186	7,789	7,670	15,459	2,273	17.24	3.23
Geraldton	10,894	6,245	5,880	12,125	1,231	11.30	2.16
Albany	10,526	5,598	5,821	11,419	893	8.48	1.64
Collie	7,547	3,843	3,785	7,628	81	1.07	0.21
Northam	7,200	3,825	3,575	7,400	200	2.78	0.55
Narrogin	4,620	2,396	2,465	4,861	241	5.22	1.02
Busselton	3,495	2,091	2,187	4,278	783	22.40	4.13
Medina-Calista	3,269	2,085	2,047	4,132	863	26.40	4.80
Rockingham-Safety Bay	1,726	1,911	1,856	3,767	2,041	118.25	16.89
Merredin	3,029	1,927	1,672	3,599	570	18.82	3.51
Katanning	3,360	1,782	1,724	3,506	146	4.35	0.85
Armadale	2,565	1,694	1,769	3,463	898	35.01	6.19
Manjimup	2,914	1,578	1,608	3,186	272	9.33	1.80
Kalamunda-Gooseberry Hill	2,488	1,522	1,546	3,068	580	23.31	4.28
Carnarvon	1,809	1,572	1,384	2,956	1,147	63.41	10.32
Mandurah	2,121	1,332	1,398	2,730	609	28.71	5.18
Esperance	1,111	1,414	1,263	2,677	1,566	140.95	19.23
Harvey	2,046	1,048	1,018	2,066	20	0.98	0.19
Norseman	1,980	995	868	1,863	117	5.91	1.21
Port Hedland (b)	965	1,087	691	1,778	813	84.25	13.00
Wagin	1,608	902	848	1,750	142	8.83	1.71
Mount Barker	1,532	814	780	1,594	62	4.05	0.80
Broome	1,222	963	607	1,570	348	28.48	5.14
Bridgetown	1,565	796	773	1,569	4	0.26	0.05
Derby (c)	994	760	664	1,424	430	43.26	7.45
York	1,524	734	687	1,421	103	6.76	1.39
Kellerberrin	1,323	657	686	1,343	20	1.51	0.30
Kwinana Industrial (d)	1,104	676	596	1,272	168	15.22	2.87
Moora	1,145	625	560	1,185	40	3.49	0.69
Wyndham (c)	958	759	397	1,156	198	20.67	3.83
Dampier	(e)	1,007	73	1,080	n.a.	n.a.	n.a.
Wundowie	1,102	555	485	1,040	62	5.63	1.15
Waroona	1,005	510	503	1,013	8	0.80	0.16
Gnowangerup (f)	740	494	487	981	241	32.57	5.80
Donnybrook	1,011	(g)	(g)	(g)	n.a.	n.a.	n.a.
Pemberton	1,201	(h)	(h)	(h)	n.a.	n.a.	n.a.
Total, Other urban (i)	124,427	72,344	67,923	140,267	15,840	12.73	2.43
Total urban (i)	548,357	317,106	323,130	640,236	91,879	16.76	3.15
Rural	185,255	107,077	86,322	193,399	8,144	4.40	0.86
Migratory (a)	3,017	2,508	530	3,038	21	0.70	n.a.
WESTERN AUSTRALIA	736,629	426,691	409,982	836,673	100,044	13.58	2.58

n.a. denotes 'not applicable'.

(a) See letterpress on page 130. (b) Non-urban in 1961. (c) Classified as urban in 1961, as population inclusive of full-blood Aborigines exceeded 1,000. (d) Excludes Medina-Calista. (e) Non-urban in 1961; population not available. (f) Non-urban in 1961. Classified as urban in 1966, as population inclusive of full-blood Aborigines exceeded 1,000. (g) Non-urban in 1966; population 981. (h) Non-urban in 1966; population 931. (i) Figures for 1961 exclude populations shown for Port Hedland and Gnowangerup; see notes (b) and (f).

Population in Statistical Divisions

Western Australia is divided into a number of municipal districts for the purposes of local government administration. These districts, of which there were 144 at 30 June 1966, are used as the basis of presentation of data derived not only from the Census of Population and Housing but also from many of the regular statistical collections. Information presented in this way is valuable when considering activities in particular local government areas but is often more detailed than is required for a broader geographical assessment. For this reason, the municipal districts are combined into Statistical Divisions which provide significant areas for the publication of statistics in a convenient and readily appreciable summary form. The Statistical Divisions and their component local government areas are shown on the map of the State appearing at the back of the Year Book.

In 1929, when statistics were first presented according to Statistical Divisions, Western Australia was divided into seven such areas. There are currently ten Statistical Divisions, and these have been used as the basis of compilation of the particulars in the following tables. The figures shown refer to the areas contained within the several Divisions as they existed at the Census of 30 June 1966.

The Perth Statistical Division, in common with similar Divisions for each of the other State capital cities, was used for the first time in census tabulations at the Census of 30 June 1966 (see preceding section *Urban and Rural Populations*).

STATISTICAL DIVISIONS — POPULATION AT EACH CENSUS FROM 1911
(Figures compiled on the basis of the 1966 boundaries)

Statistical Division	Census date						
	1911 3 April	1921 4 April	1933 30 June	1947 30 June	1954 30 June	1961 30 June	1966 30 June
POPULATION ('000)							
Perth Statistical Division	116.2	170.2	230.3	303.0	395.0	475.4	558.8
Other Divisions—							
South-West	27.0	34.4	50.4	52.0	68.6	71.6	72.8
Southern Agricultural	15.9	20.5	27.0	24.9	36.1	41.6	44.5
Central Agricultural	31.5	40.5	53.6	43.8	55.9	57.6	58.4
Northern Agricultural	13.4	17.7	26.6	24.7	32.1	35.8	38.3
Eastern Goldfields	55.0	33.7	33.2	37.7	34.6	34.1	33.9
Central	9.6	5.0	7.9	6.4	4.8	4.0	3.5
North-West	2.1	2.1	2.6	2.6	4.2	4.6	8.4
Pilbara	2.5	1.4	1.8	1.7	2.7	3.2	7.4
Kimberley (a)	2.0	2.2	2.1	2.8	3.5	5.7	7.6
Total (a)	158.9	157.3	205.3	196.5	242.5	258.2	274.8
Total, all Divisions (a)	275.1	327.5	435.7	499.5	637.5	733.6	833.6
Migratory (a)	7.0	5.2	3.2	3.0	2.3	3.0	3.0
WESTERN AUSTRALIA	282.1	332.7	438.9	502.5	639.8	736.6	836.7
PROPORTION OF STATE TOTAL (per cent)							
Perth Statistical Division	41.18	51.16	52.49	60.29	61.75	64.54	66.79
Other Divisions—							
South-West	9.57	10.33	11.49	10.34	10.72	9.72	8.70
Southern Agricultural	5.63	6.16	6.15	4.96	5.65	5.65	5.32
Central Agricultural	11.16	12.16	12.22	8.71	8.74	7.82	6.98
Northern Agricultural	4.75	5.32	6.06	4.91	5.01	4.86	4.57
Eastern Goldfields	19.51	10.13	7.57	7.51	5.40	4.63	4.06
Central	3.39	1.49	1.79	1.27	0.75	0.54	0.42
North-West	0.75	0.62	0.60	0.52	0.66	0.62	1.00
Pilbara	0.87	0.42	0.42	0.33	0.41	0.44	0.88
Kimberley (a)	0.70	0.65	0.48	0.55	0.55	0.77	0.91
Total (a)	56.33	47.28	46.78	39.11	37.90	35.05	32.85
Total, all Divisions (a)	97.51	98.44	99.27	99.41	99.65	99.59	99.64
Migratory (a)	2.49	1.56	0.73	0.59	0.35	0.41	0.36
WESTERN AUSTRALIA	100.00	100.00	100.00	100.00	100.00	100.00	100.00

(a) At censuses prior to 1954, the pearling fleet based on Broome was classified to *Migratory* (see letterpress on page 130). The estimated population involved was 2,500 in 1911; 1,500 in 1921; 800 in 1933; and 200 in 1947. From 1954, pearling crews have been included in the population of Broome.

STATISTICAL DIVISIONS—POPULATION AT CENSUSES, 1961 AND 1966

Statistical Division	Census, 30 June 1961 (a)				Census, 30 June 1966			
	Males	Females	Persons	Masculinity (b)	Males	Females	Persons	Masculinity (b)
Perth Statistical Division	233,584	241,814	475,398	96·60	274,872	283,949	558,821	96·80
Other Divisions—								
South-West	37,314	34,323	71,637	108·71	37,460	35,363	72,823	105·93
Southern Agricultural	21,999	19,624	41,623	112·10	23,345	21,183	44,528	110·21
Central Agricultural	30,962	26,628	57,590	116·28	31,402	26,994	58,396	116·33
Northern Agricultural	19,569	16,199	35,768	120·80	20,834	17,435	38,269	119·50
Eastern Goldfields	18,430	15,712	34,142	117·30	18,416	15,514	33,930	118·71
Central	2,376	1,604	3,980	148·13	2,040	1,446	3,486	141·08
North-West	2,754	1,809	4,563	152·24	5,383	2,972	8,355	181·12
Pilbara	2,119	1,124	3,243	188·52	5,547	1,836	7,383	302·12
Kimberley	3,816	1,852	5,668	206·05	4,884	2,760	7,644	176·96
Total	139,339	118,875	258,214	117·21	149,311	125,503	274,814	118·97
Total, all Divisions	372,923	360,689	733,612	103·39	424,183	409,452	833,635	103·60
Migratory (c)	2,529	488	3,017	518·24	2,508	530	3,038	473·21
WESTERN AUSTRALIA	375,452	361,177	736,629	103·95	426,691	409,982	836,673	104·08

(a) For the purpose of this table, the figures shown for 30 June 1961 have been adjusted to conform to the boundaries of Statistical Divisions as they existed at the 1966 Census. (b) Number of males to each 100 females. (c) Refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

STATISTICAL DIVISIONS—ANALYSIS OF POPULATION INCREASE
30 JUNE 1961 TO 30 JUNE 1966

Statistical Division	Intercensal increase of population (a)				
	By natural increase (b)	By migration	Total		
			Number	Per cent	Average annual rate (per cent)
Perth Statistical Division	28,079	55,344	83,423	17·55	3·29
Other Divisions—					
South-West	5,673	— 4,487	1,186	1·66	0·33
Southern Agricultural	3,930	— 1,025	2,905	6·98	1·36
Central Agricultural	6,074	— 5,268	806	1·40	0·28
Northern Agricultural	4,133	— 1,632	2,501	6·99	1·36
Eastern Goldfields	2,910	— 3,122	— 212	— 0·62	— 0·12
Central	453	— 947	— 494	— 12·41	— 2·62
North-West	584	3,208	3,792	83·10	12·86
Pilbara	495	3,645	4,140	127·66	17·88
Kimberley	791	1,185	1,976	34·86	6·16
Total	25,043	— 8,443	16,600	6·43	1·25
Total, all Divisions	53,122	46,901	100,023	13·63	2·59
Migratory (c)	n.a.	21	21	0·70	n.a.
WESTERN AUSTRALIA	53,122	46,922	100,044	13·58	2·58

(a) Minus sign (—) denotes decrease.
previous table.

n.a. denotes 'not applicable'.

(b) Excess of births registered over deaths registered.

(c) See note (c) to

The growing urbanisation occurring in other States is also apparent in Western Australia. The population of the Perth Statistical Division at the Census of 30 June 1966 was 558,821, or 66·8 per cent of the State total, compared with 475,398 (64·5 per cent) five years earlier, an increase of 83,423 persons or 17·5 per cent. The State's natural increase between the Censuses was 53,122 of which the Perth Statistical Division contributed 28,079. In addition, this Division experienced a net gain by migration of 55,344.

The larger towns of the Agricultural and South-West Statistical Divisions also showed substantial population increases, the greatest being those of Bunbury (2,273 persons; or 17.2 per cent), Geraldton (1,231; 11.3 per cent) and Albany 893; 8.5 per cent).

The total population in the area outside the Perth Statistical Division rose by 16,600 or 6.4 per cent. The natural increase recorded in the area was 25,043, so that there was a loss of 8,443 persons by migration. Of the net increase of 16,600 persons, the Pilbara Division accounted for almost one quarter with a population gain of 4,140 and showed the greatest proportional increase, 127.7 per cent. Other Divisions showing an increase were North-West, 3,792 (83.1 per cent); Southern Agricultural, 2,905 (7.0 per cent); Northern Agricultural, 2,501 (7.0 per cent); Kimberley, 1,976 (34.9 per cent); South-West, 1,186 (1.7 per cent) and Central Agricultural, 806 (1.4 per cent). Divisions which experienced a decrease in population were Central which lost 494 persons (—12.4 per cent) and Eastern Goldfields with a decline of 212 (—0.6 per cent).

The Eastern Goldfields, Central and Pilbara Statistical Divisions together comprised an area of 638,508 square miles (or almost two-thirds of the State) and had a population of only 44,799 persons at the Census of 30 June 1966. A low rainfall renders much of it virtually uninhabitable and desert or near-desert conditions prevail over some 350,000 square miles which includes much of the eastern and northern parts of the area and extends into the southern portion of the Kimberley Statistical Division. Almost no part of this desert area has an annual rainfall greater than ten inches and a considerable proportion has much less. Of the total of 44,799 persons enumerated in the three Divisions at the Census, more than three-fifths were in the towns of Kalgoorlie-Boulder (19,908), Esperance (2,677), Norseman (1,863), Port Hedland (1,778) and Dampier (1,080).

Population of South-West Land Division

The South-West Land Division, as defined in the *Land Act, 1933-1968*, often has particular importance in matters of legislation and administration. Its boundaries are almost coincident with those of the area formed by the aggregation of the Perth Statistical Division and the South-West, Southern Agricultural, Central Agricultural and Northern Agricultural Statistical Divisions. It embraces an area of 98,305 square miles, a little more than one-tenth of the whole State (975,920 square miles), and had a population of 772,800 persons at the 1966 Census, equivalent to 92.4 per cent of the State total, compared with 682,000 (92.6 per cent) in 1961.

Population North of 26° S. Latitude

For administrative and other purposes, the portion of the State lying north of the 26th parallel of latitude frequently has special significance. This area, which embraces part of the Central Statistical Division, almost all of the North-West Statistical Division, and the whole of the Pilbara and Kimberley Statistical Divisions, is 529,486 square miles in extent and is therefore somewhat greater in area than half the entire State. It had a population of 13,657 persons at the 1961 Census and 23,591 in 1966. Of this total, more than three-fifths were enumerated in the coastal towns of Carnarvon (2,956), Port Hedland (1,778), Broome (1,570), Derby (1,424), Wyndham (1,156), Dampier (1,080), Exmouth (880) and Denham (284); the mining centres of Wittenoom (876), Yampi (593), Tom Price (549) and Goldsworthy (381); and the Ord River agricultural settlement at Kununurra (930).

POPULATION DENSITY

The most densely populated part of the State is the Perth Metropolitan Area (see letterpress *Urban and Rural Populations* on page 130). At the Census of 30 June 1966 it had a population of 499,969 persons and an area of 164.1 square miles, representing a density of 3,047 persons per square mile. Among the Statistical Divisions, Perth with a population of 558,821 and 2,072 square miles in area showed the highest density, 270 persons per square mile. The Central Statistical Division was the most sparsely populated with an area of 218,011 square miles (more than one-fifth of the entire State) and a Census population of only 3,486 persons, equivalent to an average of one person to every 63 square miles.

STATISTICAL DIVISIONS—AREA, POPULATION AND DENSITY: CENSUS, 30 JUNE 1966

Statistical Division	Area		Population				
	Square miles	Per cent of total	Males	Females	Persons		
					Total	Per cent of total	Density (per square mile)
Perth Statistical Division	2,072	0·21	274,872	283,949	558,821	66·79	269·70
Other Divisions—							
South-West	11,030	1·13	37,460	35,363	72,823	8·70	6·60
Southern Agricultural	22,025	2·26	23,345	21,183	44,528	5·32	2·02
Central Agricultural	30,270	3·10	31,402	26,994	58,396	6·98	1·93
Northern Agricultural	33,921	3·48	20,834	17,435	38,269	4·57	1·13
Eastern Goldfields	249,035	25·52	18,416	15,514	33,930	4·06	0·14
Central	218,011	22·34	2,040	1,446	3,486	0·42	0·02
North-West	75,731	7·76	5,383	2,972	8,355	1·00	0·11
Pilbara	171,462	17·57	5,547	1,836	7,383	0·88	0·04
Kimberley	162,363	16·64	4,884	2,760	7,644	0·91	0·05
Total	973,848	99·79	149,311	125,503	274,814	32·85	0·28
Total, all Divisions	975,920	100·00	424,183	409,452	833,635	99·64	0·85
Migratory (a)	n.a.	n.a.	2,508	530	3,038	0·36	n.a.
WESTERN AUSTRALIA	975,920	100·00	426,691	409,982	836,673	100·00	0·86

n.a. denotes 'not applicable'.

(a) Refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

Western Australia had a population density at the 1966 Census of only 0·86 persons per square mile, compared with an average of 3·89 for Australia as a whole. Victoria was the most densely populated State, having an average of 36·63 persons per square mile.

AREA, POPULATION AND DENSITY—STATES AND TERRITORIES: CENSUS, 30 JUNE 1966

State or Territory	Area		Population				
	Square miles	Per cent of total	Males	Females	Persons		
					Total	Per cent of total	Density (per square mile)
New South Wales	309,433	10·43	2,124,462	2,109,360	4,233,822	36·66	13·68
Victoria	87,884	2·96	1,613,904	1,605,622	3,219,526	27·87	36·63
Queensland	667,000	22·47	843,897	819,788	1,663,685	14·40	2·49
South Australia	380,070	12·81	548,530	543,345	1,091,875	9·45	2·87
Western Australia	975,920	32·88	426,691	409,982	836,673	7·24	0·86
Tasmania	26,383	0·89	187,390	184,045	371,435	3·22	14·08
Northern Territory	520,280	17·53	21,508	15,925	37,433	0·32	0·07
Australian Capital Territory	939	0·03	49,977	46,036	96,013	0·83	102·25
AUSTRALIA	2,967,909	100·00	5,816,359	5,734,103	11,550,462	100·00	3·89

ESTIMATES OF POPULATION

For dates other than those of the periodic census of population, it is necessary to rely upon estimates based on records of births and deaths and of movements of population interstate and overseas. Estimates of the population of Australia and of each of the States and Territories are prepared by the Commonwealth Statistician as at 31 March, 30 June, 30 September and 31 December in each year. Because the available records of interstate movement are incomplete, these intercensal estimates as they apply to States and Territories are approximate and are revised when the results of the next succeeding census become known.

Until 1967, when a new method was introduced, the estimates were made by adding to the census figures the subsequent natural increase (the excess of births over deaths) and all net recorded overseas movement according to State of embarkation or disembark-

ation, as well as all net recorded movement by air, rail, sea and bus between States. The 1966 Census results confirmed that, despite very considerable efforts made to improve records of interstate movements, it is not possible to measure such movements with the desired accuracy. The new method, tested over the 1961-1966 intercensal period, appears to provide a more accurate result, and has therefore been adopted for intercensal revision of the population and will continue to be used until the Census of 1971.

In the new method the population in each State or Territory is estimated by adding to the population ascertained at the Census the natural increase and the recorded net gain from overseas migration for that State or Territory; gains and corresponding losses that result from movements between States and Territories are also taken into account in so far as they are recorded as transfers of residence under child endowment procedures or Commonwealth electoral procedures, supplemented by results of any special count or sample survey. Holiday, business or other similar short-term movements between States and Territories are omitted.

Population estimates for dates and periods between the Censuses of 30 June 1961 and 30 June 1966, as shown in the next table, have been prepared using the new method and are adjusted in accordance with the final results of the 1966 Census.

Mean Population

It is often useful to relate a given characteristic to population in order to express it in *per capita* terms or as 'per head of population'. In some cases it is appropriate to relate a characteristic to the population as at a specified date as, for example, savings bank balances per head of population at 30 June, or motor vehicles per head of population at 31 December.

Where events, as for instance births or deaths, are taking place continuously throughout a period, it is obviously not appropriate to relate these events to the population as at a specific date. It is necessary, therefore, to devise a measure which takes account of the change in population which occurs continuously throughout any period. This measure is known as the *mean population*.

As stated earlier, estimates of population are prepared as at the end of each quarter of the year. The mean population of a quarter might be taken to be the average, or arithmetic mean, of the populations at the beginning and the end of the quarter. If a represents the population at the beginning of a year and b , c , d and e the populations at the end of the first, second, third and fourth quarters respectively, these quarterly means would then be $\frac{1}{2}(a + b)$ for the first quarter, $\frac{1}{2}(b + c)$ for the second, $\frac{1}{2}(c + d)$ for the third and $\frac{1}{2}(d + e)$ for the fourth quarter. The mean population for the year might then be taken as the arithmetic mean of the four quarterly average populations, or

$$\frac{1}{4}\left\{\frac{1}{2}(a + b) + \frac{1}{2}(b + c) + \frac{1}{2}(c + d) + \frac{1}{2}(d + e)\right\}$$

which may be more simply expressed as $\frac{1}{8}(a + 2b + 2c + 2d + e)$. This method of deriving mean population had been in use in Western Australia prior to its general adoption by the 1903 Conference of Australian Statisticians. It was later superseded by the more precise measure

$$\frac{1}{12}(a + 4b + 2c + 4d + e)$$

which is now commonly used in Australian statistics. In order to establish uniformity with current practice, estimates of mean population for 1901 and later years have been revised, where necessary, by the application of this formula.

Population Estimates, 1961 to 1967

As a result of the repeal, with effect from 10 August 1967, of section 127 of the Australian Constitution, to which reference is made on page 124, current population estimates no longer exclude full-blood Aborigines. Estimates for earlier dates and periods back to the Census of 30 June 1961 have also been prepared on the basis of *total* population (*i.e.* including Aborigines) and are presented in the following tables. The final results of the 1966 Census, inclusive of all persons enumerated, have been taken into account in the preparation of these estimates.

POPULATION ESTIMATES

NOTE. A line drawn across a column indicates a break in continuity in the series. Figures above the line exclude full-blood Aborigines; those below the line refer to total population, i.e. including Aborigines.

Year	Population at end of year (a)			Increase during year			Mean population		
	Males	Females	Persons	Natural increase (b) (c)	Estimated net migration (c) (d)	Total increase	Males	Females	Persons
YEAR ENDED 30 JUNE									
1961 (e)	380,740	366,010	746,750	11,501	3,048	14,549	371,805	357,965	729,770
1962	390,168	375,794	765,962	11,323	7,605	19,212	385,122	370,648	755,770
1963	401,731	386,613	788,344	11,309	10,811	22,382	396,047	381,366	777,413
1964	412,103	396,340	808,443	10,787	9,028	20,099	407,114	391,710	798,824
1965	421,017	404,508	825,525	9,825	6,987	17,082	416,623	400,534	817,157
1966 (e)	432,569	415,531	848,100	9,878	12,491	22,575	427,000	410,290	837,290
1967	446,709	429,653	876,362	11,058	17,204	28,262	439,506	422,624	862,130
YEAR ENDED 31 DECEMBER									
1961	384,773	370,440	755,213	11,349	2,571	13,920	375,904	361,692	737,596
1962	395,891	381,357	777,248	11,254	10,499	22,035	390,316	375,889	766,205
1963	407,024	391,871	798,895	11,314	10,068	21,647	401,757	386,700	788,457
1964	417,023	401,098	818,121	10,256	8,705	19,226	412,027	396,273	808,300
1965	427,330	410,918	838,248	9,912	9,963	20,127	421,437	405,044	826,481
1966	439,680	423,005	862,685	10,235	14,046	24,437	432,865	415,972	848,837
1967	454,743	438,020	892,763	11,244	18,834	30,078	446,945	430,052	876,997

(a) Including Aborigines. (b) Excess of births registered over deaths registered. (c) Includes Aborigines from 1 January 1967; see NOTE on page 123. (d) Interstate and overseas. (e) The numbers appearing in the first three columns are Census figures. Those shown for 30 June 1961 include an estimate for full-blood Aborigines out of contact at the Census; see letterpress *Aboriginal Population* on page 140.

The following table shows the estimated population of each State and Territory of Australia at 31 December of the years 1961 to 1967. The estimates refer to total population (see letterpress preceding previous table).

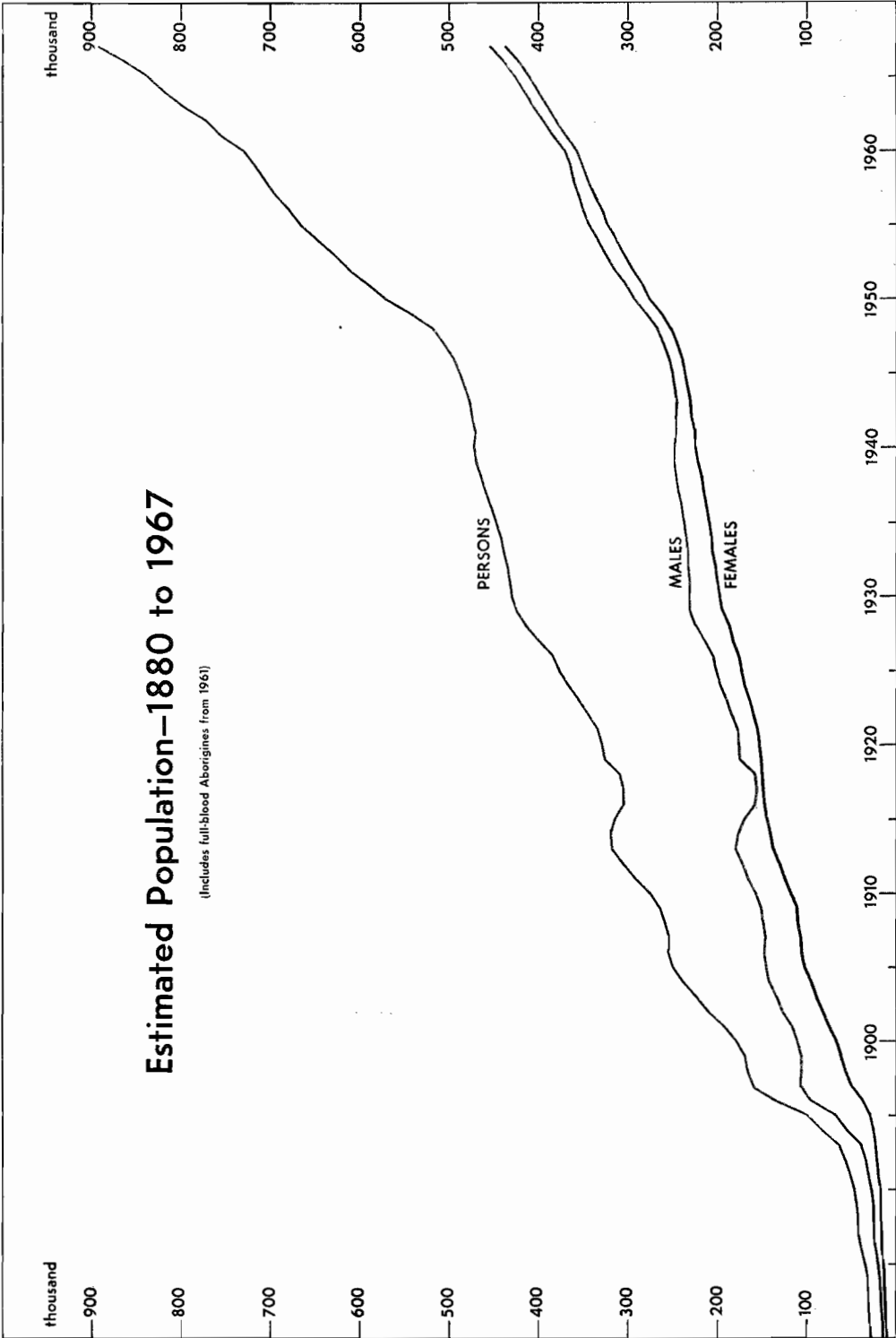
POPULATION ESTIMATES (a)—STATES AND TERRITORIES

State or Territory	Estimated population at 31 December—						
	1961	1962	1963	1964	1965	1966	1967
New South Wales	3,951,651	4,022,361	4,077,743	4,142,121	4,211,049	4,273,307	4,347,309
Victoria	2,955,299	3,011,043	3,071,046	3,137,921	3,195,860	3,249,870	3,303,631
Queensland	1,540,251	1,562,845	1,595,446	1,626,525	1,659,423	1,687,882	1,718,266
South Australia	979,351	998,245	1,022,387	1,051,954	1,082,958	1,104,590	1,118,477
Western Australia	755,213	777,248	798,895	818,121	838,248	862,685	892,763
Tasmania	353,258	358,087	362,799	366,508	369,608	373,905	379,628
Northern Territory	45,299	46,684	49,891	52,754	55,464	58,099	60,639
Australian Capital Territory	62,332	69,546	77,275	84,525	92,798	100,049	108,176
AUSTRALIA	10,642,654	10,846,059	11,055,482	11,280,429	11,505,408	11,710,387	11,928,889

(a) Including Aborigines.

Estimated Population, 1830 to 1967

The following table shows the estimated population of Western Australia at ten-yearly intervals from 1830 to 1960, and annually from 1963 to 1967. The estimates for 1960 and earlier exclude full-blood Aborigines. The figures shown for 1963 and later refer to total population, i.e. including Aborigines; see letterpress *Population Estimates, 1961 to 1967* on previous page.



ESTIMATED POPULATION (a)—1830-1967

At 31 December—	Males	Females	Persons	Increase (b)		
				Number	Per cent	Average annual rate (per cent)
1830	877	295	1,172	....	....	....
1840	1,434	877	2,311	1,139	97·18	7·03
1850	3,576	2,310	5,886	3,575	154·69	9·80
1860	9,597	5,749	15,346	9,460	160·72	10·06
1870	15,511	9,624	25,135	9,789	63·79	5·06
1880	16,985	12,576	29,561	4,426	17·61	1·64
1890	28,854	19,648	48,502	18,941	64·07	5·08
1900	110,088	69,879	179,967	131,465	271·05	14·01
1910	157,971	118,861	276,832	96,865	53·82	4·40
1920	176,895	154,428	331,323	54,491	19·68	1·81
1930	232,868	198,742	431,610	100,287	30·27	2·68
1940	248,734	225,342	474,076	42,466	9·84	0·94
1950	294,758	277,891	572,649	98,573	20·79	1·91
1960	372,665	358,368	731,033	158,384	27·66	2·47
1963	407,024	391,871	798,895	21,647	2·79	....
1964	417,023	401,098	818,121	19,226	2·41	....
1965	427,330	410,918	838,248	20,127	2·46	....
1966	439,680	423,005	862,685	24,437	2·92	....
1967	454,743	438,020	892,763	30,078	3·49	....
Five years ended 31 December 1967				115,515	14·86	2·81

(a) Estimates for 1960 and earlier exclude full-blood Aborigines; those for 1963 and later refer to total population, i.e. including Aborigines. (b) Decennial increases during the period 1830-1960; annual increases from 1963 to 1967.

ABORIGINAL POPULATION

Reference is made on page 124 to the exclusion of *full-blood* Aborigines from the census tabulations. Aborigines have, however, been enumerated in all censuses of the Commonwealth, although the degree of coverage and information obtained have varied substantially since 1911. Since the Census taken in 1933, the adequacy of the particulars obtained has improved progressively, as a result of an increasing number of Aborigines coming into contact with more populated areas.

At the 1966 Census extensive arrangements were made to obtain as full a coverage of full-blood Aborigines as possible and to enumerate fully those Aborigines 'out of contact'. Throughout Australia the assistance of Aboriginal welfare bodies, mission superintendents, sheep and cattle station owners, patrol officers and police was sought in an effort to include all Aborigines and to obtain complete information about them.

Prior to the 1966 Census, Aborigines 'out of contact' were not enumerated and estimates of these were made by authorities responsible for Aboriginal welfare. It is estimated that, at the 1961 Census, 2,000 full-blood Aborigines in Western Australia and 1,944 in the Northern Territory were not contacted by census collectors.

The total numbers of full-blood Aborigines and half-blood Aborigines enumerated in each State and Territory at the Censuses of 1961 and 1966 are shown in the following table. For census purposes, a full-blood Aboriginal is defined as a person who is described on the census schedule as having more than one-half Aboriginal blood; a half-blood Aboriginal is a person who is described as having one-half Aboriginal blood and one-half European blood.

ABORIGINAL POPULATION (a)—STATES AND TERRITORIES
CENSUSES, 1961 AND 1966

State or Territory	Census, 30 June 1961			Census, 30 June 1966		
	Males	Females	Persons	Males	Females	Persons
New South Wales	7,494	7,222	14,716	6,737	6,876	13,613
Victoria	899	897	1,796	856	934	1,790
Queensland	10,146	9,550	19,696	9,644	9,359	19,003
South Australia	2,607	2,277	4,884	2,914	2,591	5,505
Western Australia	8,351	7,925	(b) 16,276	9,505	8,934	18,439
Tasmania	24	14	38	29	26	55
Northern Territory	9,013	8,747	(b) 17,760	10,651	10,468	21,119
Australian Capital Territory	78	65	143	52	44	96
AUSTRALIA	38,612	36,697	(b) 75,309	40,388	39,232	79,620

(a) Full-blood Aborigines and half-blood Aborigines; see letterpress immediately preceding table. Enumerated population only; see also note (b). Figures for 1966 are not strictly comparable with those for 1961; see letterpress preceding table. (b) It is estimated that at the 1961 Census 2,000 full-blood Aborigines in Western Australia and 1,944 in the Northern Territory (3,944 in total) were not contacted by census collectors.

Chapter IV—continued

Part 2—Births, Deaths and Marriages

NOTE. Reference is made on page 124 to the repeal, with effect from 10 August 1967, of section 127 of the Australian Constitution. As a consequence of this repeal, all vital statistics, which previously excluded births, deaths and marriages of full-blood Aborigines, now include events among the total population. These new statistics were first compiled in respect of the March quarter of 1967. Accordingly, all figures shown in this Part for the year 1967 include particulars of Aborigines, those for 1966 and earlier periods remaining on the old basis.

A line drawn across a column in the tables indicates a break in continuity in the series. Figures above the line exclude full-blood Aborigines; those below the line refer to events among the total population, i.e. including Aborigines.

THE REGISTRATION SYSTEM

Compulsory registration of births, deaths and marriages in Western Australia was originally provided for by legislation of the year 1841. The Statutes currently in force are the *Registration of Births, Deaths and Marriages Act, 1961-1965* (State) and the *Marriage Act 1961-1966* (Commonwealth). For administrative purposes, the State is divided into twenty-seven Registry Districts, each having a District Registrar. Particulars of births, deaths and marriages reported to the District Registrars are sent to the Registrar-General at Perth, where a central registry office has been maintained since 1841. Local registers are kept at each district office.

Births are required to be registered within sixty days of the event, and must be notified by the father, the mother or the occupier of the premises where the birth took place. Special provisions and penalties apply to notification and registration after the expiration of the sixty-day period.

In the case of the birth of a child of at least twenty-eight weeks' gestation not born alive, registration is required both as a birth and a death.

Deaths are required to be registered within fourteen days. Notification must be given by the person who disposes of the body or by the occupier of the premises where the death occurred. As in the case of births, special provisions and penalties exist for the late registration of a death.

Marriages are celebrated according to the provisions of the *Marriage Act 1961-1966* (Commonwealth) by ministers of religion registered under the Act, or by District Registrars. Ministers are required to lodge a marriage certificate with the District Registrar for registration within fourteen days of the celebration of a marriage. A penalty fee is provided for registrations after fourteen days from the date of marriage.

Statistics of births, deaths and marriages are prepared from the registration documents.

The following table shows, for the years 1965, 1966 and 1967, the numbers of births, deaths and marriages registered in Western Australia, classified according to Statistical Divisions. The figures do not necessarily represent the number of such events which actually occurred in a particular Statistical Division during each year, since births are allocated to the usual place of residence of the mother, deaths to the usual place of residence of the deceased, and marriages to the usual place of residence of the bridegroom. Further, the statistics are compiled according to date of registration and not date of occurrence.

BIRTHS, DEATHS AND MARRIAGES
NUMBERS REGISTERED—STATISTICAL DIVISIONS (a) (b)

Statistical Division (a)	Births (c)			Deaths (d)			Marriages		
	1965	1966	1967 (e)	1965	1966	1967 (e)	1965	1966	1967 (e)
Perth Statistical Division	9,901	10,463	10,952	4,566	4,883	4,855	4,465	4,879	5,218
Other Divisions—									
South-West	1,451	1,475	1,583	495	514	523	550	559	561
Southern Agricultural	974	1,026	1,082	266	298	305	286	329	360
Central Agricultural	1,448	1,384	1,476	290	357	327	409	470	462
Northern Agricultural	972	1,055	1,053	220	244	226	328	303	335
Eastern Goldfields	800	866	912	282	304	267	237	295	288
Central	140	128	144	34	39	44	35	29	30
North-West	149	201	229	34	41	56	52	36	62
Pilbara	133	157	198	26	38	44	33	49	47
Kimberley	218	252	394	61	54	132	53	52	67
Total	6,285	6,544	7,071	1,708	1,889	1,924	1,983	2,122	2,212
WESTERN AUSTRALIA	16,186	17,007	18,023	6,274	6,772	6,779	6,448	7,001	7,430

(a) For component local government areas, see map at back of Year Book table.

(c) Live births.

(d) Stillbirths are not included; see next table.

(b) See letterpress immediately preceding page.

(e) See NOTE at top of previous page.

BIRTHS

Statistics of births in each of the five years 1963 to 1967 in the Perth Statistical Division, the rest of the State, and in Western Australia as a whole are shown in the following table.

BIRTHS REGISTERED

Year	Live births					Stillbirths
	Males (a)	Females (a)	Total (a)	Ex-nuptial births (b)	Multiple births (b)	
PERTH STATISTICAL DIVISION						
1963	5,322	4,960	10,282	645	(c) 190	99
1964	5,167	4,858	10,025	717	180	97
1965	5,035	4,866	9,901	764	(c) 192	110
1966	5,383	5,080	10,463	867	207	113
1967 (d)...	5,681	5,271	10,952	917	242	118
OTHER DIVISIONS						
1963	3,547	3,461	7,008	584	144	79
1964	3,403	3,257	6,660	594	133	73
1965	3,245	3,040	6,285	675	149	71
1966	3,417	3,127	6,544	740	132	55
1967 (d)...	3,641	3,430	7,071	1,027	(e) 155	70
WESTERN AUSTRALIA						
1963	8,869	8,421	17,290	1,229	(c) 334	178
1964	8,570	8,115	16,685	1,311	313	170
1965	8,280	7,906	16,186	1,439	(c) 341	181
1966	8,800	8,207	17,007	1,607	339	168
1967 (d)...	9,322	8,701	18,023	1,944	(e) 397	188

(a) Includes ex-nuptial births and multiple births. (b) Figures represent the number of children live-born. (c) Includes one case of triplets. (d) See NOTE on previous page. (e) Includes two cases of triplets.

BIRTHS, DEATHS AND MARRIAGES

The following table shows the number of nuptial confinements during 1967, classified according to age group of mother and number of previous issue.

NUPTIAL CONFINEMENTS—AGE OF MOTHER AND PREVIOUS ISSUE, 1967 (a)

Previous issue (number)	Age of mother (years)							Total married mothers	
	Under 20	20-24	25-29	30-34	35-39	40-44	45 and over	Number	Per cent
0	1,189	2,885	1,212	250	103	25	...	5,664	35.63
1	263	1,967	1,618	465	143	35	2	4,493	28.26
2	23	584	1,316	677	224	48	...	2,872	18.07
3	2	155	594	529	198	38	2	1,518	9.55
4	...	45	183	259	149	49	1	686	4.32
5	...	6	65	110	89	37	3	310	1.95
6	...	4	29	64	57	21	2	177	1.11
7	...	...	9	32	19	12	1	73	0.46
8	...	...	1	17	18	14	...	50	0.31
9	...	...	2	8	11	6	1	28	0.18
10 or more	...	...	...	4	13	8	1	26	0.16
Not stated	...	1	...	...	...	...	...	1	0.01
Total married mothers....	1,477	5,647	5,029	2,415	1,024	293	13	15,898	100.00

(a) See NOTE on page 142.

The following table shows the number of nuptial confinements during 1967, classified according to the relative ages of parents.

NUPTIAL CONFINEMENTS—RELATIVE AGES OF PARENTS, 1967 (a)

Age of father (years)	Age of mother (years)							Total fathers	
	Under 20	20-24	25-29	30-34	35-39	40-44	45 and over	Number	Per cent
Under 20	283	34	...	...	...	...	...	317	1.99
20-24	949	2,162	189	10	...	...	...	3,310	20.82
25-29	207	2,717	2,381	194	18	2	...	5,519	34.72
30-34	31	580	1,780	1,057	100	4	...	3,552	22.34
35-39	6	103	523	856	447	38	1	1,974	12.42
40-44	1	33	122	244	321	130	4	855	5.38
45-49	...	10	22	37	98	80	3	250	1.57
50 and over	...	7	12	17	40	39	5	120	0.75
Not stated	...	1	...	...	...	...	...	1	0.01
Total married mothers—									
Number	1,477	5,647	5,029	2,415	1,024	293	13	15,898	.....
Per cent	9.29	35.52	31.63	15.19	6.44	1.84	0.08	...	100.00

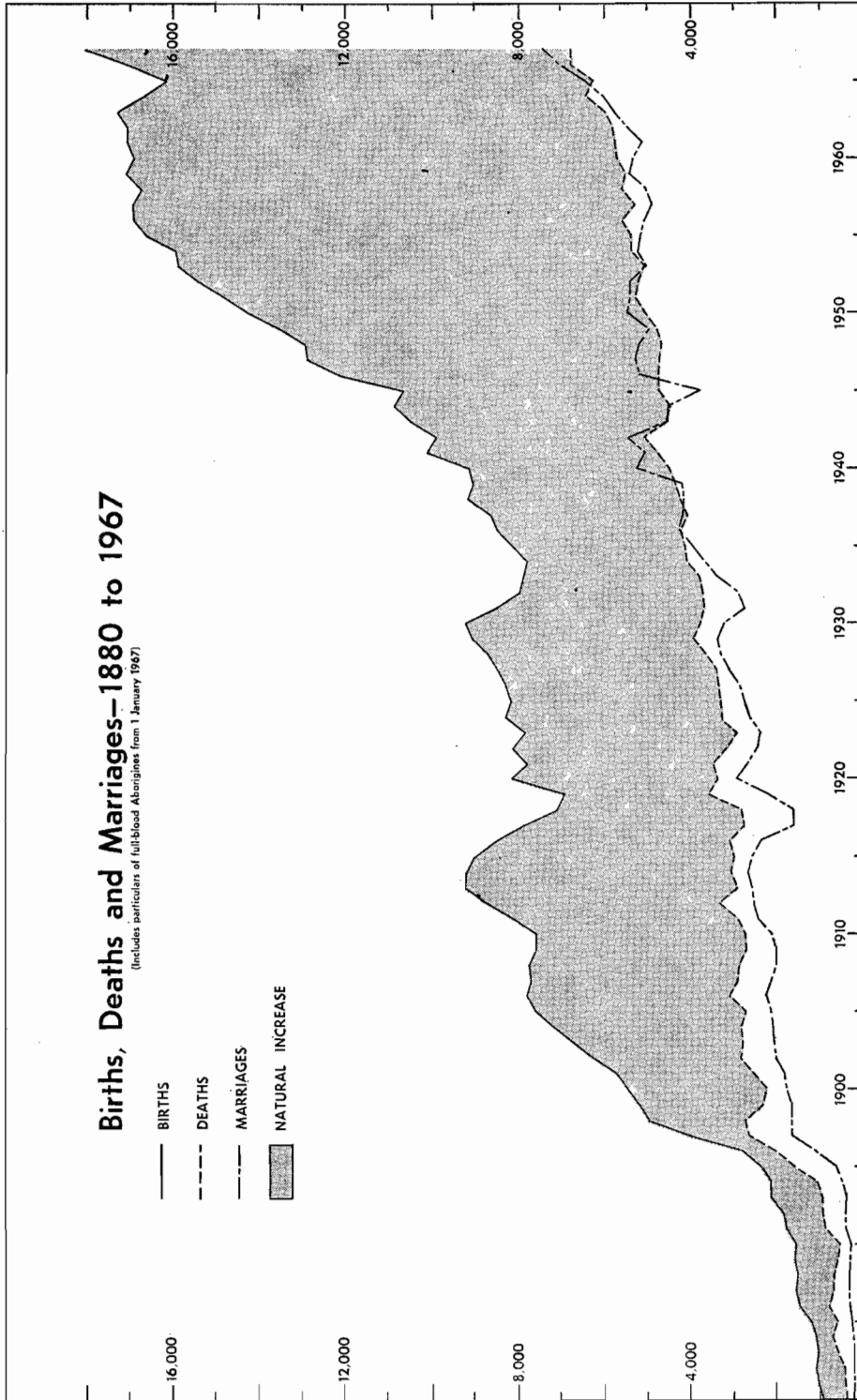
(a) See NOTE on page 142.

The ages of mothers of ex-nuptial children born during each of the years 1963 to 1967 are shown in the following table.

EX-NUPTIAL BIRTHS—AGE OF MOTHER

Age of mother (years)	1963	1964	1965	1966	1967 (a)
Under 14	2	1	2	2	5
14	4	8	7	11	7
15	29	30	30	34	44
16	61	78	87	102	117
17	90	119	131	141	177
18	94	108	147	170	221
19	98	124	129	157	194
20	92	105	114	126	170
21-24	296	277	296	348	383
25-29	201	206	218	228	291
30-34	129	156	147	140	161
35-39	87	74	95	95	117
40-44	44	24	34	41	40
45 and over	2	1	2	12	17
Total, ex-nuptial births	1,229	1,311	1,439	1,607	1,944

(a) See NOTE on page 142.



Birth Rates. The crude birth rate in any period may be defined as the number of live births occurring during the period for every thousand of the mean population.

The average annual rates for each five-year period in the fifty years from 1916 to 1965 and the rates for single years from 1958 to 1967, for Western Australia and Australia as a whole, are shown in the following table.

CRUDE BIRTH RATES
WESTERN AUSTRALIA AND AUSTRALIA

Period	Average annual rate (a)		Year	Annual rate (a)	
	Western Australia	Australia		Western Australia	Australia
1916-1920	24.49	25.35	1958	23.90	22.60
1921-1925	22.85	23.86	1959	24.04	22.57
1926-1930	21.54	20.98	1960	23.41	22.42
1931-1935	18.36	16.94	1961	23.15	22.85
1936-1940	19.16	17.52	1962	22.58	22.15
1941-1945	21.72	20.28	1963	22.23	21.61
1946-1950	25.24	23.39	1964	20.93	20.60
1951-1955	25.37	22.86	1965	19.85	19.65
1956-1960	24.20	22.59	1966	20.31	19.27
1961-1965	21.71	21.34	1967 (b)	20.55	19.40

(a) Rates for the years 1961 to 1965 have been revised, where necessary, in accordance with the final results of the 1966 Census; those for 1966 and later are subject to revision after the 1971 Census. (b) See NOTE on page 142.

In each year of the period under review, Western Australia's crude birth rate has been higher than that of the Commonwealth with the exception of the latter part of the first World War and during the early 1920s.

In Western Australia, the rate showed a marked and almost continuous decrease from the beginning of the century to the depression of thirty years later when the unprecedentedly low rate of 17.64 was recorded in 1934 (see Graph—*Rates of Birth, Death and Marriage*). In the years since then a fairly well-sustained improvement was evident until 1952 when the rate reached 25.66, its highest level since 1917. Since 1952 there has been a decline and in 1965 the rate was 19.85, the lowest since 1942. The rate of 20.55 in 1967 was still below the 1942 level of 20.77.

Gross and Net Reproduction Rates. As a measure of fertility, the crude birth rate has the advantage of simplicity in calculation. The data necessary for its computation are usually readily available from published statistics, and it is therefore useful in comparing the fertility of the populations of States and countries for which no additional data are available. However, it is of limited use, since it does not take into account the important factors of age and sex composition of the population. Gross and net reproduction rates, which do have regard to these factors, are therefore generally to be preferred to the crude birth rate as measures of fertility.

The gross reproduction rate is derived from age-specific fertility rates, which represent the number of female births occurring to women of specified ages per thousand women of those particular ages. It thus takes cognisance of the considerable variations in fertility experienced by women at the successive stages of their child-bearing life. The gross reproduction rate is a measure of the number of female children who would be born, on the average, to every woman assuming that she lives through the whole of the child-bearing period and that the basic fertility rates remain unaltered throughout.

The gross reproduction rate assumes that all females survive to the end of their child-bearing capacity. A more accurate measure, which takes into account the effect of mortality among women during this period is the net reproduction rate. This rate represents the average number of female children who would be born to women during their lifetime if they were subject in each succeeding year of life to the fertility and mortality rates on which the calculation is based. The net reproduction rate is a measure of the number of women who, in the next generation, will replace the women of reproductive

age in the current generation. It provides a useful indication of likely future population trends. A rate remaining stationary at unity indicates an ultimately static population. If a rate greater than unity is maintained, an ultimate increase of population will result, while a continuing rate less than unity will lead to an ultimate decline.

The following table shows the age-specific fertility rates, in terms of female births only, the gross reproduction rates and the net reproduction rates for Western Australia and Australia in each of the Census years from 1947 to 1966.

FERTILITY RATES AND REPRODUCTION RATES (a) (b)
WESTERN AUSTRALIA AND AUSTRALIA

Rate	Western Australia				Australia			
	1947	1954	1961	1966	1947	1954	1961	1966
Age-specific fertility rates (c)—								
Age group (years)								
15-19	16.87	20.58	22.82	25.94	15.39	19.09	22.87	23.67
20-24	89.45	116.12	120.22	99.28	80.68	96.47	110.32	84.11
25-29	99.75	106.22	109.94	95.44	90.21	94.74	108.25	89.18
30-34	72.12	65.07	63.13	48.96	63.23	59.72	63.53	50.82
35-39	42.87	34.72	30.21	21.82	36.96	31.29	30.61	24.85
40-44	14.44	11.02	9.95	6.10	11.50	9.88	9.36	6.95
45-49	1.17	0.76	0.67	0.59	0.81	0.72	0.70	0.48
Gross reproduction rate	1.683	1.772	1.785	1.490	1.494	1.559	1.728	1.400
Net reproduction rate	(d) 1.595	(e) 1.704	(f) 1.730	(f) 1.445	(d) 1.416	(e) 1.499	(f) 1.672	(f) 1.355

(a) Figures revised since previous issue. (b) Exclusive of full-blood Aborigines; see NOTE on page 142. (c) Number of female births per 1,000 women in each age group. (d) Based on 1946-48 mortality experience. (e) Based on 1953-55 mortality experience. (f) Based on 1960-62 mortality experience.

DEATHS

Statistics of deaths in each of the five years 1963 to 1967 in the Perth Statistical Division, the rest of the State, and in Western Australia as a whole appear in the following table.

DEATHS REGISTERED

Year	Deaths (a)			Infant deaths (b)		
	Males	Females	Total	Males	Females	Total
PERTH STATISTICAL DIVISION						
1963	2,385	1,928	4,313	98	80	178
1964	2,648	2,054	4,702	97	63	160
1965	2,608	1,958	4,566	97	72	169
1966	2,689	2,194	4,883	99	72	171
1967 (c)	2,748	2,107	4,855	84	64	148
OTHER DIVISIONS						
1963	1,059	604	1,663	98	77	175
1964	1,090	637	1,727	83	85	168
1965	1,107	601	1,708	100	82	182
1966	1,232	657	1,889	85	73	158
1967 (c)	1,208	716	1,924	105	61	166
WESTERN AUSTRALIA						
1963	3,444	2,532	5,976	196	157	353
1964	3,738	2,691	6,429	180	148	328
1965	3,715	2,559	6,274	197	154	351
1966	3,921	2,851	6,772	184	145	329
1967 (c)	3,956	2,823	6,779	189	125	314

(a) Including infant deaths. (b) Deaths occurring in the first year of life. (c) See NOTE on page 142.

Death Rates. The crude death rate is perhaps the most common measure of mortality, and is derived by relating the deaths occurring in a period to the mean population for that period. It is usually expressed as number of deaths per thousand of mean population.

The rates for Western Australia and for the Commonwealth in the period 1916 to 1967 are compared in the following table.

**CRUDE DEATH RATES
WESTERN AUSTRALIA AND AUSTRALIA**

Period	Average annual rate (a)		Year	Annual rate (a)	
	Western Australia	Australia		Western Australia	Australia
1916-1920	9·93	10·78	1958	7·94	8·50
1921-1925	9·17	9·52	1959	7·72	8·87
1926-1930	8·91	9·26	1960	7·88	8·61
1931-1935	8·83	9·00	1961	7·77	8·47
1936-1940 (b)	9·22	9·63	1962	7·69	8·71
1941-1945 (b)	9·86	9·96	1963	7·68	8·70
1946-1950 (b)	9·23	9·74	1964	8·06	9·04
1951-1955	8·49	9·25	1965	7·70	8·79
1956-1960	7·90	8·78	1966	8·09	8·99
1961-1965	7·78	8·75	1967 (c)	7·73	8·69

(a) Rates for the years 1961 to 1965 have been revised, where necessary, in accordance with the final results of the 1966 Census; those for 1966 and later are subject to revision after the 1971 Census. (b) Excludes deaths of members of defence forces from September 1939 to June 1947. (c) See NOTE on page 142.

In the early years of the century, the Western Australian rate was higher than that for Australia as a whole, but fell below the Australian average in 1909. Since that time, the rate for Western Australia has, with very few exceptions, remained lower than that for the Commonwealth.

Western Australia's crude death rate for the year 1902 was 13·79 per thousand of the mean population but by 1931 it had fallen to 8·51 (see Graph—*Rates of Birth, Death and Marriage*). After that year, the rate increased until it reached 10·65 in 1942. Since then there was a general decline until 1963 when the rate was 7·68, the lowest ever recorded in Western Australia. The rate for 1967 was 7·73 per thousand of mean population.

Infant Mortality Rates. The infant mortality rate expresses the relationship between deaths of infants and the live births occurring in a period, and is stated in terms of number of deaths under one year of age per thousand live births.

The rates for Western Australia and for the Commonwealth in the period 1916 to 1967 are shown in the following table.

**INFANT MORTALITY RATES
WESTERN AUSTRALIA AND AUSTRALIA**

Period	Average annual rate		Year	Annual rate	
	Western Australia (a)	Australia		Western Australia (a)	Australia
1916-1920	61·7	64·67	1958	21·5	20·49
1921-1925	59·1	57·88	1959	20·2	21·54
1926-1930	49·3	51·99	1960	21·6	20·16
1931-1935	40·8	41·27	1961	19·7	19·54
1936-1940	39·7	38·81	1962	22·3	20·41
1941-1945	33·3	34·97	1963	20·4	19·55
1946-1950	28·1	26·98	1964	19·7	19·06
1951-1955	24·4	23·34	1965	21·7	18·47
1956-1960	21·4	21·05	1966	19·3	18·17
1961-1965	20·7	19·42	1967 (b)	17·4	18·26

(a) Rates for individual States are based on too few deaths to warrant calculation to the second place of decimals. (b) See NOTE on page 142.

In the first decade of the century, the average annual rate (106·1) in Western Australia was considerably above the Commonwealth average of 86·83, and was the highest among the Australian States. Since then both the Western Australian and the Australian rates have shown a remarkable decrease. Despite the improvement in Western Australia, the experience of recent years generally reveals a less favourable situation than for the Commonwealth as a whole. In the five years ended 1967, Western Australia's average annual rate was 19·6 compared with the Australian rate of 18·71 and was greater than that for any other State.

Causes of Infant Deaths. The causes of infant deaths registered during the period 1963 to 1967 are set out in the following table.

INFANT MORTALITY—CAUSES OF DEATH

Cause of death	1963	1964	1965	1966	1967 (a)
Causes mainly of prenatal and natal origin—					
Congenital malformations	54	55	57	41	48
Birth injury	61	70	62	72	68
Postnatal asphyxia and atelectasis	25	24	24	32	34
Attributed to certain diseases of the mother	16	14	19	14	21
Erythroblastosis	7	8	6	6	4
Haemorrhagic disease of new-born	2	5	6	4	1
Ill-defined diseases peculiar to early infancy	9	16	24	12	12
Immaturity alone, or with mention of any other subsidiary condition	81	38	52	49	36
Total	255	230	250	230	224
Causes mainly of postnatal origin—					
Gastro-enteritis (including diarrhoea of new-born)	16	17	22	4	20
Pneumonia and bronchitis	41	25	24	44	39
Septicaemia, skin and subcutaneous tissue infections, sepsis of newborn	3	2	5	8	6
Meningococcal infections and non-meningococcal meningitis	2	6	5	2	4
Causes classified as infective or mainly infective in origin not specified above	8	8	3	7	4
Accidental mechanical suffocation from vomit, food, foreign body or in bed and cradle	6	19	7	7	3
Lack of care, neglect, infanticide ....	....	1	3	....	....
Other accidents, poisonings and violence	1	4	6	3	3
Total	77	82	75	75	79
Neoplasms ....	....	....	4	4	....
Other causes remaining	21	16	22	20	11
All causes	353	328	351	329	314

(a) See NOTE on page 142.

Stillbirths. The infant mortality rate discussed above is that most commonly used, and takes no account of stillbirths. It is informative, however, to examine these two factors in relation, as in the next table. The importance of stillbirths is evident from the fact that, in the period 1963 to 1967, the average annual number of stillbirths registered was 177, compared with an average of 335 deaths in the first year of life.

STILLBIRTHS AND INFANT DEATHS

Year	Stillbirths				Deaths under one year of age			
	Males	Females	Total	Masculinity (a)	Males	Females	Total	Masculinity (a)
1963	98	80	178	122·5	196	157	353	124·8
1964	92	78	170	117·9	180	148	328	121·6
1965	110	71	181	154·9	197	154	351	127·9
1966	96	72	168	133·3	184	145	329	126·9
1967 (b)	92	96	188	95·8	189	125	314	151·2

(a) Number of males to each 100 females. (b) See NOTE on page 142.

The relationship between stillbirths and infant deaths during the same period is further examined in the following table, which shows the numbers of stillbirths and of infant deaths at various ages. The rates shown represent the number of stillbirths, or of infant deaths, per thousand of total births (*i.e.* including stillbirths).

STILLBIRTHS AND INFANT DEATHS
NUMBERS AND RATES

Year	Stillbirths	Infant deaths			Stillbirths and infant deaths
		Under one week	Under one month	Under one year	
NUMBER					
1963	178	214	257	353	531
1964	170	199	217	328	498
1965	181	210	245	351	532
1966	168	208	243	329	497
1967 (a)	188	208	236	314	502
RATE (b)					
1963	10.2	12.3	14.7	20.2	30.4
1964	10.1	11.8	12.9	19.5	29.5
1965	11.1	12.8	15.0	21.4	32.5
1966	9.8	12.1	14.1	19.2	28.9
1967 (a)	10.3	11.4	13.0	17.2	27.6

(a) See NOTE on page 142.

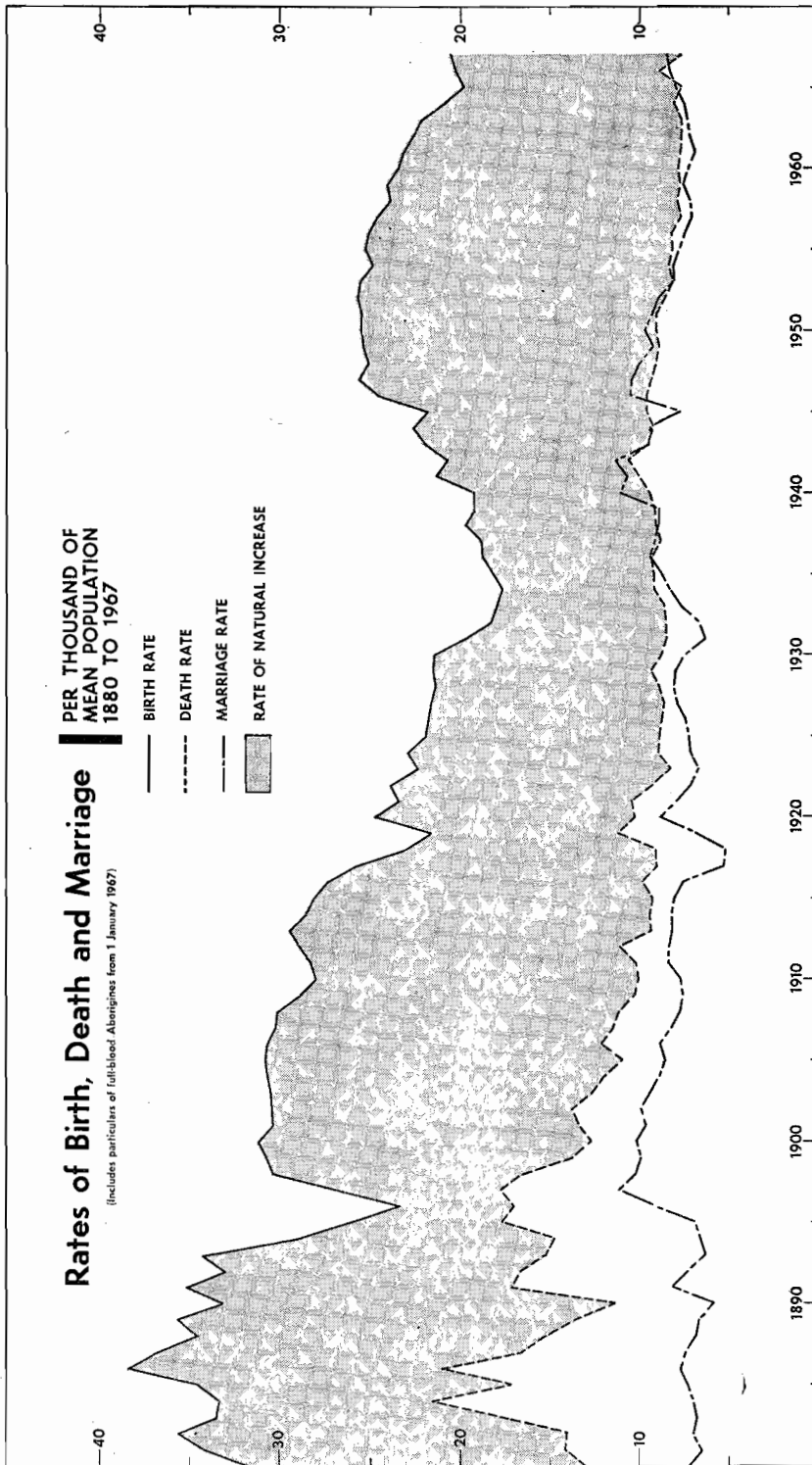
(b) Rate per 1,000 of total births (*i.e.* including stillbirths).

Of the 2,560 failures during the five years to complete the first year of life, due either to stillbirth or to death in the first year, 885 or 34.6 per cent were attributable to stillbirth.

Standardised Death Rates. The crude death rate, as noted earlier, expresses simply the number of deaths occurring in a population during any period as a proportion of the mean population for that period. Although this rate is useful as a measure of the absolute level of mortality, its value is necessarily restricted when comparing the mortality in different communities in the same period, or in one community at different times.

The effect on the crude death rate of the presence in a community of a high proportion of young people or of aged people, or of a high or low masculinity, will be readily appreciated. To devise an adequate measure of comparative mortality, it is therefore necessary to select a 'standard' population to which the varying mortality experiences may be referred. A standard population compiled by the International Statistical Institute, based upon the age and sex distribution of the population of nineteen European countries at their censuses nearest to the year 1900, has been used as the basis of the standardised death rates for Western Australia and Australia given in the next paragraph. The rate is computed by applying to each sex and age group in the standard population, the death rates actually recorded in the corresponding groups of the State and Australian populations. The sum of these results represents the number of deaths which would have occurred in the standard population if it had been exposed to the same risks of mortality. The standardised death rate is derived by expressing this number in terms of 'per thousand of the standard population'.

For the Census years 1921, 1933, 1947, 1954, 1961 and 1966 the standardised death rates for Western Australia were 11.88, 8.74, 7.28, 6.71, 6.02 and 6.25, and the corresponding rates for Australia as a whole were 10.57, 8.61, 7.31, 6.87, 6.27 and 6.53. These rates have been compiled on a basis which excludes full-blood Aborigines; see NOTE on page 142.



Causes of Death. Statistics of causes of death provide important numerical facts by which to evaluate the varying health conditions and needs of different countries. In order to enable valid international comparisons, it is necessary that each country present its statistics of causes of death in a uniform manner. The first classification of causes of death to be adopted internationally was that compiled by Dr J. Bertillon at the request of the International Statistical Institute meeting in Vienna in 1891. Subsequently this classification was periodically revised by the Institute in collaboration with the League of Nations Health Organization. More recently revisions have been carried out by a Committee of the World Health Organization. The figures in the following table have been compiled on the basis of the *International Statistical Classification of Diseases, Injuries, and Causes of Death* (Seventh Revision, 1955), which remained current until superseded by an eighth revision operative from 1 January 1968.

DEATHS—PRINCIPAL CAUSES: NUMBERS AND RATES (a)

Cause of death	1963	1964	1965	1966	1967 (b)
NUMBER					
Tuberculosis	13	20	14	19	10
Malignant neoplasms	1,029	1,015	1,049	1,179	1,231
Diabetes mellitus	73	77	87	90	69
Diseases of the blood, etc.	23	29	29	30	14
Cerebral haemorrhage, etc.	640	708	759	716	782
Diseases of the heart	2,036	2,248	2,166	2,384	2,381
Hypertension with heart disease	81	102	80	89	87
Other hypertensive diseases	35	39	35	44	38
General arteriosclerosis	213	200	156	159	119
Influenza	5	22	8	31	6
Pneumonia	211	235	210	271	271
Bronchitis	116	128	142	164	137
Other diseases of respiratory system	63	67	54	50	35
Ulcer of stomach and duodenum	22	46	37	36	38
Gastro-enteritis and colitis	26	29	28	12	33
Chronic enteritis and ulcerative colitis	11	14	12	10	11
Cirrhosis of the liver	36	30	28	44	36
Nephritis and nephrosis	60	44	75	53	47
Diseases of the prostate	31	27	24	26	25
Maternal causes	4	6	3	7	2
Diseases of early infancy	217	184	206	210	192
Motor vehicle accidents	199	232	244	259	251
Other accidents	190	210	189	190	216
Suicide	127	124	111	127	121
All other causes	515	593	528	572	627
All causes	5,976	6,429	6,274	6,772	6,779
RATE (a)					
Tuberculosis	1.7	2.5	1.7	2.3	1.1
Malignant neoplasms	132.3	127.3	128.7	141.0	140.4
Diabetes mellitus	9.4	9.7	10.7	10.7	7.9
Diseases of the blood, etc.	3.0	3.6	3.6	3.6	1.6
Cerebral haemorrhage, etc.	82.3	88.8	93.1	85.5	89.2
Diseases of the heart	261.8	281.9	265.7	284.7	271.5
Hypertension with heart disease	10.4	12.8	9.8	10.6	9.9
Other hypertensive diseases	4.5	4.9	4.3	5.3	4.3
General arteriosclerosis	27.4	25.1	19.1	19.0	13.6
Influenza	0.6	2.8	1.0	3.7	0.7
Pneumonia	27.1	29.5	25.8	32.4	30.9
Bronchitis	14.9	16.1	17.4	19.6	15.6
Other diseases of respiratory system	8.1	8.4	6.6	6.0	4.0
Ulcer of stomach and duodenum	2.8	5.8	4.5	4.3	4.3
Gastro-enteritis and colitis	3.3	3.6	3.4	1.4	3.8
Chronic enteritis and ulcerative colitis	1.4	1.8	1.5	1.2	1.3
Cirrhosis of the liver	4.6	3.8	3.4	5.3	4.1
Nephritis and nephrosis	7.7	5.5	9.2	6.3	5.4
Diseases of the prostate	4.0	3.4	2.9	3.1	2.9
Maternal causes	0.5	0.8	0.4	0.8	0.2
Diseases of early infancy	27.9	23.1	25.3	25.1	21.9
Motor vehicle accidents	25.6	29.1	29.9	30.9	28.6
Other accidents	24.4	26.3	23.2	22.7	24.6
Suicide	16.3	15.6	13.6	15.2	13.8
All other causes	66.2	74.4	64.8	68.3	71.5
All causes	768.3	806.3	769.6	808.7	773.0

(a) Per 100,000 of mean population. Rates for the years 1963 to 1965 are based on the final results of the 1966 Census; those for 1966 and later are subject to revision after the 1971 Census. (b) See NOTE on page 142.

Australian Life Tables. It has been the practice at each census from 1911 onwards to prepare Life Tables representative of the mortality experience of Australia. The mortality of the Australian population for the thirty years from 1881 to 1910 inclusive was investigated in 1911 by the Commonwealth Statistician. Tables were compiled for each State and for Australia as a whole in respect of each sex for each of the decennial periods 1881 to 1890, 1891 to 1900, and 1901 to 1910. At the Census of 1921, Life Tables were prepared by the Commonwealth Statistician from the recorded census population and the deaths in the three years 1920 to 1922. Tables based on data derived from later censuses have been compiled by the Commonwealth Actuary.

The expectation of life of males and females at various ages as revealed by these investigations is shown in the following table.

EXPECTATION OF LIFE (a)—AUSTRALIA: 1881-1890 TO 1960-1962
(Years)

Age last birthday (years)	1881-1890	1891-1900	1901-1910	1920-1922	1932-1934	1946-1948	1953-1955	1960-1962
MALES								
0	47·20	51·08	55·20	59·15	63·48	66·07	67·14	67·92
5	52·86	55·61	57·91	60·43	62·57	63·77	64·32	64·77
10	48·86	51·43	53·53	56·01	58·02	59·04	59·53	59·93
15	44·45	46·98	49·03	51·44	53·36	54·28	54·72	55·07
20	40·58	42·81	44·74	46·99	48·81	49·64	50·10	50·40
25	37·10	38·90	40·60	42·70	44·37	45·04	45·54	45·80
30	33·64	35·11	36·52	38·44	39·90	40·40	40·90	41·12
35	30·06	31·34	32·49	34·20	35·46	35·79	36·25	36·45
40	26·50	27·65	28·56	30·05	31·11	31·23	31·65	31·84
45	23·04	23·99	24·78	26·03	26·87	26·83	27·18	27·38
50	19·74	20·45	21·16	22·20	22·83	22·67	22·92	23·13
55	16·65	17·08	17·67	18·51	19·03	18·84	19·00	19·18
60	13·77	13·99	14·35	15·08	15·57	15·36	15·47	15·60
65	11·06	11·25	11·31	12·01	12·40	12·25	12·33	12·47
70	8·82	8·90	8·67	9·26	9·60	9·55	9·59	9·77
75	6·72	6·70	6·58	6·87	7·19	7·23	7·33	7·47
80	5·11	5·00	4·96	5·00	5·22	5·36	5·47	5·57
85	3·86	3·79	3·65	3·62	3·90	3·84	4·01	4·08
90	2·91	2·91	2·64	2·60	2·99	2·74	2·93	3·02
95	2·16	2·16	1·88	1·86	2·11	1·93	2·10	2·29
100	1·32	1·29	1·18	1·17	1·10	....	....	....
FEMALES								
0	50·84	54·76	58·84	63·31	67·14	70·63	72·75	74·18
5	56·00	58·64	60·80	63·64	65·64	67·91	69·61	70·78
10	51·95	54·46	56·39	59·20	61·02	63·11	64·78	65·92
15	47·54	49·97	51·86	54·55	56·29	58·27	59·90	61·01
20	43·43	45·72	47·52	50·03	51·67	53·47	55·06	56·16
25	39·67	41·69	43·36	45·71	47·19	48·74	50·24	51·32
30	36·13	37·86	39·33	41·48	42·77	44·08	45·43	46·49
35	32·58	34·14	35·37	37·28	38·37	39·46	40·67	41·70
40	29·08	30·49	31·47	33·14	34·04	34·91	36·00	36·99
45	25·56	26·69	27·59	28·99	29·74	30·45	31·44	32·38
50	22·06	22·93	23·69	24·90	25·58	26·14	27·03	27·92
55	18·64	19·29	19·85	20·95	21·58	22·04	22·81	23·63
60	15·39	15·86	16·20	17·17	17·74	18·11	18·78	19·51
65	12·27	12·75	12·88	13·60	14·15	14·44	15·02	15·68
70	9·70	9·89	9·96	10·41	10·98	11·14	11·62	12·19
75	7·24	7·37	7·59	7·73	8·23	8·32	8·69	9·16
80	5·27	5·49	5·73	5·61	6·01	6·02	6·30	6·68
85	3·90	4·12	4·19	4·06	4·30	4·32	4·52	4·79
90	2·98	3·07	2·99	2·91	3·05	3·08	3·24	3·48
95	2·25	2·18	2·10	2·07	2·00	2·14	2·31	2·59
100	1·37	1·23	1·24	1·24	1·02	....	....	....

(a) Refers to population exclusive of full-blood Aborigines; see letterpress *Aborigines* on page 124.

MARRIAGES

The number of marriages registered in Western Australia in each of the five years 1963 to 1967 is shown in the following table. Marriages celebrated by ministers of religion are distinguished from those celebrated by civil officers, and the numbers of minors marrying are also shown.

MARRIAGES REGISTERED

Year	Marriages celebrated by—		All marriages	Proportion celebrated by civil officers (per cent)	Marriages of minors				Total minors married	
	Ministers of religion	Civil officers			Males	Per cent of all bridegrooms	Females	Per cent of brides		
PERTH STATISTICAL DIVISION										
1963	(a)	(a)	3,929	(a)	(a)	(a)	(a)	(a)	(a)	(a)
1964	(a)	(a)	4,050	(a)	(a)	(a)	(a)	(a)	(a)	(a)
1965	3,805	660	4,465	14·8	677	15·16	1,934	43·31	2,611	2,611
1966	4,190	689	4,879	14·1	751	15·39	2,192	44·93	2,943	2,943
1967 (b)	4,395	823	5,218	15·8	863	16·54	2,442	46·80	3,305	3,305
OTHER DIVISIONS										
1963	(a)	(a)	1,826	(a)	(a)	(a)	(a)	(a)	(a)	(a)
1964	(a)	(a)	1,973	(a)	(a)	(a)	(a)	(a)	(a)	(a)
1965	1,701	282	1,983	14·2	287	14·47	973	49·07	1,260	1,260
1966	1,805	317	2,122	14·9	306	14·42	1,056	49·76	1,362	1,362
1967 (b)	1,894	318	2,212	14·4	357	16·14	1,116	50·45	1,473	1,473
WESTERN AUSTRALIA										
1963	4,907	848	5,755	14·7	705	12·25	2,437	42·35	3,142	3,142
1964	5,151	872	6,023	14·5	725	12·04	2,609	43·32	3,334	3,334
1965	5,506	942	6,448	14·6	964	14·95	2,907	45·08	3,871	3,871
1966	5,995	1,006	7,001	14·4	1,057	15·10	3,248	46·39	4,305	4,305
1967 (b)	6,289	1,141	7,430	15·4	1,220	16·42	3,558	47·89	4,778	4,778

(a) Particulars not available.

(b) See NOTE on page 142.

The statistics of minors marrying during the five-year period as shown above reveal that 45·2 per cent of brides were minors, compared with only 14·3 per cent of bridegrooms.

Age at Marriage. The relative ages of bridegrooms and brides who married in Western Australia in 1967 are shown in the following table.

RELATIVE AGES OF BRIDEGROOMS AND BRIDES, 1967 (a)

Age of bridegroom (years)	Total bridegrooms	Age of bride (years)							
		Under 15	15-19	20-24	25-29	30-34	35-39	40-44	45 and over
Under 20	610	2	530	76	....	2	....	....	....
20-24	3,849	....	1,534	2,179	123	10	....	....	....
25-29	1,645	1	304	982	298	44	2	....	....
30-34	461	....	30	171	157	62	11	1	....
35-39	235	....	11	43	64	48	26	4	....
40-44	200	....	3	15	36	41	35	13	2
45-49	109	....	1	1	9	14	38	22	9
50-54	95	....	....	1	3	5	35	33	37
55-59	86	....	....	1	1	5	26	25	33
60-64	53	....	....	....	....	3	11	23	47
65 and over	87	....	....	....	....	5	4	10	65
							2	2	49
							2	2	84
Total brides	7,430	3	2,414	3,473	691	232	155	135	327

(a) See NOTE on page 142.

Of the women who married in 1967, 32.5 per cent were aged less than twenty years. The corresponding figure for men was 8.2 per cent.

The following table gives details of the average age and the conjugal condition of bridegrooms and brides in each of the five years to 1967. In each year of the period the difference in the average age of bridegrooms and brides was between three and four years, the difference in 1967 being 3.10 years.

AVERAGE AGES OF BRIDEGROOMS AND BRIDES

Year	Average age of bridegrooms				Average age of brides			
	Bachelors	Widowers	Divorced	Total	Spinsters	Widows	Divorced	Total
1963	24.97	53.98	41.40	26.97	21.51	47.96	36.90	23.51
1964	24.79	56.12	42.65	27.00	21.54	50.43	37.71	23.63
1965	24.46	54.65	42.31	26.41	21.32	49.54	38.10	23.26
1966	24.91	54.95	41.97	26.83	21.81	48.78	38.24	23.76
1967 (a)	24.78	56.46	40.92	26.84	21.79	48.91	38.04	23.74

(a) See NOTE on page 142.

The following table shows the age and conjugal condition at time of marriage of bridegrooms and brides who married in Western Australia during 1967.

AGE AND CONJUGAL CONDITION OF BRIDEGROOMS AND BRIDES, 1967 (a)

Age at marriage (years)	Bridegrooms				Brides			
	Bachelors	Widowers	Divorced	Total	Spinsters	Widows	Divorced	Total
Under 20	610	....	....	610	2,417	....	....	2,417
20-24	3,829	2	18	3,849	3,427	7	39	3,473
25-29	1,578	3	64	1,645	600	17	74	691
30-34	370	8	83	461	127	14	91	232
35-39	142	9	84	235	56	32	67	155
40-44	96	25	79	200	34	36	65	135
45-49	39	26	44	109	19	44	54	109
50-54	16	34	45	95	20	19	30	94
55-59	16	36	34	86	4	19	20	43
60-64	10	29	14	53	7	26	8	41
65 and over	7	66	14	87	2	32	6	40
Total	6,713	238	479	7,430	6,713	263	454	7,430

(a) See NOTE on page 142.

The numbers and ages of minors who married in Western Australia during each of the five years 1963 to 1967 are given in the following table.

MARRIAGES OF MINORS

Year	Bridegrooms							Brides						
	Age last birthday (years)							Age last birthday (years)						
	Under 16	16	17	18	19	20	Under 21	Under 16	16	17	18	19	20	Under 21
1963	18	91	226	370	705	15	153	296	525	725	723	2,437
1964	1	17	92	242	373	725	8	176	352	505	743	825	2,609
1965	9	182	292	481	964	11	168	392	714	764	858	2,907
1966	12	170	407	468	1,057	9	155	407	708	1,037	932	3,248
1967 (a)	1	14	211	384	610	1,220	14	193	405	743	1,062	1,141	3,558

(a) See NOTE on page 142.

Religious and Civil Marriages. The *Marriage Act* 1961-1966 (Commonwealth) provides that marriages may be celebrated either by ministers of religion registered for the purpose with the Registrar of Ministers of Religion in each State or Territory or by certain civil officers, usually District Registrars. This provision came into operation on 1 September 1963.

The following table, which relates to marriages registered in Western Australia during the period 1964 to 1967, shows the numbers and proportions celebrated by ministers of the principal religious denominations and by civil officers.

RELIGIOUS AND CIVIL MARRIAGES

Category of celebrant	1964	1965	1966	1967 (a)	
				Number	Per cent of total
Ministers of religion—					
Recognised denominations (b)—					
Church of England in Australia	1,900	2,012	2,235	2,388	32.1
Roman Catholic Church	1,536	1,700	1,851	1,928	25.9
The Methodist Church of Australasia	688	723	817	806	10.8
The Presbyterian Church of Australia	354	381	392	405	5.5
Churches of Christ in Australia	126	124	132	176	2.4
Congregational Union of Australia	122	103	105	127	1.7
The Baptist Union of Australia	90	97	101	104	1.4
Orthodox Church (c)	79	67	63	70	0.9
The New Church in Australia	81	93	85	58	0.8
The Salvation Army	28	38	43	50	0.7
Seventh-day Adventist Church	28	43	32	36	0.5
Lutheran Church (c)	24	33	35	26	0.3
Church of Jesus Christ of Latter Day Saints	9	7	14	20	0.3
Jehovah's Witnesses	17	16	19	16	0.2
Jewry	10	14	15	11	0.1
Other recognised denominations	48	44	40	43	0.6
Other ministers	11	11	16	25	0.3
Total, Ministers of religion	5,151	5,506	5,995	6,289	84.6
Civil officers	872	942	1,006	1,141	15.4
Total marriages	6,023	6,448	7,001	7,430	100.0
Proportion of total (per cent)—					
Ministers of religion	85.5	85.4	85.6	....	84.6
Civil officers	14.5	14.6	14.4	....	15.4

(a) See NOTE on page 142. (b) Under authority of the *Marriage Act* 1961-1966 (Commonwealth). (c) Includes churches grouped under this heading in the proclamation made under the *Marriage Act*.

Marriage Rates. The average annual marriage rates per thousand of mean population for Western Australia and for the Commonwealth in each five-year period from 1916 to 1965, as well as the rates for each of the years from 1958 to 1967, are shown in the following table.

MARRIAGE RATES
WESTERN AUSTRALIA AND AUSTRALIA

Period	Average annual rate (a)		Year	Annual rate (a)	
	Western Australia	Australia		Western Australia	Australia
1916-1920	6.80	7.82	1958	7.20	7.52
1921-1925	7.27	8.04	1959	7.57	7.40
1926-1930	7.80	7.52	1960	7.36	7.34
1931-1935	7.58	7.16	1961	6.98	7.30
1936-1940	9.49	9.35	1962	7.23	7.39
1941-1945	9.74	9.94	1963	7.40	7.42
1946-1950	10.01	9.77	1964	7.55	7.73
1951-1955	8.44	8.29	1965	7.91	8.25
1956-1960	7.36	7.50	1966	8.36	8.31
1961-1965	7.43	7.63	1967 (b)	8.47	8.46

(a) Rates for the years 1961 to 1965 have been revised, where necessary, in accordance with the final results of the 1966 Census; those for 1966 and later are subject to revision after the 1971 Census. (b) See NOTE on page 142.

DIVORCE

The *Matrimonial Causes Act 1959-1966* (Commonwealth), which came into operation on 1 February 1961, establishes uniform grounds throughout Australia for the termination of marriage. Previously, each State was primarily responsible for the provision of matrimonial relief but the law varied from State to State. While the Commonwealth Act supersedes the divorce laws of the States, jurisdiction continues to be vested in the Courts of the States.

Under the uniform law, grounds for dissolution of marriage (*i.e.* divorce) include desertion for not less than two years, adultery, separation for not less than five years, cruelty, drunkenness, and failure to comply with maintenance orders. The main grounds for nullity of marriage are bigamy and incapacity to consummate the marriage.

Decrees may be granted by a Court for dissolution of marriage, judicial separation, nullity of marriage, and restitution of conjugal rights. Orders may also be made for the custody and welfare of children, maintenance, the settlement of property, and damages for adultery.

A decree for dissolution of marriage is in the first instance a decree *nisi*. The decree automatically becomes absolute at the expiration of three months, unless it is in the meantime rescinded; appeal proceedings are instituted; or there are children of the marriage under the age of sixteen years, in which case the court must be satisfied that appropriate arrangements have been made for their welfare before the decree will become absolute. The parties cannot remarry until a decree *nisi* has become absolute. A decree of judicial separation is available on most of the grounds available for divorce.

PETITIONS FILED

Year	Petitions for—				Total petitions	Petitioner	
	Dissolution of marriage	Nullity of marriage	Judicial separation	Restitution of conjugal rights		Husband	Wife
1963	623	4	2	4	633	296	337
1964	653	2	1	9	665	321	344
1965	736	2	....	5	743	374	369
1966	787	3	1	7	798	384	414
1967	888	2	....	3	893	412	481

The following table gives the number of decrees absolute granted and the grounds for the decrees in the period 1963 to 1967. In each year except 1967, adultery was the principal ground for divorce, and accounted for 36·8 per cent of all decrees granted during the five years.

DISSOLUTION OF MARRIAGE—DECREE ABSOLUTE GRANTED

Year	Ground (a)					Total decrees absolute	Petitioner		
	Adultery	Desertion	Separation for 5 years or longer	Maintenance (b)	Other		Husband	Wife	Both parties
1963	204	183	148	5	13	553	251	299	3
1964	210	150	168	6	16	542	259	282	1
1965	213	194	169	6	23	604	275	329	....
1966	251	208	154	5	19	637	314	322	1
1967	249	258	189	2	28	726	345	381	....

(a) Where a dissolution is granted on two or more grounds, only one ground is tabulated, preference being given in the order shown.
 (b) Non-compliance with maintenance order.

In the following table particulars are given of the duration of marriage, *i.e.* the interval between marriage and the date when the decree was made absolute, for marriages dissolved during the five years 1963 to 1967.

DISSOLUTION OF MARRIAGE—DURATION OF MARRIAGES DISSOLVED

Year	Marriages dissolved after a duration of—								Total marriages dissolved
	0-4 years	5-9 years	10-14 years	15-19 years	20-24 years	25-29 years	30-34 years	35 years and over	
1963	31	153	123	116	63	40	15	12	553
1964	29	128	131	97	76	44	18	19	542
1965	39	165	130	106	73	50	20	21	604
1966	53	141	155	123	69	44	29	23	637
1967	76	162	138	128	102	68	31	21	726

The following table shows, for the year 1967, the number of marriages dissolved, classified according to duration of marriage and the number of children of the marriage.

DISSOLUTION OF MARRIAGE—DURATION OF MARRIAGES DISSOLVED AND NUMBER OF CHILDREN, 1967

Duration of marriage (years)	Marriages with children numbering—							Total marriages dissolved		Total number of children (a)
	0	1	2	3	4	5	6 or more	Number	Per cent	
0-4	49	20	6	1	....	....	....	76	10.5	35
5-9	55	53	40	10	....	....	....	162	22.3	179
10-14	22	21	47	27	15	5	1	138	19.0	287
15-19	24	15	32	33	20	3	1	128	17.6	279
20-24	14	21	26	24	11	5	1	102	14.0	221
25-29	27	19	10	10	2	....	....	68	9.4	77
30-34	21	8	1	....	....	....	1	31	4.3	16
35 and over	16	3	2	....	....	....	....	21	2.9	7
Husband petitioner	108	73	79	54	20	8	3	345	47.5	532
Wife petitioner	120	87	85	51	32	5	1	381	52.5	569
Total marriages dissolved—										
Number	228	160	164	105	52	13	4	726	....	1,101
Per cent	31.4	22.0	22.6	14.5	7.2	1.8	0.6	....	100.0	....

(a) At date of petition. The term *children* refers to *children of the marriage* as defined in the Matrimonial Causes Act, living and under 21 years of age.

The following table shows, for the year 1967, the ages of husband and wife at the date of decree absolute.

DISSOLUTION OF MARRIAGE—AGES OF PARTIES, 1967

Age (a) of husband (years)	Age (a) of wife (years)										Total husbands	
	Under 20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60 and over	Number	Per cent
20-24	20	4	....	....	....	....	....	....	....	24	3.3
25-29	40	65	6	....	....	....	....	....	....	111	15.3
30-34	10	45	40	8	1	....	....	....	....	104	14.3
35-39	16	47	37	9	1	1	....	....	111	15.3
40-44	7	9	48	36	10	2	....	1	113	15.6
45-49	4	12	33	26	5	1	....	84	11.6
50-54	3	....	4	12	24	24	3	....	67	9.2
55-59	4	6	20	21	10	2	60	8.3
60 and over	1	2	3	12	10	24	52	7.2
Total wives—												
Number	70	140	106	111	99	84	65	24	27	726	....
Per cent	9.6	19.3	14.6	15.3	13.6	11.6	9.0	3.3	3.7	....	100.0

(a) Age at date of decree absolute.

CHAPTER V—SOCIAL CONDITION

Part 1—Education

PRIMARY, SECONDARY AND TECHNICAL EDUCATION

In Western Australia, education at primary and secondary levels is provided at government schools administered and staffed by the Education Department and at non-government schools, most of which are conducted by the principal religious denominations. The Technical Education Division of the Education Department provides technician-level courses, apprenticeship and part-apprenticeship training programmes, general studies (including courses for students preparing for public and other external examinations), and adult education (including classes designed as leisure-type studies). Associateship and post-graduate diploma courses, formerly the responsibility of the Technical Education Division of the Education Department, are now provided by The Western Australian Institute of Technology (see letterpress on pages 169–70).

Government Financial Assistance

The State Government each year awards to country students 100 scholarships, valued at \$80 per annum, tenable for the first three years of secondary education at government or non-government schools and a further ten scholarships, valued at \$160 per annum, tenable in the fourth and fifth years. Selected students intending to enter the teaching service are granted bursaries, also valued at \$160 per annum and tenable in the fourth and fifth years. All these amounts are additional to the boarding allowances which are paid to students who are obliged to live away from home to attend secondary schools. As a contribution towards tuition fees at non-government schools assistance is made available on the basis of \$30 annually for a student in the first three years of secondary education and \$36 in each of the fourth and fifth years, except in the case of students in receipt of any scholarship, bursary or like award of a value exceeding \$80 per annum. Further assistance is available to non-government schools on the basis of \$20 per annum in respect of each pupil in primary grades.

All these forms of assistance are granted without the application of a means test.

The State Government provides financial aid to non-government schools by meeting part of the costs incurred in purchasing certain equipment, instruments and appliances, including such items as film projectors, radio equipment, library books and musical instruments. Assistance is also given by way of reimbursement of interest paid, up to a prescribed maximum rate, on moneys borrowed since 1 January 1965 for expenditure on new residential accommodation for scholars. In addition, subsidies are provided for the installation of swimming pools.

The Commonwealth Government makes an annual award of scholarships tenable by students in the fourth and fifth years of secondary education at government and non-government schools, as well as technical scholarships for certain courses at technical institutions. The numbers of these scholarships awarded in 1967 were 748 and 273 respectively. Benefits, which are not subject to a means test, comprise, for full-time students, a living allowance of \$200 per annum, \$50 per annum for text books and equipment, and up to \$150 per annum for fees. For part-time technical students, allowances of \$100 per annum, not subject to a means test, are granted and compulsory fees are reimbursed up to a maximum of \$100 per annum. Commonwealth Advanced Education Scholarships are awarded each year to students in approved non-university tertiary courses. They provide benefits comprising payment of compulsory fees and a living allowance which is subject to a means test.

The Commonwealth Government also provides assistance for secondary and technical education by means of specific-purpose grants for science laboratories, technical training and school libraries. Reference to these grants will be found in the section *Commonwealth Financial Assistance for Education* on pages 176-7.

School Attendance

Where a child lives within reasonable access of a government or approved non-government school, attendance is compulsory from the age of six years and upward to the end of the year in which the child attains the age of fifteen years, unless satisfactory instruction is provided elsewhere. The Minister for Education may, however, if he is satisfied that the best interests of the child would be served, exempt a child from further attendance at school if the child has attained the age of fourteen years, is assured of employment and it is necessary for the child to leave school in order to engage in that employment.

School Enrolments

The following tables give a classification according to age of pupils enrolled at government and non-government schools on 1 August in the years shown.

GOVERNMENT AND NON-GOVERNMENT SCHOOLS
PUPILS CLASSIFIED ACCORDING TO AGE

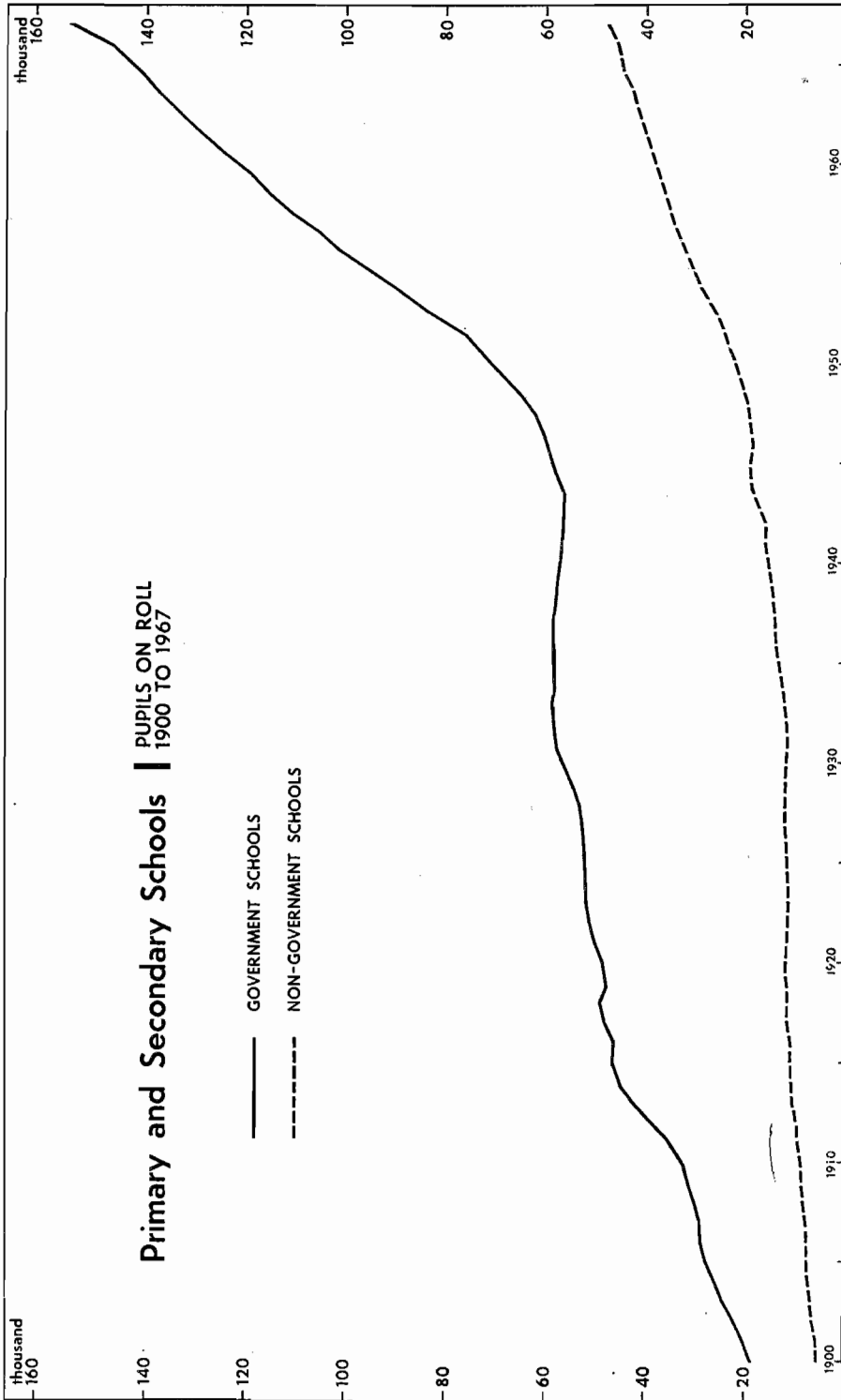
Age last birthday (a) (years)	Government schools (b)					Non-government schools (c)				
	1963	1964	1965	1966	1967	1963	1964	1965	1966	1967
Under 6	5,545	5,551	5,800	5,870	6,196	7,170	7,617	8,223	8,891	9,379
6	13,592	14,042	14,117	14,865	15,517	3,435	3,237	3,487	3,356	3,594
7	14,049	13,856	14,208	14,740	15,494	3,267	3,426	3,294	3,364	3,471
8	13,799	14,197	14,114	14,799	15,401	3,272	3,350	3,311	3,193	3,309
9	13,367	14,106	14,506	14,685	15,363	3,097	3,118	3,271	3,242	3,269
10	13,657	13,616	14,374	15,038	15,163	3,041	3,071	3,210	3,231	3,265
11	13,453	13,809	13,737	14,487	15,464	3,018	3,103	3,113	3,297	3,368
12	12,981	13,196	13,418	13,728	14,619	3,307	3,293	3,446	3,469	3,718
13	12,111	12,708	13,034	13,401	13,459	3,531	3,614	3,816	3,888	3,936
14	10,404	10,890	11,593	12,359	13,321	3,265	3,394	3,464	3,528	3,829
15	6,416	6,851	7,062	7,625	9,145	2,561	2,602	2,715	2,924	3,106
16	2,834	2,898	3,064	3,281	3,569	1,657	1,645	1,743	1,891	1,985
17	1,087	1,383	1,400	1,490	1,695	789	903	938	1,005	1,067
18 and over	488	470	524	520	569	153	166	177	172	163
Total	133,783	137,573	140,951	146,888	154,975	41,563	42,539	44,208	45,451	47,459

(a) At 1 August. (b) Includes Special Schools and Classes; see letterpress on page 165. Excludes Technical Schools and Colleges; see table on page 167. (c) Includes pupils attending kindergarten schools and pupils in kindergarten grades at other non-government schools; see letterpress on page 168.

GOVERNMENT AND NON-GOVERNMENT SCHOOLS
PUPILS CLASSIFIED ACCORDING TO AGE AND SEX: AUGUST 1967

Age last birthday (a) (years)	Government schools (b)			Non-government schools (c)			All schools (b) (c)		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Under 6	3,182	3,014	6,196	4,779	4,600	9,379	7,961	7,614	15,575
6	8,033	7,484	15,517	1,793	1,801	3,594	9,826	9,285	19,111
7	8,044	7,450	15,494	1,683	1,788	3,471	9,727	9,238	18,965
8	8,009	7,392	15,401	1,592	1,717	3,309	9,601	9,109	18,710
9	8,017	7,346	15,363	1,514	1,755	3,269	9,531	9,101	18,632
10	7,935	7,228	15,163	1,519	1,746	3,265	9,454	8,974	18,428
11	8,232	7,232	15,464	1,569	1,799	3,368	9,801	9,031	18,832
12	7,627	6,992	14,619	1,646	2,072	3,718	9,273	9,064	18,337
13	7,070	6,389	13,459	1,624	2,107	3,736	8,899	8,496	17,395
14	6,908	6,413	13,321	1,724	2,105	3,829	8,632	8,518	17,150
15	4,966	4,179	9,145	1,423	1,683	3,106	6,389	5,862	12,251
16	2,086	1,483	3,569	988	997	1,985	3,074	2,480	5,554
17	1,068	627	1,695	598	469	1,067	1,666	1,096	2,762
18 and over	381	188	569	119	44	163	500	232	732
Total	81,558	73,417	154,975	22,776	24,683	47,459	104,334	98,100	202,434

For footnotes, see previous table.



School censuses are conducted annually at or about the beginning of August in all States and the internal Territories of Australia. The Western Australian Correspondence School (see letterpress on page 165), special schools and classes (see letterpress on page 165), schools in institutional homes, hospitals and similar establishments, and kindergartens are included in the census. Institutions such as business colleges and coaching establishments are excluded.

In the following table pupils enrolled in primary grades at 1 August 1967 are classified according to grade and age. The figures exclude particulars of pupils attending kindergarten schools and pupils in kindergarten grades at other non-government schools. Reference to kindergarten schools will be found on page 168.

PRIMARY ENROLMENTS—GRADE AND AGE AT 1 AUGUST 1967

Age last birthday (years)	Grade							Ungraded pupils (a)	Total
	1	2	3	4	5	6	7		
GOVERNMENT SCHOOLS									
Under 6	6,162	6	....	....	....	....	....	2	6,170
6	10,106	5,324	13	....	....	....	....	17	15,460
7	716	9,486	5,158	7	....	....	....	42	15,409
8	66	989	9,238	4,866	9	....	....	133	15,301
9	28	82	928	9,005	5,019	4	....	214	15,280
10	9	26	126	975	9,031	4,665	4	259	15,095
11	5	10	32	127	1,065	9,187	4,718	248	15,392
12	2	6	24	25	135	1,021	8,930	220	10,363
13	2	3	11	12	31	106	1,009	68	1,242
14	1	2	2	7	16	26	107	10	171
15	....	....	....	....	3	4	15	....	22
16	....	1	....	....	....	....	....	1	2
17	....	....	....	....	....	....	....	....	....
18 and over	1	1	....	....	....	4	15	....	21
Total	17,098	15,936	15,532	15,024	15,309	15,017	14,798	1,214	109,928
NON-GOVERNMENT SCHOOLS (b)									
Under 6	1,306	2	....	....	....	....	....	....	1,308
6	2,461	1,087	15	....	....	....	....	....	3,563
7	177	2,309	978	6	....	....	....	....	3,470
8	27	244	2,143	892	3	....	....	....	3,309
9	2	26	281	2,057	898	4	....	....	3,268
10	1	9	49	321	2,022	851	12	....	3,265
11	....	....	9	64	315	2,011	964	....	3,363
12	....	....	2	25	49	319	2,114	....	2,509
13	....	....	....	4	14	53	344	....	415
14	....	....	....	2	4	10	47	....	63
15	....	....	....	....	2	....	10	....	12
16	....	....	....	....	....	....	....	....	....
17	....	....	....	....	....	....	....	....	....
18 and over	....	....	....	....	....	....	....	....	....
Total	3,974	3,677	3,477	3,371	3,307	3,248	3,491	....	24,545
ALL SCHOOLS (b)									
Under 6	7,468	8	....	....	....	....	....	2	7,478
6	12,567	6,411	28	....	....	....	....	17	19,023
7	893	11,795	6,136	13	....	....	....	42	18,879
8	93	1,233	11,381	5,758	....	....	....	133	18,610
9	30	108	1,209	11,062	5,917	8	....	214	18,548
10	10	35	175	1,296	11,053	5,516	16	259	18,360
11	5	10	41	191	1,380	11,198	5,682	248	18,755
12	2	6	26	50	184	1,340	11,044	220	12,872
13	2	3	11	16	45	159	1,353	68	1,657
14	1	2	2	9	20	36	154	10	234
15	....	....	....	....	5	4	25	....	34
16	....	1	....	....	....	....	....	1	2
17	....	....	....	....	....	....	....	....	....
18 and over	1	1	....	....	....	4	15	....	21
Total	21,072	19,613	19,009	18,395	18,616	18,265	18,289	1,214	134,473

(a) Special Schools and Classes; see letterpress on page 165. (b) Excludes 7,725 pupils attending kindergarten schools and 373 pupils in kindergarten grades at other non-government schools.

The following table gives a classification of school enrolments at secondary level at 1 August 1967 according to year of study and age of pupil.

SECONDARY ENROLMENTS—YEAR OF STUDY AND AGE AT 1 AUGUST 1967

Age last birthday (years)	Year of study					Ungraded pupils (a)	Total
	1	2	3	4	5		
GOVERNMENT SCHOOLS							
11	1	7	6	6	1	31	1
12	4,145	7	6	6	6	189	4,183
13	7,980	3,961	3,587	6	6	201	12,136
14	1,151	8,120	6,687	1,121	1	96	13,065
15	70	1,061	745	1,925	726	17	9,036
16	14	99	112	185	1,330	1	3,526
17	10	17	182	7	137	1	1,655
18 and over	163	42	182	7	137	1	531
Total	13,534	13,307	11,319	3,244	2,194	535	44,133
NON-GOVERNMENT SCHOOLS							
11	5	10	12	4	2	2	5
12	1,199	1,101	948	4	2	2	1,209
13	2,408	2,356	2,127	572	1	1	3,521
14	456	364	319	1,147	497	1	3,766
15	30	17	22	137	906	1	3,094
16	5	2	8	13	142	1	1,985
17	5	2	8	13	142	1	1,067
18 and over	5	2	8	13	142	1	163
Total	4,103	3,850	3,436	1,873	1,548	1	14,810
ALL SCHOOLS							
11	6	17	18	10	2	31	6
12	5,344	5,062	4,535	1,693	2	189	5,392
13	10,388	10,476	8,814	3,072	2,236	201	15,657
14	1,607	1,425	1,064	1,693	2	96	16,831
15	100	116	134	322	2,236	17	12,130
16	19	19	134	322	2,236	17	5,511
17	10	19	134	322	2,236	1	2,722
18 and over	163	42	190	20	279	1	694
Total	17,637	17,157	14,755	5,117	3,742	535	58,943

(a) Special Classes; see letterpress on page 165.

THE EDUCATION DEPARTMENT

The Education Department is responsible for the organisation and management of the State Government's education programme and is controlled by a Director-General of Education responsible to the Minister for Education. The administrative structure of the Department provides for five Divisions and a number of Special Branches. The Divisions, each of which is in the charge of a Director, are those of Primary Education, Secondary Education, Technical Education, Teacher Education, and Special Services. The work of the Special Branches is related to such activities as physical education (including swimming instruction), music, drama, art and crafts, visual education and publications. In addition there is provision for a number of other services which are concerned with particular aspects of the education and welfare of school children, such as the Nature Advisory Service, and the School Medical and Dental Services conducted in collaboration with the Department of Public Health.

Primary and Secondary Schools

Instruction in the primary school is given in seven grades. A child who makes normal progress completes the course at the age of twelve years and may then enter high school. A Senior High School provides tuition to standards required for the Junior Examination, usually taken at the age of fifteen years, and the Leaving Examination, which is the final examination in Western Australian secondary schools and is normally taken at the age of seventeen years. A High School gives instruction in the first three years of the secondary school curriculum leading to the Junior Examination. A Junior High School is one which provides primary and post-primary education to Junior level. At some centres where there is no high school, post-primary subjects are taught at the primary school.

Children who do not enter for the Junior Examination may elect to sit for a High School Certificate examination, which is also taken at about the age of fifteen years.

In 1967, twenty-four secondary schools experimented with various types of school organisation involved in developing a cumulative Certificate of Achievement, which is intended to give a more accurate assessment of a child's continuous achievement during the first three years of high school work. The Certificate of Achievement, which may ultimately be accepted in place of the present Junior Examination, was presented to 1,800 students who qualified at the end of 1967.

The following table shows the number of schools in each category, the number of teachers employed in primary and secondary education and the number of pupils classified according to grade of education, for each of the years 1963 to 1967. The figures shown under the heading 'On special duties' represent teachers engaged in activities associated with the Division of Special Services and the Special Branches of the Department.

GOVERNMENT SCHOOLS

Particulars	At 1 August—				
	1963	1964	1965	1966	1967
NUMBER OF SCHOOLS					
Primary schools	455	461	466	473	481
Junior high schools	35	37	38	37	37
High schools	17	16	18	20	19
Senior high schools	20	21	22	25	28
Total	527	535	544	555	565
NUMBER OF TEACHERS (a)					
Engaged in teaching duties	4,471	4,713	4,934	5,213	5,534
On special duties	72	74	92	92	110
On leave	87	107	78	90	90
Total	4,630	4,894	5,104	5,395	5,734
Males	2,514	2,641	2,734	2,766	2,869
Females	2,116	2,253	2,370	2,629	2,865
Total	4,630	4,894	5,104	5,395	5,734
NUMBER OF PUPILS					
Grade of education—					
Primary	98,645	100,343	102,230	105,893	110,842
Secondary—Years 1, 2 and 3	31,503	33,202	34,311	36,144	38,695
Years 4 and 5	3,635	4,028	4,410	4,851	5,438
Total	133,783	137,573	140,951	146,888	154,975
Males	70,454	72,358	74,103	77,404	81,558
Females	63,329	65,215	66,848	69,484	73,417
Total	133,783	137,573	140,951	146,888	154,975

(a) Excluding persons teaching part-time.

Primary and Secondary Curriculum

In primary schools the subjects taught are English, mathematics, social studies, elementary science, physical education, handicrafts, music and art. Handicrafts in the primary schools consist of needlework for girls and such crafts as leatherwork, bookbinding, papiermache work and canework for boys. At the post-primary levels, mathematics, languages, science subjects, economics, home science, woodwork, metal work and technical drawing are introduced. The teaching of elementary science aims at a better understanding of the child's physical environment. The course is adapted to the conditions of the particular neighbourhood, and so varies between town and country areas. In musical expression, choral singing receives most attention, although school orchestras are being developed in some primary and high schools. Advisory teachers, under the direction of specialist superintendents, assist teachers in the fields of handicrafts, physical education, art, music, speech, drama and elementary science.

Education in the government schools is secular in character but periods are set aside during which representatives of various religious denominations attend to give religious instruction. In addition, instruction in scripture stories is given by class teachers.

The general curriculum differs slightly between urban and rural areas, an example being the teaching of elementary agricultural science in country schools. It is nevertheless sufficiently consistent to ensure a uniform standard of education throughout the State.

Radio, Television and Film Aids

Extensive use is made of radio and films, most schools having radio receivers and many being equipped also with film projectors and sound-reproduction systems. The use of television is increasing, particularly in secondary schools, as an aid in the teaching of mathematics, science, literature, social studies and languages. The Australian Broadcasting Commission co-operates with the Education Department in providing suitable radio and television programmes and Parents and Citizens' Associations assist in supplying the necessary equipment. The Audio-Visual Education Branch of the Department provides a wide variety of audio-visual aids.

Student Counselling and Vocational Guidance

Guidance officers of the Division of Special Services are available to discuss with parents the most suitable courses of study for their children and vocational guidance is given to pupils leaving high school. In addition, cases of handicapped or educationally retarded children are investigated and appropriate courses of education recommended.

Special Schools and Classes

The Division of Special Services provides a variety of assistance for physically and mentally handicapped children. A Kindergarten and Infant School for Deaf Children is maintained, as well as a Deaf School for older pupils. Special classes are organised for the blind and for the mentally handicapped, and instruction is given to patients at the Princess Margaret Hospital for Children and at other hospitals. The Department co-operates with welfare organisations, such as the Spastic Welfare Association and the Slow Learning Children's Group, by making teachers available to them.

Correspondence Tuition

Tuition by correspondence was introduced in 1918 to provide education for children living in remote areas or unable to attend school for other reasons. The service of the Western Australian Correspondence School now extends also to post-primary students in the smaller country schools, to sick and invalid children, and to some adults in country areas. Adults enrol mainly to prepare for nursing training or for the Junior Examination and similar examinations, or to improve their general education. At 1 August 1967, students enrolled in the Correspondence School comprised 455 primary and 675 secondary students. Of the total of 1,130 students, 404 were aged eighteen years and over.

Schools of the Air are conducted through the radio network of the Royal Flying Doctor Service from bases at Derby, Kalgoorlie, Meekatharra and Port Hedland to supplement tuition provided by the Correspondence School.

Education of Aborigines

Aboriginal and part-aboriginal children are admitted to ordinary schools and are educated under the same conditions as other children. For schools with a preponderance of Aborigines, special attention is directed to the framing of courses of study suited to the vocational needs of the older aboriginal pupils. In August 1967 there were 4,657 aboriginal and part-aboriginal children at government primary schools and high schools and 1,083 at non-government schools.

Agricultural Education

Agricultural education is provided at certain high schools. Boys aged from fourteen to sixteen years who have successfully completed the first year of post-primary education are eligible for enrolment at the Narrogin Agricultural Senior High School, the Harvey Agricultural High School or the Agricultural Junior High Schools at Cunderdin and Denmark. Preference is given to the sons of farmers but other suitably qualified boys, with the physical capacity for farm work, are admitted. The curriculum is designed as a continuation of general education to standards equivalent to those of other types of schools but with appropriate vocational emphasis. The aim is to produce young men capable of becoming leaders in rural communities as well as being successful farmers with an appreciation of the value of scientific methods in agriculture.

In addition to the activities of the Education Department in the field of agricultural education, facilities are also provided by Muresk Agricultural College which is controlled by The Western Australian Institute of Technology (see letterpress on page 170).

Technical Education

Institutions under the control of the Technical Education Division now comprise five technical colleges, six technical schools, eight technical centres with full-time officers in charge, and sixty-one technical centres with part-time officers in charge. One of the colleges, the Technical Extension Service, conducts correspondence courses and extension classes to provide instruction where it is not practicable to establish a technical school or centre. The Division has a Counselling Service which is available to advise students in selecting a course, to assist them in their studies, and to provide consultant services to industry and commerce on staff selection and training.

Courses leading to the award of a Diploma or a Certificate are available on a full-time or a part-time basis, instruction ranging from the training of technicians to the preparation of students for professional occupations. Part-time classes are established at all technical schools and centres, subject to local demand for tuition and availability of teaching staff.

The Perth Technical College offers a variety of diploma and certificate courses as well as courses of a general educational nature, and trade training in printing. It also caters for cultural and leisure-time interests by providing instruction in a range of basic skills. The Fremantle Technical College has a matriculation group and also offers a wide variety of trade courses, including shipwrighting, fitting and machining, and sheep and wool technology. The work of the Leederville Technical College relates mainly to the building industry and furnishing trades, but it also accommodates a matriculation group. The Mount Lawley Technical College provides training in baking, hairdressing and the electrical and meat industry trades, as well as commercial vocational training.

The Wembley Technical School provides courses for apprentices in the engineering trades, while the Carlisle Technical School is concerned mainly with training for trades associated with the automotive industry. Technical schools at Claremont, Midland, Bunbury and Kalgoorlie aim to meet the needs of the districts in which they are situated and give tuition in those subjects for which there is sufficient local demand.

There are sixty-nine technical centres, where evening classes are provided. Eighteen of these are located at the Department's ordinary metropolitan schools and forty-nine at its country schools. In addition, there are two country technical training centres not associated with a school.

Apprentices who live within reach of a technical school providing the appropriate instruction must attend classes, usually for eight hours per fortnight. In 1967, the number of trade apprentices enrolled was 8,289. For apprentices in country areas correspondence courses, sometimes conducted in supervised study groups, are available as well as intensive courses during which they have access to the full range of specialised instructors and equipment in the metropolitan area.

At all technical schools and centres where there is enough demand and teachers can be provided, instruction is given in such leisure-time activities as dressmaking, millinery, cookery, home furnishing, pottery, woodwork and motor vehicle maintenance.

TECHNICAL EDUCATION

Particulars	1963	1964	1965	1966	1967
Number of—					
Colleges	1	1	1	1	1
Schools	8	9	9	9	9
Centres	23	22	26	26	24
Total	32	32	36	36	34
Number of teachers at 1 July (a)—					
Perth Technical College (b) (c)	523	430	462	482	463
Schools	461	645	761	855	870
Centres	387	436	528	512	502
Technical Extension Service—					
Correspondence courses	137	154	162	183	188
Extension classes	76	109	123	148	156
Youth education classes	46	57	49	69	65
Native education classes	(b)	11	33	33	56
Counselling Service	(b)	(b)	19	34	19
Total	1,630	1,842	2,137	2,316	2,319
Students enrolled—					
Perth Technical College	9,145	8,153	8,566	9,090	7,118
Schools	14,026	18,430	19,995	20,939	21,847
Centres	7,241	8,128	9,388	9,719	10,312
Technical Extension Service—					
Correspondence courses	11,263	11,512	13,111	13,758	13,917
Extension classes	2,145	2,755	2,208	2,297	3,624
Youth education classes	1,793	1,839	1,636	1,998	1,887
Native education classes ....	....	293	536	756	1,047
Total	45,613	51,110	55,440	58,557	59,752
Males	30,251	34,399	37,326	39,161	39,140
Females	15,362	16,711	18,114	19,396	20,612
Total	45,613	51,110	55,440	58,557	59,752

(a) A teacher may occupy teaching positions at more than one school or centre. The number of individual teachers is not available. (b) Prior to 1965, teachers engaged in the Counselling Service were included in the staff of the Perth Technical College. (c) Includes teachers engaged in research and special duties.

Teacher Education

Teacher education is conducted at three colleges especially established for the purpose, the first at Claremont in 1902, the second at Graylands in 1955, and the third (for secondary teachers) on a site adjacent to the University in 1967.

The basic course is of three years' duration. The minimum requirement for entrance is a pass in English and three other subjects of the Leaving Examination, or its equivalent. Selected students may study in extended fields for periods of from three to six years to obtain University degrees and/or other qualifications. There is also a one-year training course open to University graduates and to associates of The Western Australian Institute of Technology.

The total number of students enrolled at 1 August 1967 was 1,771. Of this total, 1,141 were at the Claremont college, 450 at the Graylands college and 180 at the secondary teachers' college.

TEACHERS' COLLEGES

Particulars	1963	1964	1965	1966	1967
Number of instructors (a)—					
Males	54	55	54	57	66
Females	19	19	22	23	25
Total	73	74	76	80	91
Number of students enrolled (a)—					
Males	519	511	573	673	701
Females	759	750	835	955	1,070
Total	1,278	1,261	1,408	1,628	1,771
Number of students graduating—					
Males	193	162	173	182	249
Females	343	311	298	373	386
Total	536	473	471	555	635

(a) At 1 August.

NON-GOVERNMENT SCHOOLS

The non-government schools, which are conducted mainly by religious organisations, provide education from kindergarten to the end of the secondary school course, equivalent to the final year in the government high schools. The curriculum at the primary and secondary levels is substantially the same as that in the government schools.

Kindergarten schools and teachers are included in the following table. Almost all the schools shown under the heading *Undenominational* are kindergartens. The Education Act requires that every person conducting a kindergarten must hold a permit issued for the purpose by the Education Department. The Kindergarten Association of Western Australia, a voluntary organisation subsidised from government funds, maintains a training college for kindergarten teachers.

At 1 August 1967 the number of kindergartens registered with the Education Department was 193, of which 83 were affiliated with the Kindergarten Association.

NON-GOVERNMENT SCHOOLS (a)

Particulars	At 1 August—				
	1963	1964	1965	1966	1967
NUMBER OF SCHOOLS (a)					
Denomination—					
Church of England	15	15	13	12	12
Methodist	5	5	5	5	5
Presbyterian	3	3	3	3	5
Roman Catholic	177	178	185	183	182
Other	10	11	9	10	11
Undenominational	150	152	157	170	180
Total	360	364	372	383	395

NUMBER OF TEACHERS (b)

Denomination of school—					
Church of England	182	191	197	204	211
Methodist	74	77	80	91	93
Presbyterian	62	62	71	72	77
Roman Catholic	829	856	901	892	948
Other	34	36	40	40	44
Undenominational	272	264	267	284	329
Total	1,453	1,486	1,556	1,583	1,702
Males	322	342	364	383	405
Females	1,131	1,144	1,192	1,200	1,297
Total	1,453	1,486	1,556	1,583	1,702

(a) Including kindergarten schools.

(b) Excluding persons teaching part-time.

NON-GOVERNMENT SCHOOLS—PUPILS ON ROLL

Particulars	At 1 August—				
	1963	1964	1965	1966	1967
Denomination of school—					
Church of England	3,511	3,524	3,636	3,741	3,838
Methodist	1,383	1,445	1,527	1,631	1,731
Presbyterian	1,187	1,168	1,198	1,262	1,331
Roman Catholic	29,657	30,224	31,099	31,418	32,315
Other	750	776	757	819	892
Undenominational	5,075	5,402	5,991	6,580	7,352
Total	41,563	42,539	44,208	45,451	47,459
Grade of education—					
Kindergarten (a)	5,780	6,219	6,684	7,369	8,098
Primary	23,494	23,579	24,234	24,024	24,551
Secondary—Years 1, 2 and 3	9,614	9,882	10,299	10,794	11,389
Years 4 and 5	2,675	2,859	2,991	3,264	3,421
Total	41,563	42,539	44,208	45,451	47,459
Males	20,258	20,504	21,416	21,939	22,776
Females	21,305	22,035	22,792	23,512	24,683
Total	41,563	42,539	44,208	45,451	47,459

(a) Comprises pupils attending kindergarten schools and pupils in kindergarten grades at other non-government schools. The numbers of such pupils at 1 August 1967 were 7,725 and 373 respectively.

THE WESTERN AUSTRALIAN INSTITUTE OF TECHNOLOGY

The Western Australian Institute of Technology is a college of advanced education, established in terms of the *Western Australian Institute of Technology Act, 1966-1968* as an autonomous body under the control of a governing council. The main functions of the Institute, as set out in the Act, are to provide facilities for higher specialised instruction and to advance training in the various branches of technology and science; to aid the advancement, development and practical application to industry of science or any techniques; and to encourage and provide facilities for the development and improvement of tertiary education whether on a full or part-time basis to meet the needs of the community in the State.

The development of the Institute became necessary on account of the rapid growth in the numbers of students seeking education in the professional and technological fields, and the need for modern facilities and equipment. Buildings for the Institute were commenced in 1963 on a site of some 270 acres at Bentley, approximately seven miles from the Perth city centre, and the initial group of buildings was officially opened on 17 August 1966. The administration and associated buildings were officially opened on 11 October 1968.

Courses leading to the Associateship of The Western Australian Institute of Technology comprise three years' full-time study or the part-time equivalent. (In the case of Architecture the three-year full-time course is followed by two years' part-time study while in approved employment). To qualify for entry a student must have passed in at least five subjects at Leaving Examination level or at the equivalent Technical Education Division examinations of the Education Department. In some courses a student over the age of twenty-three years without the normal entrance requirements may sit for an Institute Mature-Age Examination to gain admission. Qualifications held by students entering from secondary schools in other States or countries, or from other institutions, are assessed prior to admission to courses.

Associateship courses are provided in Accounting, Administration, Applied Geology, Applied Physics, Architecture, Art Teaching, Chemistry, Commerce, Design Engineering, Fine Art, Geophysics, Home Science Teaching, Land Surveying, Management Accounting, Mathematics, Medical Technology, Metallurgy, Nutrition, Pharmacy, Social Science, Social Work, and Town Planning.

The Institute also offers diploma courses in Administration, Applied Physics, Education Administration, Home Science Teaching, Quantity Surveying, Social Science, and Town Planning.

In 1968 there were 3,611 enrolments in fifty-two separate tertiary-level courses.

On 1 January 1969 the Institute took over the administration and academic control of the Royal Perth Hospital School of Occupational Therapy, the School of Physiotherapy, the School of Mines of Western Australia and Muresk Agricultural College.

School of Mines of Western Australia

The School of Mines of Western Australia was established at Coolgardie in 1902 and was transferred to Kalgoorlie in the following year. Control of the School of Mines, formerly part of the Department of Mines, passed to The Western Australian Institute of Technology in January 1969.

Associateship courses are available in Mining, Metallurgy, Engineering and Mining Geology. These are professional courses for which the entrance requirement is a pass in specified subjects at the Leaving Examination or its equivalent. The courses are arranged to occupy two years of full-time study followed by two years of part-time study, but they can for the most part be completed by wholly full-time or wholly part-time study. Senior Certificate courses, for which the entrance requirements are less stringent than those for associateship courses, are also available. These courses normally occupy three years of part-time study, with day release from industry.

Through the Kalgoorlie Metallurgical Laboratory, the School undertakes metallurgical investigations as well as assays for gold or for other metals. Free assays and mineral determinations are made available for *bona fide* prospectors.

The School has a geological museum which is open to the public and contains rocks and minerals from all over Australia and elsewhere.

The number of students enrolled in 1968 was 297.

Muresk Agricultural College

Muresk Agricultural College, situated eight miles south of Northam in the Avon valley, was established by the Department of Agriculture in 1926. Control of the College was transferred to The Western Australian Institute of Technology in January 1969.

The College course, which is at tertiary level, leads to a Diploma of Agriculture. It is of two years' duration and is fully residential. The entrance requirement is a pass in four or more subjects at Leaving Examination level, preference being given to those applicants who have passed in English, Chemistry, Physics and a unit of Mathematics.

The course is designed to give a sound scientific, technical and managerial training suitable for those wishing to become farm owners or managers, or to work in industries servicing agriculture. The subjects studied are Plant Sciences and Husbandry, Animal Sciences and Husbandry, Agricultural Engineering, Farm Management, Soil Science, Humanities and Practical Farm Work. Instruction is given by means of lectures, assignments, laboratory and workshop practical work, demonstrations, tutorials, day tours to farms and research stations, extended tours into the agricultural areas, and practical farming on the College estate.

The estate of four thousand acres is devoted to mixed farming and provides the students with an opportunity to gain a considerable amount of practical experience by observation, demonstration and actual participation in a wide variety of farming activities. Use is made of the College facilities for various research projects. High quality stock from the College's herds and flocks is available to Western Australian farmers.

From time to time short courses are held at the College. These include in-service training schools for personnel of the Department of Agriculture and for field and service staff of agricultural firms.

The number of students enrolled at the College in 1968 was 61.

THE UNIVERSITY OF WESTERN AUSTRALIA

University education first became available in Western Australia in 1898, with the formation of the Extension Committee of the University of Adelaide by which facilities were provided for external studies in courses for degrees in Arts and Science. The first step towards the establishment of a university in Western Australia was taken in 1904, when a University Endowment Act providing for the incorporation of a trust to administer funds for the purpose was passed by the State Parliament. Following a favourable report made by a Royal Commission under the chairmanship of Dr (later Sir Winthrop) J. W. Hackett, the University was established by the University of Western Australia Act of 1911. Teaching began in 1913 in subjects related to the Faculties of Arts, Science and Engineering. Additional Faculties established since that time are those of Law (1927), Agriculture (1936), Dental Science (1946), Education (1947), Economics (1954), Medicine (1956) and Architecture (1966). The Faculty of Economics was reconstituted as the Faculty of Economics and Commerce in 1961.

Matriculation Requirements

Under revised regulations introduced in 1969, a student wishing to matriculate at the University must pass the Leaving Examination in English and four other subjects selected from specified groups appropriate to the Faculty to which admission is sought. He must then obtain a pass in three of the four subjects other than English at the Matriculation Examination, which requires a student 'to give more evidence of ability and experience in study in depth'. A candidate must pass all the qualifying subjects at Leaving and Matriculation levels in the same year, or pass all the Leaving subjects in one year and the Matriculation subjects in the following year. A part-time student is allowed three years to complete the requirements.

Matriculant status may be granted to an applicant who has satisfied the examination requirements of any other university in Australia, New Zealand or the United Kingdom qualifying him for matriculation.

The regulations provide for a Mature Age Examination enabling the provisional admission to a University course of persons over the age of twenty-one years who have not otherwise qualified for matriculation. A pass is required in English at Leaving Examination level and in one other subject, selected from a specified list, at both Leaving and Matriculation levels. A pass in the Mature Age Examination is recognised as qualifying for provisional admission to the Faculty of Arts (for Bachelor of Arts and Bachelor of Psychology degree courses) and to the Faculties of Education and Economics and Commerce. Full matriculation status is granted on successful completion of the first academic year, *i.e.* a pass in four first-year units of the course of study.

Provision is made for admission to some Faculties of persons holding certain certificates or diplomas or other specified qualifications.

Degrees

Degrees are granted in the Faculties of Arts, Law, Education, Economics and Commerce, Science, Engineering, Agriculture, Dental Science, Medicine and Architecture.

Courses for the degrees of Bachelor of Arts, Bachelor of Economics, Bachelor of Commerce and Bachelor of Science extend over a period of not less than three years; those for the degrees of Bachelor of Music, Bachelor of Psychology, Bachelor of Laws, Bachelor of Education, Bachelor of Engineering and Bachelor of Science in Agriculture, over not less than four years; and those for the degrees of Bachelor of Dental Science and Bachelor of Architecture over not less than five years. Honours degree courses in Arts, Music, Psychology, Economics and Science are usually of four years' duration, and five years in Education. The course in the Faculty of Medicine for the degrees of Bachelor of Medicine and Bachelor of Surgery extends over six years, and that for the degree of Bachelor of Medical Science over four years or five years according to the subjects taken. The degrees of Master of Arts and Doctor of Letters, Master of Music and

Doctor of Music, Master of Psychology, Master of Laws and Doctor of Laws, Master of Education, Master of Economics, Master of Commerce, Master of Science and Doctor of Science, Master of Engineering Science, Master of Engineering and Doctor of Engineering, Master of Science in Agriculture and Doctor of Science in Agriculture, Master of Dental Science and Doctor of Dental Science, Master of Surgery and Doctor of Medicine and Master of Architecture, are conferred by the University. The degree of Doctor of Philosophy is also given for research in all faculties with the exception of the Faculty of Law.

Teachers, Students, Degrees Conferred

The following table gives particulars of teaching staff and students at 31 July in each of the years from 1963 to 1967. The numbers of degrees conferred during each of these years are also shown. Information in greater detail is available from the publications *University Statistics: Part 1—Students and Degrees Conferred* and *Part 2—Staff and Libraries*, which are issued annually by the Commonwealth Statistician, Canberra.

UNIVERSITY OF WESTERN AUSTRALIA

Particulars	1963	1964	1965	1966	1967
NUMBER OF TEACHING STAFF					
Full-time—					
Professors	36	41	44	44	47
Readers	34	38	37	38	41
Senior lecturers	99	101	110	111	119
Lecturers	86	91	99	95	105
Tutors, demonstrators	23	26	31	67	58
Total, Full-time	278	297	321	355	370
Part-time (a)—					
Lecturers	25	24	38	43	30
Graduate assistants, tutors, demonstrators	232	299	341	384	355
NUMBER OF STUDENTS					
Internal, full-time	2,346	2,697	2,971	3,362	3,796
" part-time	1,389	1,483	1,681	1,814	1,926
External	353	385	370	323	305
Total	4,088	4,565	5,022	5,499	6,027
	Males	3,146	3,496	3,805	4,084
	Females	942	1,069	1,217	1,625
	Total	4,088	4,565	5,022	6,027
DEGREES CONFERRED (b)					
Degrees conferred (b)—					
Agriculture	15	10	30	23	26
Arts	197	193	*223	*215	259
Commerce .....	....	....	8	20	24
Dental Science	9	11	10	11	13
Economics	15	22	32	40	47
Education	20	26	19	48	42
Engineering	46	36	39	38	38
Law	15	24	25	26	36
Medicine	39	45	40	41	39
Music .....	....	....	1	2	3
Psychology .....	....	....	9	11	13
Science	103	121	160	163	168
Total	459	488	596	638	708
	Males	350	372	460	520
	Females	109	116	136	188
	Total	459	488	596	708

(a) Figures represent units of 100 hours of teaching time per annum.

(b) Excluding honorary degrees.

* Revised.

University Government

The original Act provided that the Senate and Convocation should constitute the governing authority with power to make statutes for 'the management, good government and discipline of the University'.

The Senate consists of twenty-one members, of whom six are appointed by the Governor, six are elected by Convocation, two are elected by the full-time teaching staff, three are *ex officio* members (the Vice-Chancellor of the University, the Under Treasurer of the State, and the Director-General of Education), and four are co-opted members. Convocation consists of graduates of the University and such other persons as are eligible for membership under the provisions of the University of Western Australia Act.

Since an amendment to the Act in 1944 the Senate alone has been the governing authority and is responsible, subject to the Act and the statutes, for the entire control and management of the University. Statutes originate in the Senate and are submitted to Convocation for its consideration, and although Convocation may suggest amendments the Senate is not bound to accept them. The Act requires that statutes shall be submitted to the Governor for approval, after which they have the force of law.

The Chancellor is the titular head of the University. He is elected annually by the Senate from among its members and presides over its meetings. The Vice-Chancellor is the chief executive officer of the University and is appointed by the Senate for a period not exceeding ten years, at the end of which term he is eligible for reappointment. At meetings of Convocation the chairman is the Warden who is elected annually by Convocation from among its members.

The Guild of Undergraduates is constituted under the Act as an association of undergraduates 'for furthering of their common interests, and shall be the recognised means of communication between the undergraduates and the governing authority of the University'. The government of the student body is vested in the Guild Council to which the Senate appoints two of its own members, the remaining members of the Council being elected in accordance with regulations made by the Guild.

Principal Benefactions

A large bequest to the University was made under the will of its first Chancellor, Sir Winthrop Hackett, who died in 1916. Of the total amount of \$850,000, a sum of \$400,000 together with accrued interest was allocated to the erection and maintenance of a group of buildings comprising a ceremonial hall (Winthrop Hall), a Senate Chamber, administrative offices, a library, lecture rooms and a students' building (Hackett Hall). A further sum of \$400,000 was devoted to the provision of studentships, scholarships, bursaries and other financial help for deserving students of limited means. Under his will Sir Winthrop Hackett also provided for the continuation of his endowment for a Chair of Agriculture, and Saint George's College, the first residential college within the University, was built and endowed by the Church of England from funds bequeathed by him from the residue of his estate.

In 1927 the University received from the late Robert Gledden an estate valued at \$120,000 to provide two travelling scholarships in 'applied science more particularly related to surveying, engineering or mining, or cognate subjects'. The bequest has been used to establish the Robert and Maude Gledden Travelling Fellowships and to provide research studentships and fellowships.

In 1957 Mrs M. B. Raine made a deed of gift in favour of the University for an amount of \$307,800 for the establishment of the Arnold Yeldham and Mary Raine Medical Research Foundation. Mrs Raine died in 1960 and bequeathed her estate, valued for probate at \$1,377,568, to the University for the same purpose.

The sum of \$125,000 was presented to the University in 1958 by the Wellcome Trust to endow the Wellcome Research Chair of Pharmacology.

In 1962 the University received the sum of \$110,000, bequeathed for general purposes under the will of Dr W. S. McGillivray.

Student Fees and Scholarships

The Royal Commission appointed to inquire into the establishment of a University recommended that teaching should be free and suggested that 'if fees are found to be necessary, they should be on the lowest possible scale'. Until 1962 lecture fees were not charged to students normally resident in Australia, except those in the Faculty of Medicine, where tuition fees were payable in the second and later years, and those enrolled at the Western Australian College of Dental Science, an institution affiliated with the University, who paid lecture fees to the College. All students paid a 'faculty service charge' designed to cover such items as the use of the library, annual examination fees, the use of laboratory equipment, and the lecture synopses provided in some courses. To assist in meeting the increasing costs of operation resulting from a rapidly growing student population and to enable the University to take full advantage of financial aid available under Commonwealth legislation, a system of annual 'enrolment fees' was introduced in 1962. The current tuition fees are based on an annual course fee for all full-time bachelor degree courses. Part-time students' fees are assessed proportionately, according to the number and type of subjects to be taken during the year. The fees for higher degree students are also related to the basic scale. In all faculties, students whose normal place of residence is outside Australia are required to pay an annual overseas students' fee. Subscriptions to the Guild of Undergraduates and to certain faculty associations are payable by all students enrolled for one or more full units towards a bachelor degree.

Financial assistance is available to students under the Commonwealth University Scholarship Scheme. Awards are made on merit and, in addition to having their compulsory fees paid, scholarship holders may receive a living allowance which is subject to a means test. Hackett Bursaries are offered each year for students of merit whose means make it difficult for them to undertake or continue a full-time undergraduate course. The State Government provides a number of University Exhibitions for competition among candidates at the Leaving Examination. In addition, the University is able to grant a limited number of fees bursaries each year from special endowment funds.

As well as the normal awards under the Commonwealth University Scholarship Scheme, there is provision in the scheme for financial assistance for post-graduate studies in the form of a living allowance, which is not subject to a means test, and payment of fees. The University also provides, from its own funds, research studentships for post-graduate study which are competed for by students holding no other award and having an Honours degree of second class (Division A), or higher, standard. Hackett Scholarships, tenable at the University of Western Australia or in special circumstances at other recognised institutions in Australia, are open to graduates of the University. Graduates may also apply for Hackett Studentships which, in addition to other financial benefits, may carry a travel grant where the Student elects to study overseas or in another State. Some large private industrial concerns also make annual awards for study at post-graduate level.

As a contribution towards University fees, the State Government provides financial assistance of \$48 per year for a full-time student who is proceeding to a first degree and who is not the holder of a scholarship or bursary of a value equal to, or greater than, half the amount of the tuition fees.

Tuition

In addition to the normal lectures and tutorials for full-time students, courses for part-time students are offered in the Faculties of Arts, Education, and Economics and Commerce. Certain subjects may be taken at institutions affiliated with the University. These are The Western Australian Institute of Technology, the Western Australian College of Dental Science, the Secondary Teachers' College, Claremont Teachers' College, Graylands Teachers' College, and the Kindergartens Teachers' College.

Residents of Western Australia living outside the metropolitan area are able to enrol as external students in the Faculties of Arts, Education, and Economics and Commerce.

Colleges and Hall of Residence

There are four residential colleges within the University. For men students, Saint George's College is conducted by the Church of England, Saint Thomas More College by the Roman Catholic Church and Kingswood College by the Methodist Church. Saint Catherine's College is an undenominational college for women students. A site has been allotted for a fifth college, Saint Columba, which will be conducted jointly by the Presbyterian Church and the Congregational Church for the accommodation of men students.

Currie Hall is an undenominational hall of residence for men students.

Finance

The following table relates to the income and expenditure of the University of Western Australia in each year from 1963 to 1967. Information in greater detail is available in the publication *University Statistics: Part 3—Finance*, issued annually by the Commonwealth Statistician, Canberra.

UNIVERSITY OF WESTERN AUSTRALIA—FINANCE (\$'000)

Particulars	1963	1964	1965	1966	1967
INCOME					
Income for specific capital purposes (a)—					
Commonwealth Government grants	1,152	702	909	1,226	476
State Government grants	964	368	909	1,237	436
Total	2,116	1,070	1,818	2,463	912
Income for other purposes—					
Commonwealth Government grants	1,712	2,032	2,504	2,782	3,215
State Government grants	2,320	2,560	3,201	3,080	3,363
Donations and endowments	408	452	491	638	681
Student fees (b)	444	680	849	1,155	1,253
Other	414	558	648	634	723
Total	5,298	6,282	7,693	8,288	9,236
TOTAL INCOME	7,414	7,352	9,511	10,751	10,148
EXPENDITURE					
Teaching and research	3,804	4,166	5,545	5,528	6,303
Administration and general overhead	426	478	570	626	702
Libraries	260	300	350	402	416
Buildings, premises, grounds	2,492	2,098	2,038	2,249	2,046
Sundry auxiliary expenditure	584	630	753	765	790
TOTAL EXPENDITURE	7,566	7,672	9,257	9,571	10,258

(a) Income received specifically for new buildings, major alterations and additions to buildings, installation of services, purchase of land and buildings and major equipment. (b) Excludes fees collected on behalf of student organisations.

Public Examinations Board

The Public Examinations Board, which is comprised of representatives of the University, the Education Department, and the non-government secondary schools, is constituted by University statute for the purpose of conducting the Junior and Leaving Examinations. The Junior Examination is normally taken by pupils at the end of the third year of the secondary school course. The Leaving Examination is the final examination in the Western Australian secondary education system.

The Board may also consider matters relating to the conditions for matriculation and for admission to courses for degrees or diplomas, and may make recommendations to the Boards or Faculties concerned. Reference to current matriculation requirements will be found on page 171.

Adult Education and Extension Committee

The Adult Education and Extension Committee was established by the Senate of the University in 1968 as a result of the reorganisation of the former Adult Education Board which had been created by the University in 1928. The policies of the Committee are implemented by the Director of Adult Education and by the Head of Extension. The headquarters of the organisation are at the University.

Adult Education classes are conducted at city premises in Perth as well as at the University, and various activities in the metropolitan and country areas are arranged. These are generally non-vocational in character. During the year several series of classes, lectures and discussions are conducted, and a Summer School is held at the University each year.

The Extension Service is responsible mainly for post-graduate and refresher courses as well as certain cultural activities. It works in close liaison with University departments and faculties. The Extension Service is engaged principally in conducting conferences, symposia and seminars. Members of its staff are also involved during the summer months in work connected with the annual Festival of Perth.

COMMONWEALTH FINANCIAL ASSISTANCE FOR EDUCATION

Universities

Following a report submitted by a committee of inquiry appointed to report on university finances and requirements, the Commonwealth, since 1951, has made matched grants to the States for recurrent expenditure on university purposes. Since 1958 the Commonwealth has also assisted with the capital needs of the universities for building projects and for equipment, and has provided grants for the building programmes of residential colleges affiliated with universities.

Since 1961, Commonwealth assistance to the States in respect of the recurrent expenditures of universities has been on the basis of \$1 of Commonwealth money for every \$1.85 of income received by a university from fees and State grants. Grants in respect of capital expenditures are provided on a \$1 for \$1 basis from the Commonwealth and the State.

In 1959, following the Report of the Committee on Australian Universities, the Commonwealth Government established the Australian Universities Commission under the *Australian Universities Commission Act 1959*. The Commission's principal functions are to advise on financial assistance to Commonwealth universities and to States in relation to their universities and also on the balanced development of Australian universities. Commonwealth financial assistance grants, based on the Commission's recommendations, have been authorised by a series of States Grants (Universities) Acts and Universities (Financial Assistance) Acts.

Colleges of Advanced Education

Under the provisions of a series of States Grants (Advanced Education) Acts, the first of which was passed in 1965, the Commonwealth gives financial assistance to the States for the development of colleges of advanced education. These are institutions which provide mainly tertiary education and training with a vocational emphasis, as distinct from the academic education provided by the universities. The Commonwealth Advisory Committee on Advanced Education was established in 1965 to advise the Commonwealth Government on the development of the colleges.

The grants made to a State are conditional on the provision by the State of \$1 for every \$1 of Commonwealth money for capital purposes, and \$1.85 of State money and student fees combined for every \$1 of Commonwealth money for recurrent purposes.

Teachers' Colleges

The *State Grants (Teachers Colleges) Act 1967* provides for grants to the States during the three years to 30 June 1970 by way of financial assistance for approved building projects in connection with teachers' colleges. A condition of the grant to a State is that

not less than ten per cent of the student places attributable to the expenditure of the grant shall be available to 'private' students, *i.e.* those who have not entered into an agreement or bond in relation to service with a State education authority for a period after completion of the course. In 1967-68, the first year of operation of the Act, Western Australia received an amount of \$1,817,000.

Science Laboratories and Equipment

The States Grants (Science Laboratories) Acts authorise financial assistance for the provision of science laboratories and equipment for use in the teaching of science at secondary level in government and non-government schools.

Technical Training

Under the provisions of the States Grants (Technical Training) Acts, grants are made to the States as a contribution towards the cost of buildings and equipment for use in trade training and technical education in government institutions.

Research

The States Grants (Research) Acts authorise the provision of financial assistance to the States in support of research projects of particular merit, research being defined as 'systematic investigations in some branch of science or learning.' The Australian Research Grants Committee, established by the Commonwealth Government in 1965, evaluates research projects and makes recommendations concerning the selection of projects and the allocation of funds.

Financial Summary

The following table shows the amounts received during the five years to 30 June 1967 in the form of Commonwealth financial assistance for education in Western Australia.

**COMMONWEALTH FINANCIAL ASSISTANCE FOR EDUCATION
WESTERN AUSTRALIA
(\$'000)**

Purpose of assistance	Year ended 30 June—				
	1963	1964	1965	1966	1967
Universities—					
For capital expenditure	923	1,161	940	901	1,160
For recurrent expenditure	1,377	1,595	2,060	2,152	2,306
Total	2,300	2,756	3,000	3,053	3,466
Colleges of advanced education—					
For capital expenditure	....	....	....	232	457
For recurrent expenditure	....	....	....	....	363
Total	....	....	....	232	820
Science laboratories and equipment	....	....	707	502	899
Technical training	....	....	714	269	551
Research	....	....	....	142	155
TOTAL	2,300	2,756	4,421	4,198	5,891

Chapter V—continued

Part 2—Public Libraries, Museum, Art Gallery,
and Scientific Institutions

PUBLIC LIBRARIES

The Library Board of Western Australia

The Library Board of Western Australia, which is constituted under the provisions of the *Library Board of Western Australia Act, 1951-1965*, is responsible for all forms of public library services which are financed either wholly or in part from State funds. The Board consists of thirteen members. The Director-General of Education and the Director of Adult Education are *ex officio* members. Of the remaining eleven members, who are appointed by the Governor, five represent local government interests, five are nominated by the Minister for Education and one by the Library Association of Australia, Western Australian Branch.

The Board was set up as an independent statutory body in 1952. Its functions are to encourage and assist local authorities to establish public libraries and to co-ordinate those libraries into a State-wide system, to administer funds made available by the Government for this purpose, to provide for the training of librarians and library assistants and to advise the Minister for Education and participating bodies on matters of general policy relating to libraries. Under the provisions of the *Acts Amendment (Libraries) Act, 1955*, the administration of the Public Library of Western Australia was transferred to the Board on 1 December 1955 and its name changed to The State Library of Western Australia. The Central Music Library was inaugurated in 1965.

THE LIBRARY BOARD OF WESTERN AUSTRALIA

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Expenditure—					
Books, periodicals and binding	\$ 188,676	174,864	207,272	258,300	307,513
Salaries and wages	\$ 160,192	188,514	204,860	226,200	256,914
Other	\$ 34,730	40,204	40,256	46,100	49,792
Total	\$ 383,598	403,582	452,388	530,600	614,219
Book stock at 30 June—					
State Library	203,861	211,059	216,700	223,430	229,943
Circulation stock	327,134	419,253	454,466	496,432	536,757
Central Music Library (a)—					
Books			2,561	2,954	3,200
Scores			7,901	9,435	11,032
Total	530,995	630,312	681,628	732,251	780,932
Net additions to book stock	63,234	99,317	51,316	50,623	48,681
Periodical and serial titles received	(b) 6,600	7,192	8,966	8,417	8,266
Request and Information Service—					
Inter-library requests received	18,470	22,119	26,197	33,396	36,914
Proportion satisfied	92	93	92	93	91
Staff at 30 June—					
Qualified librarians	20	19	19	22	24
Student librarians	16	17	19	19	16
Other	36	37	42	50	52
Total	72	73	80	91	92
Associated public libraries (c)	63	77	91	97	102

(a) Inaugurated 1965.

(b) Estimated.

(c) Number at 30 June.

The books in all public libraries in the State are supplied by the Board and remain its property. A fixed proportion, depending on its size, of the stock of every library is exchanged at least every two months. All books are catalogued and fully prepared for use before being issued to public libraries and the Board maintains all the central stock records.

A catalogue in book-form of the books, arranged by subjects, in all libraries is published regularly by the Board and supplied to all public libraries throughout the State. This facilitates access by library users to the whole stock of the Board, through any library. More than 30,000 inter-library loans both between public libraries and between other types of library in the State are organised annually through the Request and Information Service provided by the Bibliographical Centre. This centre, housed in the State Library building, is also available to the public. It is equipped with catalogues of the State Library and all other libraries in the service, a union catalogue of books and serials in non-public libraries in the State and a world-wide range of printed bibliographies, indexes to periodicals and subject guides.

The library service of Western Australia thus consists of the State Library, which functions as the reference division of the service, the Central Music Library, and a number of independent public libraries which are jointly supported by local authorities and the Board.

The State Library of Western Australia

The original Library was established in 1887 as the Victoria Public Library in commemoration of Queen Victoria's Golden Jubilee. It became known later as the Public Library of Western Australia and in 1955 as The State Library of Western Australia.

In addition to providing reference library facilities for the metropolitan area, its service extends throughout the State, through the agency of a local public library wherever possible but also by post direct to country inquirers not in contact with a local library.

It is divided into five specialist subject units, comprising four libraries and one centre. The J. S. Battye Library of West Australian History was developed from the former Archives Branch. All material relating to Western Australia, including the State archives, has been concentrated in this library. The other libraries are The Library of Business, Science and Technology, The Library of Social Sciences, Philosophy and Religion and The Library of Literature and the Arts. The Information Centre is equipped with current Australian and overseas telephone and trade directories, business guides, commercial publications and a wide variety of similar quick reference material. The Centre is designed principally to provide immediate answers to inquiries, mainly in the commercial field. Current newspapers, which include all those published in Western Australia, the main ones from other Australian States and a representative selection from overseas countries, are available for reference in the Information Centre.

The State Library is fully equipped with micro-film and photo-copy apparatus and copies of material are available on payment of an appropriate fee.

The Central Music Library, situated in the State Library building, lends musical scores to persons or bodies throughout the State but lends books on music only through other libraries. It also provides a reference service in the field of music.

Local Public Libraries

At 30 June 1967 there were 102 local public libraries associated with the Library Board's service. The local government authorities conducting these libraries provide accommodation and staff, while the Library Board provides all the books and bibliographical services. The administrative independence of the local libraries is secured under the provisions of the *Library Board of Western Australia Act, 1951-1965*. Apart from exercising a statutory obligation in respect of the expenditure of State subsidies, the Board takes no direct part in the administration of local public libraries. If the Board's expenditure in respect of a local library exceeds that of the local authority, an amount to

equalise the expenditure is payable to the Board by the local authority. Books are provided on a minimum basis of one volume per head of the population of the district concerned and all non-fiction books in public libraries throughout the State are made available on request to the Board at any library associated with its library service.

MUSEUM

The Western Australian Museum has developed from two earlier collections. One of these, the museum of the Swan River Mechanics' Institute, was founded by public subscription in 1860, and the other, the Geological Museum at Fremantle, was started in 1881. In 1889 the contents of the Geological Museum were moved to the former Perth Gaol (which is still part of the Western Australian Museum) and a Curator was appointed in 1891. In the following year the museum of the Swan River Mechanics' Institute was purchased, and the collections combined to form the Public Museum.

The Museum, which became known as the Western Australian Museum in 1897, is controlled by a Board of five members appointed by the Governor under the provisions of the *Museum Act, 1959-1964*. The staff, which is grouped within the Divisions of Natural Sciences, Human Studies, and Administration and Services, includes a Director, two Senior Curators, seven Curators and other professional and technical staff.

The work of the Museum relates mainly to natural sciences and human studies. It contains collections devoted to zoology, palaeontology, meteorites, archaeology, anthropology, history, technology and military exhibits. Emphasis in both display and research is on the fauna and the human population, past and present, of Western Australia. There is an extensive scientific library which also houses the library of the Royal Society of Western Australia. Research within the Division of Natural Sciences is related specifically to the marine fauna of Western Australian waters, mammals, birds, reptiles and insects. The Division of Human Studies is concerned with Prehistoric Archaeology and Art, Aboriginal Material Culture, Colonial History, Maritime History, Underwater Archaeology, Industrial and Agrarian Technology, and Arms and Armour.

The *Museum Act Amendment Act, 1964* has increased the scope of the Board's activities by vesting in it certain historically important unsalvaged ships which were wrecked off the Western Australian coast in the 17th and 18th centuries. The Act also makes provision for the future vestment of historically important wrecks not known to exist at the date of enactment.

The Museum is an active educational instrument. Members of the scientific staff lecture in Adult Education programmes and in the University departments. Public lectures are held and there is also an extensive programme of nature study for children. A children's centre, staffed by a Museum teacher provided by the Education Department, is open during school holidays. In 1967 35,779 children voluntarily participated in general knowledge tests and other exercises designed for vacation activities. Regular classes are held during school terms and 11,765 children from sixty-five metropolitan primary schools attended during 1967. In addition, special visits were made by 2,612 children from schools not included in the regular series.

In connection with its work of education, research and conservation, the Museum is often called upon to act in an advisory capacity to the Government. In particular, senior staff serve on committees formed for the purpose of protection of native fauna and the preservation of Aboriginal sites and artefacts.

The Museum serves as a centre for associations with interests in natural history and human studies. The Royal Society of Western Australia and the Astronomical Society hold regular meetings at the Museum. The Museum is assisted in certain fields by Honorary Museum Associates, some of whom serve on the two Advisory Committees, the Meteorite Advisory Committee and the Historical Materials Advisory Committee.

ART GALLERY

The Western Australian Art Gallery is under the control of a Board of five members appointed by the Governor under the provisions of the *Art Gallery Act, 1959-1968*. The Gallery occupies part of a building shared with the Museum. The lower gallery is used mainly for lectures, art films and the display of interstate and overseas exhibitions. Works from the permanent collection are exhibited in the upper gallery, while the print room is used to house and exhibit the collection of prints and drawings. Both displays are changed regularly. Important pieces of sculpture are on permanent display in both galleries and in an exterior courtyard designed for this purpose. Aboriginal grave and tribal posts, carvings and paintings are on permanent display in the upper gallery.

The Art Gallery's collection at 30 June 1967 contained, in addition to reproductions, 455 oil paintings, 194 water colours, 1,543 drawings and prints, forty-six sculptures, nine miniatures, and a number of ceramics and other art objects. The collection is constantly being increased by purchases, gifts and bequests.

The Gallery has extended its services throughout the metropolitan area and country districts. Reproductions of paintings are circulated by means of its loan service to various public institutions, and touring exhibitions from the permanent collection are taken to country districts at regular intervals.

These activities are supplemented by publications of various kinds, which are distributed to schools and other institutions or direct to the public. Reproductions of some works in the collection are also available.

The Art Gallery operates a general information service which is widely used.

BOTANIC GARDEN

The Botanic Garden was established in King's Park in 1962 and is under the control of the King's Park Board (see final section *Public Parks and Reserves* of Chapter VII, Part 1). The Botanic Garden is the counterpart of the Museum in the botanical field, maintaining living collections of plants for scientific and educational purposes. Its official objects are to foster public interest in the conservation and cultivation of the Western Australian flora; to contribute to public education in this field; to become a centre for botanical and horticultural research in the flora of Western Australia; to provide a major tourist attraction; and to foster generally interest in botany and horticulture over the whole field of the plant kingdom.

The Garden was officially opened by the Hon. David Brand, M.L.A., Premier of Western Australia, on 4 October 1965. The cultivated areas cover a total of sixty-seven acres, made up of the Western Australian collection (twenty-five acres), a Californian, South African and Mediterranean collection (six acres), and an arboretum of Western Australian native trees (thirty-six acres). The Western Australian collections at present comprise 1,200 species. Virtually all trees native to the southern half of the State, with the exception of some rare mallees, are represented in the arboretum.

Parties from the Botanic Garden are regularly in the field for the collection of propagating material, and contribute to the botanical exploration of the State. Special attention is devoted to locating rare species or species threatened with extinction. Vegetation maps of the State are being built up. Seed of native plants collected is distributed to botanical institutions throughout the world and to private growers and nurserymen. A seed list, which normally offers from 900 to 1,000 species, is published annually. In 1967-68, almost five thousand packets of seed were distributed.

Research on propagation of native plants is carried on in the nursery, and information acquired is passed on to growers through State branches of the Society for Growing Australian Plants, using the medium of the Society's Journal. Within Western Australia, members of the staff constantly lecture and demonstrate and the nursery is opened to conducted parties at regular intervals. Official guides to the Botanic Garden may be engaged by parties of visitors. There is a nature trail for children in the Park bushland used regularly by the Gould League, and as the Botanic Garden develops it is designed

to become of value for nature study groups. A Wildflower Exhibition is held in the Park each spring. Facilities are provided for the employment and ancillary training of students enrolled in the three-year course for the Western Australian Certificate of Horticulture and Park Administration.

SCIENTIFIC INSTITUTIONS

State Government Observatory

The Perth Observatory was established in 1896, on the site now occupied by an administrative office building of the Western Australian Government, facing the main entrance to King's Park.

The buildings of the present Perth Observatory, near Bickley in the Darling Range, were officially opened on 30 September 1966.

The principal astronomical instruments of the Observatory are a photographic refractor of 13 inches aperture and a 6-inch meridian transit circle telescope. A 16-inch reflector, now being constructed by the Physics Department of the University of Western Australia, will be mounted at the Observatory in the near future.

Current work is concerned mainly with investigations of stellar motions, based on measurements of old (1900-1920) and recent photographs.

A team of astronomers from the Hamburg (West Germany) Observatory arrived in June 1967. They brought with them a 7-inch meridian transit circle telescope, which is fully automated, to carry out a concentrated observational programme of the positions of fundamental stars in the southern hemisphere. This programme will take from two to three years to complete, after which the Perth instrument will be renovated and observations with it recommenced.

The Observatory maintains the time service for the State. It is open to visitors daily, except Saturdays, at 3 p.m. Night visits will be resumed as soon as possible.

State Government Chemical Laboratories

In 1922 the various chemical services of the State Government were amalgamated to form the Government Chemical Laboratories, primarily for the performance of chemical work required by Government Departments. In addition, the Laboratories serve government instrumentalities and semi-government authorities and undertake some chemical work for the general public. The activities of the Laboratories are organised under six Divisions, and a Physics Section, the separate functions of which are described briefly in the following summary.

The *Agriculture and Water Supply Division* does analytical work, on soils, related principally to the experimental work of the Department of Agriculture (see also Chapter VIII, Part 1); on waters, for the Metropolitan Water Supply, Sewerage, and Drainage Board and the Department of Public Works and Water Supply, for primary producers seeking an assessment of the suitability of private supplies for domestic, irrigation and livestock purposes, and for commercial interests with particular reference to treatment and corrosion; on plants, as fodders for livestock and also to assess the nutritional requirements of plants with particular reference to the use of fertilisers and the correction of trace element deficiencies; on fertilisers and manures generally; and on animal tissues for diagnostic purposes.

The *Engineering Chemistry Division* is concerned with chemical means of utilisation of mineral resources, such as production of sponge iron, upgrading of ilmenite and of low grade ores, and the beneficiation and calcination of lime sand. The Division was associated with the Fuel Technology Division in the production of a metallurgical fuel from Collie coal.

The *Food, Drugs, Toxicology and Industrial Hygiene Division* deals with the analysis of foods, including milk; drugs; police work, including human and animal toxicological examinations for poisons and analysis of blood and urine for alcohol concentration;

industrial hygiene, including determinations relating to the amount of potentially harmful substances present in industrial and commercial materials or associated with working conditions; and industrial effluents and pollution surveys of river and ocean waters.

The *Fuel Technology Division* has been primarily concerned with Collie coal and its uses and has done important work on this local coal for the making of coked briquettes as a metallurgical fuel and for the production of town gas. The Division's investigations have extended to other fuels, including sawdust and woodwaste, and also to domestic appliances using fuel, and reduction of atmospheric pollution by emission from smokestacks.

The *Industrial Chemistry Division* is used extensively as a source of information and advice on technical problems relating to industry in Western Australia, with special reference to plastics. Research is also in progress on protective coatings, including paint.

The *Mineralogy, Mineral Technology and Geochemistry Division* is basically concerned with minerals, their occurrence and identification, but it also carries out the testing of clays and of aggregates for cement and concrete work, as well as corrosion and other tests. Analyses are done for the Geological Survey Branch of the Department of Mines in connection with mineral surveys, notably those for copper and iron. This Division is also the reference laboratory for analyses of crushings of gold ores by the State Batteries. An important part of its work is the identification of mineral specimens forwarded by prospectors and others and the Division deals with many hundreds of such samples every year.

The *Physics and Pyrometry Section* is mainly concerned with X-ray examination of minerals and differential thermal analysis, and as a reference laboratory for heat and temperature measurement.

Details of the operations of the Government Chemical Laboratories are published in the Annual Report of the Director.

The Institute of Agriculture, University of Western Australia

The Institute of Agriculture was established in 1938 within the University to provide research facilities and staff essential for the effective training of professional agricultural scientists at both undergraduate and graduate levels. It includes the teaching and examining Faculty of Agriculture, and the research staff associated with it. Although the Institute is financed to some extent from University funds, substantial research grants from producer organisations and other bodies and individuals interested in the promotion of agriculture have made possible most of the research that has been undertaken since its establishment.

During the first ten years of its existence, and despite the dislocation of the war years, it initiated research on plant and animal problems of the pastoral areas, commenced a series of fundamental studies related to the nutrition of ruminants, investigated factors affecting the baking quality and nutritive value of wheat and flour, elucidated factors affecting the fertility of sheep, and carried out a series of economic surveys of the sheep, wheat, dairying, pig, and poultry industries. The work of these years is summarised in the report of the Director, published in 1949.

Since 1948 the research programmes have been greatly increased and their scope widened. Plant breeding, selection and genetical research aimed at increasing the productivity and extending the climatic limits of crops and pasture legumes, especially subterranean clovers, medics and lupins, was strongly developed and fundamental studies initiated on the nutritional physiology and microbiology of the wool sheep with particular reference to the factors influencing the utilisation of protein, of urea and of low-quality roughages. The agronomic research has been expanded to include cereal genetics studies, and the animal research to include nutritional studies with beef cattle. In recent years studies in mineral metabolism, especially sulphur, phosphorus, cobalt and zinc, have been initiated.

Further and more detailed economic surveys of the wheat-sheep farming industry and of the butter-fat producing and whole-milk producing industries have been carried out, together with studies of the comparative advantages of forestry and agriculture in parts of the south-west of Western Australia, and studies of egg-marketing problems. In 1961 the John Thomson Agricultural Economics Centre was set up within the Institute with funds supplied by banks, business houses and other organisations. The research economists of this Centre have completed an economic appraisal of irrigation from the Gascoyne River, an inter-industry comparison of the economy of Western Australia, and an investigation of farm population and land development potential in Western Australia. In 1967 a Farm Management Service Laboratory was set up as a service to farmers.

In 1963 a Department of Soil Science and Plant Nutrition was established within the Institute with a very strong research group engaged in studies of soil physics, soil chemistry, soil microbiology and plant nutrition. The soil microbiology workers are mainly concerned with a continuation of earlier research into nodulation problems in legumes and the nitrogen-fixing process. The plant nutrition group has devoted particular attention to the uptake by crop and pasture plants of mineral nutrients, especially potassium, phosphorus, copper, zinc and manganese. The soil chemistry workers are specially concerned with the chemistry of soil organic matter, and the soil physics group with the role of the clay minerals in soil water, and the movement and retention of soil phosphorus and sulphur.

In 1966 a Department of Agronomy was established within the Institute. The research activities of the staff of this Department include the work in plant breeding mentioned previously and have been expanded to cover investigations into plant-water relations and agricultural climatology.

This brief review of the very wide range of the research activities of the Institute of Agriculture, at both the fundamental and at the more applied level, illustrates the extent to which it contributes to the assistance and service of the rural industries, indirectly by its training of agricultural scientists and directly through its manifold research projects.

Commonwealth Scientific and Industrial Research Organization

Several Divisions of the Commonwealth Scientific and Industrial Research Organization are actively engaged in research work in Western Australia.

Division of Soils. For some years the Division of Soils has been concerned with soil surveys in many parts of the agricultural areas. While these surveys have been carried out mainly in existing agricultural areas or in new areas proposed for development, they have also been used to build up a picture of the soils and landscapes of the whole State. This work is the basis of part of a recently published *Atlas of Australian Soils*.

These field projects involve the study of the extremely highly-weathered mantles and superficial deposits on which the soils are formed. These bodies of material also constitute the aquifers in which water moves in the landscape and provide a basis for investigations into hydrology and soil salinity in the agricultural areas, initially in the wheatbelt but more recently in the higher-rainfall areas.

An important part of the work of the Division concerns the problem of the nutrition of exotic pines on the lateritic soils of the Darling Scarp and the infertile sands of the Coastal Plain. Yield responses of wheat to fertiliser treatments in relation to soil and other environmental factors are under investigation at a large number of sites throughout the agricultural areas. This has necessitated the development of automated systems for chemical analysis of soil and plant material.

Division of Plant Industry. Most of the activities of the Division of Plant Industry have been directed to the problems of the sheep areas in the south-west of the State. More recently, studies have begun in the higher-rainfall dairying areas and on the sandy soils of the Swan Coastal Plain.

An examination of the influence of environmental factors on the growth and persistence of pasture plants is being continued. While earlier work was devoted largely to clovers, more emphasis is now being given to studying volunteer grasses and herbs in annual pastures. The aim of much of the plant nutrition work is to predict the nutrient requirements of grazed pastures in any specified environment at any time. The main nutrients being examined are phosphorus, sulphur, nitrogen and potassium. A more efficient utilisation of applied nutrients is being sought. Changes in soil organic matter accumulation as a result of agricultural practices of cropping and grazing are under study.

The successful introduction of new legumes for the wheatbelt, and of other pasture plants, is being followed up by critical examination of their production potential in terms of crop or animal product.

Pasture utilisation studies, which are directed primarily towards increasing efficiency of production in sheep, have been increased. There is considerable work in progress on clover infertility, lamb mortality and weaner growth. Grazing management systems are also being studied, as well as stocking rates and the nutritive value of plant species in relation to animal production.

The programme of the Division is centred at the Organization's Western Australian Laboratories at Perth and includes field work at a number of country centres.

Division of Entomology. The study of the ecology and biological control of the pasture pests, Red-legged Earth Mite and Lucerne Flea, is continuing. It appears that the introduced mite, *Anystis* sp. *A.*, a predator of the two pests, is now established. However, the extent of its effect is not yet known. Attempts are being made to establish in Western Australia a bdellid mite, *Neomolgus* sp., a predator of the Lucerne Flea. The mite is to be collected in Morocco and sent to Australia early in 1969.

Jarrah Leaf Miner caused widespread damage to jarrah and flood gum in 1967. It appears that its control by aerial spraying with systemic insecticide is not feasible. The general biology of the leaf miner and methods of sampling of leaves and forest litter are being studied.

Work has commenced on an ecological study of San Jose Scale, a pest of apples. Comprehensive surveys of the incidence and injuriousness of apple pests throughout the south-west are being planned.

Division of Mathematical Statistics. Officers of the Division of Mathematical Statistics are currently investigating the application of statistical methods to special problems of local interest in the fields of the applied biological sciences. In addition, they act in an advisory capacity to other research workers in the State on matters relating to the design of experiments and the analysis and interpretation of data.

Division of Computing Research. A branch of the Division of Computing Research was opened in Perth in 1968. Its function is to provide a computing service for research workers in other Divisions. A small computer, a line printer, a card reader, a paper-tape reader and paper-tape punch have been installed at the Organization's Laboratories. This computer will be connected to the University of Western Australia's computer and so act as a remote terminal to that machine.

Division of Applied Mineralogy. The laboratory of the Division of Applied Mineralogy is concerned mainly with research having a bearing on the mineral industry. The main theme of the laboratory's work is concerned with the elucidation of the chemical and physical nature of the geological processes of mineral formation and alteration. This work is directed towards helping to meet the special challenge of mineral exploration in inland areas, where rock outcrop is scarce and so much of the geology is obscured by the ubiquitous soil cover. Studies are commencing on processes of ore genesis, on the haloes of alteration around ore bodies and on possible methods of recognising indicators of ore bodies that can survive the process of weathering. Some work on drilling research has been continued.

The laboratory, in addition, is acting as a link between manufacturing industry in Western Australia and physical, chemical and metallurgical divisions of the Commonwealth Scientific and Industrial Research Organization.

Division of Wildlife Research. The Division of Wildlife Research, located at Helena Valley, is concerned with investigations on the higher vertebrates (more particularly mammals and birds) and these cover not only species of economic importance but the native fauna generally. The Division played a part, in association with the Department of Agriculture, in the control of rabbits by the introduction of the disease myxomatosis, and carried out a basic research project on the control of the Euro (a species of kangaroo) in the Pilbara district.

Among birds, studies of the ecology of the Emu, of the Wedge-tailed Eagle in the pastoral zone, of the White-tailed Black Cockatoo, and of the Noisy Scrub-bird are proceeding. Other current projects include experimental and field studies on the factors controlling breeding seasons of native birds under Western Australian conditions and surveys of the distribution of the arid-country fauna. The Division organises the Australian Bird-Banding Scheme and conducts a seasonal trapping and marking scheme on the migratory shore-birds at the Pelican Point sanctuary on the Swan River.

Division of Fisheries and Oceanography. The Division of Fisheries and Oceanography has supplied the project leader for the Western Fisheries Research Project set up co-operatively by the Commonwealth Scientific and Industrial Research Organization, the Department of Primary Industry, the State fisheries authorities of Western Australia and South Australia, the Zoology Department of the University of Western Australia, and the Western Australian Museum. At present, the research includes work on crayfish, Australian salmon, prawns, tuna and whales and also on marine sedimentation. Haliotids (abalone), and the development of a sonic buoy for automatic collection of hydrological data. Officers of the Division are stationed at Perth to participate in the research on crayfish. Using a naval frigate and a research vessel of the Western Australian Department of Fisheries and Fauna, the Division is continuing work on the physico-chemical and biological oceanography of the eastern Indian Ocean. The Division has helped to equip and staff a fisheries research laboratory built by the Government of Western Australia on the coast near Perth and opened in October 1968.

Other Activities. Besides the research work being conducted at Perth and associated field stations, various co-operative programmes are under way in University departments and in the Western Australian Department of Agriculture. The Commonwealth Scientific and Industrial Research Organization has several officers stationed at the Kimberley Research Station investigating the crop and pasture problems of the northern areas.

Department of Agriculture

Reference to the scientific work of the Department of Agriculture appears in the section *The Department of Agriculture* in Chapter VIII, Part 1—*Primary Production*.

Chapter V—continued

**Part 3—Health Services, Hospitals, and Homes
for the Aged**

HEALTH SERVICES

Health Administration

The Commonwealth and State Government health authorities, together with Boards of Health under local government administration, co-operate in maintaining health services and in the prevention and control of infectious diseases in Western Australia.

The Department of Health (Commonwealth) is administered, subject to the Minister, by a Director-General of Health. In each State there is a Director of Health responsible to the Director-General. Among the principal functions of the Department is the management of the National Health Services provided under the National Health Act. Information relating to these Services appears in Part 5 of this Chapter.

The Department controls the Australian Quarantine Service for the quarantine of humans, animals and plants. Human quarantine is concerned primarily with the procedures necessary to exclude quarantinable diseases, namely smallpox, plague, cholera, yellow fever, typhus fever, leprosy, and such other diseases as may be declared under the Quarantine Act. Animal quarantine regulates the importation of animals and animal products from overseas, and plant quarantine the importation of all plants and plant products, with the object of excluding plant diseases, insect pests and weeds. In respect of interstate movements of animals and plants, the Quarantine Act becomes operative only when it is considered that Commonwealth action is necessary for the protection of any State or States, and in general the control of interstate movements of animals and plants is the responsibility of State Governments.

The Commonwealth Acoustic Laboratories, of which there is a branch in Perth, provide and maintain, without charge, hearing aids for persons under twenty-one years of age and those entitled to benefits under the Repatriation Act. From 1 April 1968 this service has been available, on payment of a nominal fee, to persons enrolled in the Pensioner Medical Service and their dependants. Reference to the Pensioner Medical Service is made in the section *Medical Benefits* in Part 5 of this Chapter.

The principal Statute relating to the provision and regulation of health services in Western Australia is the *Health Act, 1911-1968* which is administered, subject to the control of the Minister, by a Commissioner of Public Health. The Act is comprehensive in scope and confers on the Commissioner the powers necessary for the prevention and control of infectious diseases; the enforcement of sanitation, building and pure foods standards; the control of nuisances and offensive trades; the regulation of the sale of pesticides and the manufacture of therapeutic substances; and the registration of private hospitals and the licensing of maternity homes. Other Acts under Public Health administration are the Anatomy Act, the Clean Air Act, the Cremation Act, the Poisons Act and the Radioactive Substances Act.

The Health Education Council is established as a statutory body under the provisions of the *Health Education Council Act, 1958-1961*. The Council conducts publicity campaigns and public lectures on matters affecting public health, including home accidents, handling of poisons, poliomyelitis and diphtheria immunisation and the control of flies and mosquitoes.

The Cancer Council of Western Australia is constituted under the provisions of the *Cancer Council of Western Australia Act, 1958-1964* as a statutory body with the functions of co-ordinating, promoting and subsidising research into the cause, diagnosis, prevention and treatment of cancer.

The Department of Public Health has a central laboratory housed in the Sir Charles Gairdner Hospital at Hollywood. At 31 December 1967 there were twenty-three branch laboratories, seventeen of which were located at country centres. The principal activity of the laboratories is the examination of medical and public health specimens, but there is increasing emphasis on research, particularly in the fields of virology, salmonellosis, tuberculosis, unclassified mycobacteria, cytology and coronary disease.

Infectious Diseases

The *Health Act, 1911-1968* provides for the compulsory notification of infectious diseases and for the application of preventive measures. For the purposes of the Act, infectious diseases are those which are specified in the Act, as well as any other diseases which may, from time to time, be declared. The occupier of premises where such a disease occurs is required to notify the local authority forthwith. The medical practitioner who attends a person suffering from an infectious disease must, on the day on which he becomes aware of the nature of the disease, notify the occupier and also the local authority and the Commissioner of Public Health.

On the appearance of any epidemic, endemic or contagious disease, the local authority is required to notify the Commissioner immediately and to report periodically on the disease. The Act provides for the disinfection and cleansing of premises and for the disinfection and destruction of bedding, clothing or other articles which have been exposed to infection. The Commissioner may require any person suspected to be suffering from, or to be a carrier of, an infectious disease to submit to medical examination.

The following table shows, for Western Australia, the number of cases notified during the years 1963 to 1967 for those diseases notifiable in all, or nearly all, States and Territories of Australia. In May 1965 the National Health and Medical Research Council at its Fifty-ninth Session proposed a basic list of diseases to be notifiable in each State and Territory and this table is based upon that proposal. The table does not include all diseases which are notifiable in Western Australia.

NOTIFIABLE DISEASES (a)—NUMBER OF CASES NOTIFIED (b)

Disease	1963	1964	1965	1966	1967
Brucellosis	7	4	3	3	2
Diphtheria	5	3	2	2	....
Infectious hepatitis	144	100	83	28	190
Leprosy (c)	10	11	18	13	12
Leptospirosis	16	4	14	7	2
Paratyphoid fever	3	....	3	1	1
Poliomyelitis	5	....	....	....	....
Tetanus	9	8	1	2	....
Tuberculosis	244	207	177	173	171
Typhoid fever	6	....	2	2	1
Typhus (all forms)	2	....	....	....	2

(a) See letterpress immediately preceding table. (b) Figures exclude cases where the original diagnosis was subsequently disproved. No cases of cholera, plague, smallpox or yellow fever were notified during the period. (c) Aborigines account for practically all of these cases.

Leprosy and trachoma are endemic among the Aborigines of the Kimberley Division in the far north of the State, and cases are, with few exceptions, confined to the Aboriginal population. The Department of Public Health and the Northern Territory Medical Service co-operate in the control of these diseases.

The Commissioner of Public Health may compel any person believed to be suffering from venereal disease to undergo examination by a medical practitioner. Any person who is aware or suspects that he is suffering from venereal disease is required to consult a medical practitioner and, if found to be infected, must continue treatment until a certi-

ificate of cure is issued. Free treatment is available at public hospitals. The number of cases reported to the Department during 1967 was 838, comprising 795 cases of gonorrhoea and 43 cases of syphilis.

A joint campaign of tuberculosis control is conducted by the Commonwealth and State Governments. Under the provisions of the *Tuberculosis Act* 1948, the Commonwealth reimburses the State for capital expenditure incurred after 1 July 1948, and for net maintenance expenditure in excess of that of the base year 1947-48. In addition, the Commonwealth Government pays allowances to tuberculosis sufferers and their dependants, as set out in Part 5 of this Chapter. Western Australia, like the other States, carries out the actual work of diagnosis and treatment. Under the *Health Act, 1911-1968* (State), all persons in Western Australia may be required to undergo X-ray examinations, which are conducted by mobile units of the Tuberculosis Control Branch and at its Perth and Fremantle Chest Clinics.

Special Health Services for Children

In addition to measures provided for immunisation against poliomyelitis, diphtheria and other infectious diseases, Child Health Services and School Medical and Dental Services assist in maintaining the general health of children in Western Australia.

Infant Health Centres have been established throughout the State to advise mothers concerning the care of infants. Expectant mothers are also assisted in this way and country mothers who are unable to attend a Centre may receive advice by letter under a Correspondence Nursing Scheme. It is estimated that three out of every four infants in the State are taken to a Centre at least once in the first year of life. Infant Health Sisters also visit remote areas of the State and interview mothers who are normally dependent on advice given by correspondence.

INFANT HEALTH CENTRES AND CORRESPONDENCE NURSING SCHEME

Particulars	1963	1964	1965	1966	1967
YEAR ENDED 31 DECEMBER					
Infant health centres—					
Number of—					
Centres at end of year	71	72	72	71	71
Attendances of infants	244,956	243,530	231,191	240,401	240,513
Visits to households	23,381	27,131	26,483	27,312	26,400
Correspondence nursing scheme—					
Number of—					
Infants on roll at end of year	1,191	1,316	1,281	1,386	1,550
Letters received	1,172	1,134	999	1,083	1,364
Letters dispatched	5,837	5,982	5,725	5,262	7,176
YEAR ENDED 30 JUNE					
Receipts and payments (a)—	\$'000	\$'000	\$'000	\$'000	\$'000
Receipts—					
Government aid	247	268	268	308	304
Local government aid	4	6	4	3	4
Lotteries Commission grants	11	13	11	7	12
Total	262	286	283	318	320
Payments—					
Salaries and wages	215	228	236	262	260
Travelling expenses, etc.	47	55	51	56	59
Total	262	283	287	318	319

(a) Infant Welfare Centres Trust Account only. Particulars of receipts and expenditure of local committees (e.g. certain expenditure on buildings and motor vehicles) are not available.

Correspondence teaching of parentcraft in schools is conducted by the Child Health Services. During the year ended 30 June 1967, 18,884 lessons and 18,247 letters were received from children and 10,131 letters were dispatched.

The School Medical Services provide for the examination of each child twice during his school life. In addition, a teacher who at any time observes symptoms of illness in a child may refer the matter for attention by a medical practitioner. Parents are notified

of physical defects found during medical examinations and, where a condition needs home supervision, are advised of the action required. Dental defects, ear, nose and throat affections and defective vision are most frequently reported.

The School Dental Services operate mainly in the country, where private dental treatment may not be readily available. Because of limited staff, dental examinations of school children can be repeated only at fairly long intervals, at best about once every two years. Accordingly, in the larger schools, attention is concentrated on the younger children, but at smaller schools all children are examined. Parents are notified of dental treatment required and may have the work done by private dentists or may consent to their children being treated without charge by the schools dentists.

HOSPITALS OTHER THAN MENTAL HOSPITALS

Commonwealth Government Hospitals

The Repatriation General Hospital at Hollywood and the Edward Millen Hospital at Victoria Park provide free medical treatment for ex-servicemen and ex-servicewomen in respect of disabilities which have been accepted as due to war service. With certain exceptions, ex-servicemen or ex-servicewomen who are totally and permanently incapacitated as a result of war service, or who receive war pensions at the intermediate rate, or at the maximum general rate (see letterpress *War Pensions* on page 217) and service pensioners are entitled also to free treatment for disabilities not caused by war service. Widows and children of deceased ex-servicemen whose deaths are accepted as due to war service may also receive free treatment. If the deceased serviceman was unmarried, his widowed mother may receive free treatment if widowed prior to his death or within three years after his death.

State Government and Government-Assisted Hospitals

The *Hospitals Act, 1927-1955* is administered, subject to the direction of the Minister for Health, by the Medical Department. For administrative purposes, a hospital under the direct control of the Medical Department is classified as 'departmental' and is financed from State funds. A hospital classified as a 'Board' hospital has its own board of management and is subsidised by the State Government.

The principal government and government-assisted hospitals are the Royal Perth Hospital, Fremantle Hospital, Sir Charles Gairdner Hospital, King Edward Memorial Hospital for Women, Princess Margaret Hospital for Children, the Home of Peace for the Chronic Sick, the Perth Dental Hospital, and Mount Henry Infirmary and Sunset Infirmary for geriatric patients.

DEPARTMENTAL AND BOARD HOSPITALS (a)

Particulars	At 30 June—				
	1963	1964	1965	1966	1967 (b)
Number of hospitals—					
Departmental	39	39	40	40	42
Board	54	53	52	57	55
Total	93	92	92	97	97
Medical staff—					
Visiting	392	423	408	420	422
Salaried	173	192	203	228	210
Total	565	615	611	648	632
Nursing staff—					
Matrons and nurses	1,170	1,144	1,191	1,229	1,530
Trainees	1,088	1,172	1,129	1,159	1,076
Nursing assistants	1,060	1,111	1,196	1,337	1,643
Total	3,318	3,427	3,516	3,725	4,249

(a) Excluding Perth Dental Hospital. (b) Figures include, for the first time, particulars of Mount Henry Infirmary and Sunset Infirmary for geriatric patients.

The following table gives details of the activities of departmental and Board hospitals during the five years ended 30 June 1967.

DEPARTMENTAL AND BOARD HOSPITALS (a)
BED CAPACITY AND PATIENTS

Particulars	Year ended 30 June—				
	1963	1964	1965	1966	1967 (b)
Beds and cots at end of year—					
In departmental hospitals	1,932	2,048	2,123	2,137	3,257
In board hospitals—					
Metropolitan	1,954	1,972	1,965	2,218	2,322
Country	1,163	1,142	1,091	1,136	1,120
Total	5,049	5,162	5,179	5,491	6,699
In-patients—					
Number at beginning of year—					
Males	1,288	1,492	1,593	1,642	2,137
Females	1,593	1,732	1,874	1,929	2,548
Admissions—					
Males	46,667	49,657	52,216	55,026	56,113
Females	57,229	59,413	62,800	65,404	67,501
Discharges—					
Males	45,207	48,191	50,693	53,422	54,415
Females	56,087	58,157	61,538	64,077	66,128
Deaths—					
Males	1,256	1,365	1,474	1,493	1,706
Females	1,003	1,114	1,207	1,132	1,388
Number at end of year—					
Males	1,492	1,593	1,642	1,753	2,129
Females	1,732	1,874	1,929	2,124	2,533
Total	3,224	3,467	3,571	3,877	4,662
Average daily number resident	3,103	3,284	3,396	3,588	4,534
Out-patients—Total attendances	458,030	488,261	535,727	587,608	610,201

(a) Excluding Perth Dental Hospital. (b) Figures include, for the first time, particulars of Mount Henry Infirmary and Sunset Infirmary for geriatric patients.

Departmental and Board hospitals collect fees from patients able to pay for treatment, and receive Commonwealth hospital benefit payments provided under Part V of the *National Health Act 1953-1968*, but are financed mainly from State Government funds.

DEPARTMENTAL AND BOARD HOSPITALS (a)
RECEIPTS AND PAYMENTS
(\$'000)

Particulars	Year ended 30 June—				
	1963	1964	1965	1966	1967 (b)
Receipts—					
From government funds	16,782	18,398	22,523	23,861	26,862
Local government aid	2	3	2	1	4
Public subscriptions, legacies, etc.	190	423	*881	*448	570
Fees	6,187	6,400	6,115	6,952	7,749
Other	84	135	208	178	404
Total	23,246	25,358	*29,729	*31,441	35,589
Payments—					
Maintenance—					
Salaries and wages	11,654	12,733	13,808	15,341	19,255
Other	7,160	7,950	8,988	9,820	10,867
Capital expenditure	4,616	4,647	*6,761	*6,604	6,152
Total	23,429	25,331	*29,557	*31,765	36,275

(a) Excluding Perth Dental Hospital. (b) Figures include, for the first time, particulars of Mount Henry Infirmary and Sunset Infirmary for geriatric patients. * Revised.

As previously indicated, the control of tuberculosis is chiefly a State Government activity, supported by Commonwealth subsidies and carried out under the direction of the Commissioner of Public Health. The principal institution for the treatment of tuberculosis is the Sir Charles Gairdner Hospital at Hollywood which was opened in 1958 as the Perth Chest Hospital.

There is a leprosarium at Derby in the Kimberley Division.

Private Hospitals

In addition to the government hospitals there are a number of private general and maternity hospitals, which are registered and inspected by the Department of Public Health. The principal private hospitals are those established by religious bodies in the metropolitan area and the main country towns. These include the Hospitals of Saint John of God at Subiaco, Belmont, Bunbury, Geraldton, Kalgoorlie and Northam; Saint Anne's, Mount Lawley; the Mount Hospital, Perth and the Hillcrest Maternity Hospital, North Fremantle.

Private hospitals collect fees from patients and receive Commonwealth hospital benefit payments provided under Part V of the *National Health Act* 1953-1968. At 30 June 1967 there were ninety-seven private hospitals in Western Australia approved for payment of hospital benefits under the Act. These hospitals had a total bed capacity of 3,025 at that date.

MENTAL HEALTH SERVICES

The *Mental Health Act, 1962-1968*, which consolidates and amends the law relating to the treatment of mental disorders, came into operation on 1 July 1966. By its provisions, the Lunacy Act, the Inebriates Act, the Mental Treatment Acts and the Mental Treatment (War Service Patients) Act are repealed.

The Mental Health Services established under the Act are administered, subject to the control of the Minister for Health, by the Director of Mental Health Services. The Director must be a psychiatrist and is appointed by the Governor. Institutions authorised by the Act include hospitals for the treatment of mental illness, reception homes, out-patient and child guidance clinics, day hospitals, training centres, geriatric centres, hostels, and sheltered workshop units.

The Act provides for the admission of patients to hospitals approved for the purpose, either on referral by a medical practitioner or by order of a Justice of the Peace supported by the referral of a medical practitioner. A person so received into a hospital must be examined within 72 hours by the superintendent or another psychiatrist, and admission as a patient is dependent upon the result of the examination. Unless found to be in need of treatment, the person is required to leave the hospital. Special provisions exist for the detention for observation or treatment of persons admitted by order of a court or from a prison. The Act also provides for voluntary admissions. A person not less than eighteen years of age may be granted admission on his own request. Younger persons may be admitted on the application of a parent or guardian.

Except in the case of a person admitted by order of a court or from a prison, a patient may be released on leave or discharged by the hospital superintendent. A Board of Visitors or the Supreme Court of Western Australia may also, after due consideration, order the release of a patient. Where application for the discharge of a voluntary patient is made either by the patient himself or, in the case of a patient under the age of eighteen years, by the parent or guardian at whose request the patient was admitted, he must be discharged within 72 hours.

The principal institution of the Mental Health Services is the Claremont Hospital. Other institutions include the Nathaniel Harper Homes for Children, Heathcote Hospital, Lemnos Hospital, Whitby Falls Hostel, Greenplace Hostel, the Selby Community Clinic, the Havelock Out-patient Clinic, the Fremantle Out-patient Clinic, the Child Guidance Clinic, the Forensic Division, the Irrabeena Referral Centre, the Industrial Rehabilitation Unit and a rehabilitation hostel at Belmont.

A training centre for the intellectually handicapped is being developed at Bassendean and accepted its first patients early in 1967. The former North Fremantle Technical School was acquired by the Mental Health Services and commenced operation in 1966 as a sheltered workshop for the intellectually handicapped.

The following table shows particulars concerning the mental health service units operated by the Mental Health Services authority during the year ended 30 June 1968.

MENTAL HEALTH SERVICES—YEAR ENDED 30 JUNE 1968

Particulars	Approved hospitals	Rehabilitation units	Hostels	Training centres	Out-patient clinics
Number of units at 30 June	3	4	5	2	7
Number of staff at 30 June—					
Medical	17	....	....	2	30
Nursing and attendants	497	....	16	87	25
Other	459	30	10	64	52
Total staff	973	30	26	153	107
Number of persons—					
On register at beginning of year	2,178	319	157	83	(a) 8,858
Admissions	2,656	154	159	109	(b) 35,637
Discharges (c)	2,851	198	147	105	n.a.
On register at end of year	2,091	275	169	87	(d)

n.a. denotes 'not applicable'.

(a) Patients treated during the year ended 30 June 1968. (b) Number of out-patient attendances.
(c) Includes deaths and, in the case of 'approved hospitals', includes patients discharged from hospitals for after care. (d) Not applicable; see note (a).

CARE OF AGED AND DISABLED PERSONS

Aged Persons Homes Act

Under the provisions of the *Aged Persons Homes Act 1954-1967* the Commonwealth Government extends financial assistance to religious, charitable and other organisations in providing accommodation for the aged. The Act is administered, subject to any directions of the Minister, by the Director-General of Social Services.

Grants are made to organisations 'to encourage and assist the provision of suitable homes for aged persons, and in particular homes at which aged persons may reside in conditions approaching as nearly as possible normal domestic life . . .'. For the purposes of the Act, the term 'aged person' means a man aged sixty-five years or over or a woman aged sixty years or over and includes the spouse of the aged person. The Act authorises grants to eligible organisations to be applied towards the cost of erecting or purchasing approved homes to be used permanently for the accommodation of aged persons. To be eligible for assistance an organisation must be one which is carried on otherwise than for the purpose of profit or gain to its individual members, and may be a religious, charitable or benevolent organisation, an organisation of former members of the defence forces, an organisation approved by the Governor-General, or a local governing body. An organisation conducted or controlled by the Government of the Commonwealth or of a State is not eligible for assistance.

When the original Act commenced on 16 December 1954 the grant was made on the basis of \$1 for each \$1 raised by the organisation excluding borrowed money and money received from a governmental body. An amending Act, operative from 22 October 1957, increased the Commonwealth contribution to \$2 for each \$1 raised by the organisation. Grants are made from moneys appropriated by the Parliament from the Consolidated Revenue Fund.

From the inception of the scheme to 30 June 1967, 103 grants aggregating \$6.09 million had been made to organisations in Western Australia to provide accommodation for 2,354 persons.

A supplementary grant may be approved in a year subsequent to the year when the original grant was approved. In the following table each supplementary grant has been included in the year in which the additional amount was actually approved.

AGED PERSONS HOMES GRANTS—WESTERN AUSTRALIA

Particulars	Year ended 30 June—					From inception to 30 June 1967
	1963	1964	1965	1966	1967	
Number of grants	15	9	12	14	13	103
Number of persons accommodated	408	188	255	420	258	2,354
Amount of grants approved	\$'000 933	\$'000 574	\$'000 814	\$'000 1,372	\$'000 888	\$'000 6,094

Sheltered Employment (Assistance) Act

The *Sheltered Employment (Assistance) Act 1967* (Commonwealth), which came into operation on 30 June 1967, repealed the *Disabled Persons Accommodation Act 1963* but incorporated and expanded the provisions of the repealed Act relating to assistance by the Commonwealth towards the provision of sheltered employment and accommodation for certain disabled persons. The Act is administered, subject to any directions of the Minister, by the Director-General of Social Services.

Grants are made to eligible organisations, deemed by the Minister to provide employment for disabled persons, as assistance towards meeting the cost of the purchase, construction or alteration of approved premises or the purchase of land for the provision of sheltered employment; the purchase or construction of approved residential accommodation for persons engaged in sheltered employment; rent payable in respect of approved premises; and the purchase of approved equipment.

A 'disabled person' in terms of the Act is one who, for the purposes of the Social Services Act, is 'permanently incapacitated for work or whose physical or mental condition is such that, in the opinion of the Director-General, he would become so permanently incapacitated for work if he were not provided with sheltered employment; or who is permanently blind'.

To be eligible for assistance an organisation must be one which is carried on otherwise than for the purpose of profit or gain to its individual members, and may be a religious, charitable or benevolent organisation, an organisation of former members of the defence forces, an organisation approved by the Governor-General, or a local governing body. An organisation conducted or controlled by the Government of the Commonwealth or of a State is not eligible for assistance.

The amount of a grant in respect of approved premises or residential accommodation is limited to two-thirds of the capital cost as determined by the Director-General, or twice the amount of the funds of the eligible organisation available for expenditure towards the capital cost of the project, whichever is the less. Commonwealth assistance towards the rent of approved premises or the cost of approved equipment is limited to two-thirds of the amount of rent or the cost of equipment. Grants are made from moneys appropriated by the Parliament from the Consolidated Revenue Fund.

During the year ended 30 June 1968, the first year of operation of the Act, ten grants were made to organisations in Western Australia. The aggregate value of these grants was \$44,454, comprising \$25,948 for workshop premises, \$18,173 for workshop equipment, and \$333 for workshop rental.

Sheltered Employment Allowances

During 1967, an amendment was made to the Social Services Act to permit invalid pensioners and certain other disabled persons to earn an income from sheltered employment, and at the same time to be eligible to receive a special allowance which, in the case of an invalid pensioner, replaces the pension. The maximum rate of the sheltered em-

ployment allowance is the same as the maximum rate of invalid pension (see letterpress *Age and Invalid Pensions* in Part 5 of this Chapter). The purpose of the allowance is to provide an incentive for disabled persons, whether in receipt of an invalid pension or not, to engage in gainful employment.

Provision is made in the Act for the maximum amount which may be earned from sheltered employment without affecting the special allowance and for reduction of the allowance where earnings exceed the prescribed amount.

Payments of allowances are met from the National Welfare Fund and commenced on 6 July 1967. During the period to 30 June 1968 expenditure in Western Australia amounted to \$5,330.

*Chapter V—continued***Part 4—Housing and Building****HOUSING AND THE CENSUS**

NOTE. Dwellings occupied solely by full-blood Aborigines are excluded from all tables in this Part which contain information derived from the Census of Population and Housing. Such dwellings were excluded from the Census tabulations in accordance with the requirements of section 127 (now repealed) of the Australian Constitution; see letterpress Aborigines on page 124.

Census particulars relating to dwellings at 30 June 1966, as shown in the tables in this Part, are subject to amendment.

The definitions given below are relevant when considering data derived from the Census of Population and Housing.

OCCUPIED DWELLING. For the purpose of the Census of Population and Housing an occupied dwelling is any habitation occupied by a household group living together as a domestic unit, and may comprise the whole of a building or only part of it. The term has therefore a very wide reference and includes, in addition to houses and flats, a great variety of dwellings ranging from a single-roomed shack to a multi-roomed hotel or institution.

UNOCCUPIED DWELLINGS include vacant dwellings available for sale or renting; dwellings such as week-enders or holiday homes and seasonal workers' quarters which were not occupied on Census night; dwellings normally occupied but whose occupants were temporarily absent on the night of the Census; newly-completed dwellings whose owners or tenants had not entered into occupation on Census night; and dwellings described as 'to be demolished', 'condemned', 'exhibition home', etc. The total number of unoccupied dwellings does not, therefore, represent the number of vacant houses and flats available for sale or renting.

PRIVATE DWELLINGS comprise the following classes:

PRIVATE HOUSE, which includes semi-detached houses; terrace houses; and shared private houses for which only one Householder's Schedule was received.

SHARE OF PRIVATE HOUSE. A share of a private house is a portion of a shared private house which is occupied separately and for which portion a separate Householder's Schedule was furnished.

SELF-CONTAINED FLAT. A self-contained flat is part of a house or other building which can be completely closed off and which has its own cooking and bathing facilities. Home units are included in this class.

SHARE OF SELF-CONTAINED FLAT is that portion of a shared self-contained flat for which a separate Householder's Schedule was furnished.

SHED, HUT, TENT, ETC. includes sheds, huts, tents, garages, caravans and boats, which are used for dwelling purposes.

OTHER PRIVATE DWELLINGS include flats (not self-contained) and dwellings such as rooms, apartments, etc. which are parts of buildings but are not self-contained units.

Dwellings at Censuses from 1901

The following table shows the numbers of occupied and unoccupied dwellings recorded in Western Australia at each Census from 1901 to 1966.

DWELLINGS—CENSUSES, 1901 TO 1966

Census date	Occupied dwellings				Unoccupied dwellings
	Private		Non-private	Total	
	Number	Average number of inmates			
1901—31 March	(a) 46,436	(b) 3.35	2,070	48,506	2,263
1911—3 April	(c) 66,553	(d) 3.68	2,317	68,870	3,158
1921—4 April	70,185	4.11	3,363	73,548	3,274
1933—30 June	100,441	3.95	3,137	103,578	4,029
1947—30 June	122,078	3.73	(e) 2,689	124,767	2,606
1954—30 June	159,496	3.64	(e) 3,327	162,823	6,614
1961—30 June	191,616	3.59	(e) 2,701	194,317	13,705
1966—30 June	221,444	3.52	(e) 3,219	224,663	17,965

(a) Comprises 17,702 dwellings of calico, canvas, and hessian, with an average of 2.10 inmates, and 28,734 other dwellings with an average of 4.12 inmates.
 (b) See note (a). (c) Comprises 14,216 dwellings of calico, canvas, and hessian, with an average of 1.93 inmates, and 52,337 other dwellings with an average of 4.16 inmates. (d) See note (c). (e) For further details see next table.

Class of Dwelling

The following table shows the number of occupied dwellings in Western Australia according to class of dwelling at each Census from 1947 to 1966. Private houses constituted 90.7 per cent of all occupied private dwellings in 1966 compared with 91.6 per cent in 1961. The proportion of self-contained flats to total occupied private dwellings increased from 4.53 per cent in 1961 to 6.36 per cent in 1966.

DWELLINGS ACCORDING TO CLASS
CENSUSES, 1947 TO 1966

Class of dwelling	Census, 30 June—			
	1947	1954	1961	1966
Occupied dwellings—				
Private dwellings—				
Private house	(a) 110,576	140,383	175,495	200,900
Share of private house	5,969	7,487	2,788	844
Self-contained flat	4,021	5,257	8,672	14,074
Share of self-contained flat				18
Shed, hut, tent, etc.	(b) 4,480	4,480	3,641	3,439
Other private dwellings	1,512	1,889	1,020	2,169
Total, Private dwellings	122,078	159,496	191,616	221,444
Non-private dwellings—				
Caretaker's quarters	124	156	(c)	(c)
Licensed hotel	454	445	451	456
Motel	1,581	1,594	6	43
Boarding house, etc.			(d) 1,083	904
Educational institution	106	127	(d) 70	55
Religious institution	11	20	(d) 100	125
Charitable institution	47	69	55	55
Hospital	143	138	151	188
Staff barracks			630	799
Other non-private dwellings	223	778	155	594
Total, Non-private dwellings	2,689	3,327	2,701	3,219
Total, Occupied dwellings	124,767	162,823	194,317	224,663
Unoccupied dwellings	2,606	6,614	13,705	17,965

(a) Includes 'shed, hut, tent, etc.' (b) Not recorded separately; included with 'private house'. (c) Classified to 'private dwellings'. (d) Certain institutions previously classified as 'Educational' were classified as 'Religious'.

Material of Outer Walls

Brick and brick veneer predominated as materials of outer walls of occupied private dwellings in Western Australia at both the 1961 and 1966 Censuses, representing 42.7 per cent of private houses and 75.9 per cent of self-contained flats in 1961, and 49.9 per cent and 80.3 per cent in 1966. Fibro-cement was next in importance, being used in 31.7 per cent of private houses in 1961 and 30.5 per cent in 1966. The proportion of private houses with outer walls of wood declined from 16.9 per cent in 1961 to 13.1 per cent in 1966.

OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS MATERIAL OF OUTER WALLS: CENSUSES, 1961 AND 1966

Material of outer walls	Private house				Self-contained flat			
	Census, 30 June—							
	1961	1966			1961	1966		
	Total, private houses	Perth Statistical Division	Other Divisions	Total	Total, self-contained flats	Perth Statistical Division	Other Divisions	Total
Brick	74,939	81,812	7,554	89,366	6,579	10,382	688	11,070
Brick veneer (a)		9,451	1,487	10,938		191	40	231
Stone	3,303	1,562	1,518	3,080	238	194	49	243
Concrete	4,815	2,174	2,487	4,661	156	366	46	412
Wood	29,744	12,440	13,802	26,242	474	287	281	568
Iron, tin	5,330	386	3,702	4,088	153	15	166	181
Fibro-cement	55,637	31,083	30,204	61,287	1,043	629	729	1,358
Other	1,615	141	1,097	1,238	19	8	3	11
Not stated	112	(b)	(b)	(b)	10	(b)	(b)	(b)
Total	175,495	139,049	61,851	200,900	8,672	12,072	2,002	14,074

(a) So described in individual Census schedules. (b) In the small number of cases where material of outer walls was not stated a material was selected during processing of the 1966 Census schedules.

Nature of Occupancy

At the 1961 Census, 73.8 per cent of private houses in Western Australia were occupied by owners including purchasers by instalments, compared with 74.9 per cent in 1966. In the same period the proportion of private houses occupied by tenants, including tenants of government-owned houses, declined from 23.8 per cent to 22.8 per cent. Of the total number of occupied self-contained flats at the 1961 Census, 84.4 per cent were occupied by tenants and 12.7 per cent by owners. At the 1966 Census the proportions were 83.9 per cent and 13.4 per cent.

OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS NATURE OF OCCUPANCY: CENSUSES, 1961 AND 1966

Nature of occupancy	Private house				Self-contained flat			
	Census, 30 June—							
	1961	1966			1961	1966		
	Total, private houses	Perth Statistical Division	Other Divisions	Total	Total, self-contained flats	Perth Statistical Division	Other Divisions	Total
Owner (a)	129,583	109,647	40,864	150,511	1,100	1,573	306	1,879
Tenant	41,710	27,734	17,985	45,719	7,315	10,261	1,548	11,809
Caretaker	1,784	946	1,256	2,202	163	163	61	224
Other	1,867	416	1,221	1,637	72	35	50	85
Not stated	551	306	524	830	22	40	37	77
Total	175,495	139,049	61,851	200,900	8,672	12,072	2,002	14,074

(a) Including purchaser by instalments.

Facilities

At the 1961 Census the question on facilities (gas, electricity, television set) was answered in relation to 190,457 private dwellings in Western Australia. Of this total, 61·3 per cent had electricity only, 33·5 per cent had both electricity and gas, and 4·99 per cent had neither electricity nor gas. At the 1966 Census, when replies were furnished in relation to 220,620 private dwellings, the proportions were 60·8 per cent with electricity only, 37·1 per cent with both electricity and gas, and 1·64 per cent with neither electricity nor gas.

At the 1961 Census, 37·5 per cent of occupied private dwellings were stated to have a television set, compared with 68·6 per cent in 1966.

**OCCUPIED PRIVATE DWELLINGS
FACILITIES: CENSUSES, 1961 AND 1966**

Facilities	Census, 30 June—							
	1961	1966						All occupied private dwellings (a)
	All occupied private dwellings (a)	Private house			Self-contained flat			
		Perth Statistical Division	Other Divisions	Total	Perth Statistical Division	Other Divisions	Total	
Gas only	432	118	613	731	8	14	22	1,143
Electricity only	116,758	85,220	41,422	126,642	3,887	1,371	5,258	134,065
Gas and electricity	63,767	53,192	17,224	70,416	8,148	585	8,733	81,787
Neither gas nor electricity	9,500	404	2,246	2,650	5	15	20	3,628
Not stated	1,159	115	346	461	24	17	41	821
Total	191,616	139,049	61,851	200,900	12,072	2,002	14,074	221,444
Television set	71,788	118,066	24,482	142,548	7,653	473	8,126	152,013

(a) Total for Western Australia; details for Perth Statistical Division not available separately.

Motor Vehicles

The question concerning motor vehicles used by members of households (see footnote to following table) was included in the Census schedule in 1966 for the first time. Of the total of 198,097 occupied private houses in Western Australia for which replies were received, 17·8 per cent had no vehicle, 53·7 per cent had one vehicle, 20·9 per cent had two vehicles, 5·37 per cent had three vehicles, and 2·19 per cent had four or more vehicles. The corresponding proportions for self-contained flats were 35·6 per cent, 53·5 per cent, 9·24 per cent, 1·31 per cent, and 0·32 per cent.

**OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS
NUMBER OF MOTOR VEHICLES (a): CENSUS, 30 JUNE 1966**

Number of motor vehicles (a)	Private house			Self-contained flat		
	Perth Statistical Division	Other Divisions	Total	Perth Statistical Division	Other Divisions	Total
No vehicle	27,465	7,872	35,337	4,372	499	4,871
1 vehicle	75,935	30,483	106,418	6,241	1,085	7,326
2 vehicles	27,719	13,657	41,376	1,008	257	1,265
3 vehicles	5,092	5,544	10,636	131	48	179
4 or more vehicles	1,100	3,233	4,333	26	18	44
Not stated	1,738	1,062	2,800	294	95	389
Total, houses, flats	139,049	61,851	200,900	12,072	2,002	14,074
Total vehicles (a)	151,394	89,203	240,597	8,783	1,827	10,610

(a) Householders were asked to state 'the number of Motor Vehicles (excluding Motor Cycles and Scooters) used by members of this household that were garaged or parked at or near this dwelling for the night of Thursday, 30th June'.

Unoccupied Dwellings

For dwellings not occupied on the night of the Census, collectors were required to determine as many particulars as possible and, where the information was available, to enter on the Census schedule the reason why the dwelling was unoccupied. That this information could not be ascertained in a high proportion of cases is evident from the numbers shown in the following table in the category 'Other and not stated', equivalent to 17.5 per cent of all unoccupied dwellings in 1961 and 34.1 per cent in 1966.

UNOCCUPIED DWELLINGS CENSUSES, 1961 AND 1966

Reason for being unoccupied	Census, 30 June—	
	1961	1966
For sale or for renting	2,538	2,795
Holiday home, week-ender, seasonal workers' quarters....	4,911	5,367
Occupants temporarily absent	3,541	3,281
To be demolished, condemned	310	392
Other and not stated	2,405	6,130
Total	13,705	17,965

Geographical Distribution of Dwellings

Statistical Divisions. The following tables show the numbers and proportions of occupied dwellings in each of the Statistical Divisions of Western Australia at each Census from 1911 to 1966, and a dissection according to class of dwelling at the Censuses of 1961 and 1966.

Between the Censuses of 1961 and 1966, the number of occupied private houses in the Perth Statistical Division increased by 18.4 per cent compared with an increase of 6.46 per cent in the rest of the State. The number of occupied self-contained flats rose by 65.7 per cent in the Perth Statistical Division and 44.5 per cent in the rest of the State. The total number of occupied private dwellings in the Perth Statistical Division rose by 19.9 per cent. Other Divisions showing an increase were North-West, 75.6 per cent; Kimberley, 63.1 per cent; Pilbara, 59.7 per cent; Northern Agricultural, 11.1 per cent; Southern Agricultural, 8.19 per cent; South-West, 5.07 per cent; and Central Agricultural, 2.58 per cent. Divisions in which a decrease was recorded were Central, 11.4 per cent, and Eastern Goldfields, 2.28 per cent.

OCCUPIED DWELLINGS IN STATISTICAL DIVISIONS—CENSUSES, 1911 TO 1966 (Figures compiled on the basis of the 1966 boundaries)

Statistical Division (a)	Census date						
	1911 3 April	1921 4 April	1933 30 June	1947 30 June	1954 30 June	1961 30 June	1966 30 June
Perth Statistical Division	24,358	35,190	53,394	74,478	102,745	129,488	154,985
Other Divisions—							
South-West	7,381	8,319	12,544	13,611	17,336	18,714	19,703
Southern Agricultural	3,903	4,654	6,410	6,522	9,159	10,775	11,688
Central Agricultural	8,115	9,026	12,352	10,872	13,378	14,097	14,540
Northern Agricultural	2,953	3,846	5,963	5,691	7,403	8,338	9,345
Eastern Goldfields	17,058	9,808	9,271	10,614	9,607	9,389	9,257
Central	3,261	1,344	2,247	1,628	1,205	1,015	926
North-West	416	389	526	506	749	922	1,624
Pilbara	856	414	323	322	564	643	1,047
Kimberley	569	558	548	523	677	936	1,548
Total	44,512	38,358	50,184	50,289	60,078	64,829	69,678
WESTERN AUSTRALIA	68,870	73,548	103,578	124,767	162,823	194,317	224,663

(a) For component local government areas, see map at back of Year Book.

**OCCUPIED DWELLINGS IN STATISTICAL DIVISIONS—CENSUSES, 1911 TO 1966
PERCENTAGE DISTRIBUTION**

(Figures compiled on the basis of the 1966 boundaries)

Statistical Division (a)	Census date						
	1911 3 April	1921 4 April	1933 30 June	1947 30 June	1954 30 June	1961 30 June	1966 30 June
Perth Statistical Division	35·37	47·85	51·55	59·69	63·10	66·64	68·99
Other Divisions—							
South-West	10·72	11·31	12·11	10·91	10·65	9·63	8·77
Southern Agricultural	5·67	6·33	6·19	5·23	5·63	5·55	5·20
Central Agricultural	11·78	12·27	11·93	8·71	8·22	7·25	6·47
Northern Agricultural	4·29	5·23	5·76	4·56	4·55	4·29	4·16
Eastern Goldfields	24·77	13·34	8·95	8·51	5·90	4·83	4·12
Central	4·74	1·83	2·17	1·30	0·74	0·52	0·41
North-West	0·60	0·53	0·51	0·41	0·46	0·47	0·72
Pilbara	1·24	0·56	0·31	0·26	0·35	0·33	0·47
Kimberley	0·83	0·76	0·53	0·42	0·42	0·48	0·69
Total	64·63	52·15	48·45	40·31	36·90	33·36	31·01
WESTERN AUSTRALIA	100·00	100·00	100·00	100·00	100·00	100·00	100·00

(a) For component local government areas, see map at back of Year Book.

**OCCUPIED DWELLINGS IN STATISTICAL DIVISIONS—CLASS OF DWELLING
CENSUSES, 1961 AND 1966**

Statistical Division (a)	Private dwellings						Total, private dwellings	Non- private dwellings	Total, occupied dwellings
	Private house	Share of private house	Self-con- tained flat	Share of self-con- tained flat	Shed, hut, tent, etc.	Other			
CENSUS, 30 JUNE 1961									
Perth Statistical Division	117,397	2,258	7,287		544	815	128,301	1,187	129,488
Other Divisions—									
South-West	17,292	167	419		544	44	18,466	248	18,714
Southern Agricultural	9,716	72	205		568	20	10,581	194	10,775
Central Agricultural	12,902	146	183		577	22	13,830	267	14,097
Northern Agricultural	7,415	77	149		449	28	8,118	220	8,338
Eastern Goldfields	8,112	50	372	(b)	555	74	9,163	226	9,389
Central	778	....	7		147	....	932	83	1,015
North-West	720	4	22		81	8	835	87	922
Pilbara	487	6	12		62	1	568	75	643
Kimberley	676	8	16		114	8	822	114	936
Total	58,098	530	1,385		3,097	205	63,315	1,514	64,829
WESTERN AUSTRALIA	175,495	2,788	8,672		3,641	1,020	191,616	(c) 2,701	194,317

CENSUS, 30 JUNE 1966

Perth Statistical Division	139,049	707	12,072	18	290	1,751	153,887	1,098	154,985
Other Divisions—									
South-West	18,398	34	561	....	308	102	19,403	300	19,703
Southern Agricultural	10,672	13	291	....	417	55	11,448	240	11,688
Central Agricultural	13,378	23	325	....	409	52	14,187	353	14,540
Northern Agricultural	8,251	16	271	....	417	68	9,023	322	9,345
Eastern Goldfields	7,848	32	405	....	556	114	8,955	302	9,257
Central	686	3	11	....	123	3	826	100	926
North-West	966	6	50	....	431	13	1,466	158	1,624
Pilbara	645	2	30	....	226	5	908	139	1,047
Kimberley	1,007	8	58	....	262	6	1,341	207	1,548
Total	61,851	137	2,002	....	3,149	418	67,557	2,121	69,678
WESTERN AUSTRALIA	200,900	844	14,074	18	3,439	2,169	221,444	(c) 3,219	224,663

(a) For component local government areas, see map at back of Year Book.
dissection according to class of dwelling see second table on page 197.

(b) Not tabulated separately.

(c) For

Australian States. The following table gives a dissection according to class of dwellings recorded in each of the Australian States and in Australia as a whole at the Census of 30 June 1966.

DWELLINGS ACCORDING TO CLASS—AUSTRALIAN STATES
CENSUS, 30 JUNE 1966

Class of dwelling	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Australia (a)
Occupied dwellings—							
Private dwellings—							
Private house	961,077	752,775	381,680	271,044	200,900	88,776	2,681,718
Share of private house	11,496	9,166	1,586	2,140	844	469	25,914
Self-contained flat	164,380	92,166	43,069	20,802	14,074	7,036	345,585
Share of self-contained flat	666	277	104	61	18	22	1,168
Shed, hut, tent, etc.	12,309	3,725	7,952	1,938	3,439	882	31,056
Other private dwellings	28,194	23,338	7,759	3,644	2,169	1,093	66,478
Total, Private dwellings	1,178,122	881,447	442,150	299,629	221,444	98,278	3,151,919
Non-private dwellings—							
Licensed hotel	1,939	1,532	1,101	593	456	267	5,938
Motel	444	205	298	74	43	29	1,124
Boarding house, etc.	5,417	3,786	1,535	892	904	346	13,113
Educational institution	186	114	104	36	55	19	525
Religious institution	500	280	218	80	125	43	1,274
Charitable institution	188	161	62	52	55	26	562
Hospital	458	416	190	191	188	48	1,500
Staff barracks	1,629	744	3,238	605	799	240	7,607
Other non-private dwellings	655	298	272	161	594	66	2,086
Total, Non-private dwellings	11,416	7,536	7,018	2,684	3,219	1,084	33,729
Total, Occupied dwellings	1,189,538	888,983	449,168	302,313	224,663	99,362	3,185,648
Unoccupied dwellings	101,545	64,757	41,818	25,110	17,965	10,800	263,872

(a) Includes Northern Territory (7,499 occupied private dwellings and 568 occupied non-private dwellings) and Australian Capital Territory (23,350 occupied private dwellings and 204 occupied non-private dwellings).

GOVERNMENT AND GOVERNMENT-SPONSORED HOUSING

The State Housing Commission

The State Housing Commission was established in January 1947 under the State Housing Act of 1946 to replace the Workers' Homes Board which had been created in 1912 to 'erect and dispose of workers' dwellings, and to make advances to people of limited means to provide homes for themselves'. The Act confers on the Commission the legal authority formerly vested in the Board and has as its objects 'the improvement of existing housing conditions' and 'the provision of adequate and suitable housing accommodation for persons of limited means and certain other persons not otherwise adequately housed'. The legislation is comprehensive in scope, providing for the erection of homes for workers, the making of advances to workers for the purchase of homes, the erection of homes for letting on a weekly rental basis, the acquisition and development of land, the clearing of slums, the erection of hostels and the planning of community facilities.

The Commission consists of seven members of whom two must be officers of the State Public Service, one a representative of the building trades unions, one a registered builder (or a person qualified to be so registered), one a woman, one a discharged member of the Forces, and one a person with a wide knowledge of and experience in housing conditions in the State. The functions of the Commission include the State-wide provision of low-cost housing for purchase or rental by families of low and moderate income, under the authority of the State Housing Act and of the Commonwealth and State Housing Agreements; the administration of the Building Societies Act and the Housing Loan Guarantee Act; the administration of the War Service Homes Act (Commonwealth) as it applies to Western Australia; the provision of administrative and other services for the McNess Housing Trust; and the construction and maintenance of dwellings on behalf of the Government Employees' Housing Authority.

Operations under the State Housing Act. Under the authority of the *State Housing Act, 1946-1968*, the State Housing Commission uses funds provided by the State Government to build dwellings for sale and to lend money for home building. Eligibility for assistance is restricted to persons with income below a prescribed amount, which varies according to movements in the State basic wage, but north of 26°S. latitude the Minister may allow assistance to a family having a higher income. Loans of up to \$6,000 (or more, in some cases) may be made on a minimum deposit of \$200 including the ingoing fees (or less, at the discretion of the Commission), the maximum period of repayment being forty-five years. The rate of interest (30 June 1968) is 5½ per cent per annum reducible.

Various forms of assistance have been granted to encourage home ownership, including loans secured by mortgage, advances made under contract of sale, advances for acquiring homes under leasehold conditions, second mortgage loans and loans for the completion of partly-built dwellings.

Operations under Commonwealth and State Housing Agreements. The final draft of an agreement on housing between the Commonwealth and State Governments was prepared at the Conference of Premiers in August 1945 and was later ratified by Commonwealth and State legislation. The Commonwealth and State Housing Agreement Act, passed by the State Parliament in 1945, enabled Western Australia to participate in the Agreement, the purpose of which was to provide homes quickly, primarily for persons at the lower income levels, by standardisation of design and erection in large groups. The Agreement provided a broad basis of collaboration between the Commonwealth and the State, with the Commonwealth providing advances of money, general direction on policy and co-ordination of effort and the State undertaking the actual site acquisition and planning, the construction of the dwellings, the selection of tenants and the detailed administrative work.

Homes built under the Commonwealth and State Housing Agreement Act of 1945 were let at an 'economic rent' calculated according to a formula laid down in the Agreement. The rents so determined were to be sufficient to meet repayments by the State to the Commonwealth of the capital cost of each dwelling with interest and also current outgoings such as the cost of maintenance, administration, rates, taxes and insurance. Provision was made for a system of rental rebates so designed that families with income near the basic wage level should pay not more than about one-fifth of the family income in rent, irrespective of the 'economic rent' of the dwelling, but in no case was the rent paid by a tenant to be less than 80 cents per week. The Commonwealth Government was to bear three-fifths and the State two-fifths of all losses incurred in operations under the Agreement.

Although the principal aim of the arrangement was to make homes available on a rental basis, provision existed for the sale by the State of houses erected under the scheme, on condition that the full capital cost was immediately repaid to the Commonwealth. To satisfy this requirement, the State Housing Commission made use of funds provided by the State Government by means of the State Housing Act when, in 1950, it first offered tenants the option of purchasing their homes by instalments on payment of a moderate deposit. The *Commonwealth and State Housing Supplementary Agreement Act, 1955* modified the original Agreement by allowing finance provided by the Commonwealth to be applied for the purchase, by tenants, of houses built under the scheme. The Agreement prescribed a minimum deposit of 5 per cent of the first \$4,000 of the purchase price and 10 per cent of the balance. The rate of interest specified was 4½ per cent per annum, subject to alteration by agreement between the Commonwealth and the State, the maximum loan being \$5,500 and the maximum period of repayment forty-five years.

With the expiry of the 1945 Agreement, the Commonwealth Parliament in 1956 passed the Housing Agreement Act providing 'financial assistance to the States for the purpose of housing' for a period of five years ending on 30 June 1961. The complementary State legislation authorising the State Government to enter into the Agreement is the Commonwealth and State Housing Agreement Act of 1956.

The 1956 Agreement required that, for the first two years of its operation, at least 20 per cent of the money allocated to the State was to be advanced to building societies and other approved institutions for lending to private persons for the building or purchase of homes, the proportion to be increased to not less than 30 per cent during the remainder of the period. The balance of the allocation was to be used by the State for the erection of houses for either rental or sale. The Commonwealth was entitled to specify that of this balance a portion not exceeding 5 per cent in any one year should be set aside for the erection of houses for serving members of the defence forces. The Commonwealth provided supplementary advances to the State equal to the amounts set aside for this purpose.

On the introduction of the 1956 Agreement, the State Housing Commission adopted the policy of offering for sale before occupancy one-half of the total number of houses built, the remainder being made available on a rental basis. The proportion has since been varied several times.

Under the provisions of Commonwealth and State legislation passed in 1961 the period of operation of the Commonwealth and State Housing Agreement was extended for a further five years to 30 June 1966. The 1961 Agreement incorporated all the main features of the earlier arrangement, with only minor modifications. The requirement that building societies and other approved institutions should receive at least 30 per cent of moneys allocated to a State was continued. Provision was made for the use of funds in excess of the previous maximum of 5 per cent of the balance for the erection of dwellings for members of the defence forces. Supplementary advances by the Commonwealth of amounts equal to the funds so used were continued.

In terms of the *Housing Agreement Act 1966* (Commonwealth) and the *Commonwealth and State Housing Agreement Act, 1966* (State) the operation of the Agreement, with minor amendments, has been extended until 30 June 1971.

Although Agreements subsequent to that of 1945 make no provision for rebates to tenants unable to pay the full rental, the State Government has continued the system and the cost of rental rebates was \$473,218 in 1967-68.

State Housing Death Benefit Scheme Act. The *State Housing Death Benefit Scheme Act, 1965* establishes, with effect from 20 February 1965, a scheme to provide benefits for the families of purchasers of dwellings who die leaving unpaid the whole or part of a liability to the State Housing Commission under a contract of sale or mortgage. The benefit is applied to the credit of the deceased purchaser's account, and the instalments payable during the unexpired term of the loan are reduced accordingly.

The amount of the benefit varies with the purchaser's age at death and the number of children under 16 years of age. Where the age at death does not exceed 35 years the benefit is \$1,000; where it exceeds 35 years but does not exceed 45 years, \$800; where it exceeds 45 years but does not exceed 55 years, \$600; and where it exceeds 55 years but does not exceed 65 years, \$400. The benefit is increased by \$200 in respect of each child under 16 years of age. Where the purchaser is aged over 65 years at death and is survived by a child or children under 16 years of age, the amount of the benefit is \$200 in respect of each such child.

The benefit applies, in general, in the case of purchasers or lessees under the provisions of the State Housing Act or the Commonwealth and State Housing Agreement, but does not apply to a purchaser who has received an advance granted by a building society from funds made available to it as part of the State's allocation of Commonwealth moneys. The family of a purchaser is not eligible for benefit if he has obtained from the Commission an advance on second mortgage under the State Housing Act to supplement a first mortgage loan from private sources.

Where a dwelling is being purchased in the joint names of a husband and wife, the benefit is granted only on the death of the breadwinner, who is usually the husband, but may be either the wife, in the case of invalidity of the husband, or one of the children.

The scheme is financed from the profits of the State Housing Commission and is therefore similar to the rental rebate system, which allows for an adjustment of rental where the income of a family is reduced following the loss of the breadwinner.

In the first year of operation (1965-66), twenty claims were admitted and a total of \$27,200 was paid in the form of assistance to purchasers. The corresponding figures for 1966-67 were thirty-three and \$30,922, and for 1967-68, thirty-four and \$25,385 respectively.

The McNess Housing Trust. The State Housing Commission carries out free of charge the administrative, technical and other work associated with the operations of the McNess Housing Trust, which was established by a bequest made in 1930 by the late Sir Charles McNess. The Trust has been assisted by allocations from State Government funds and by donations from the Lotteries Commission. The income of the Trust is used to provide homes for aged and infirm persons not able to purchase or acquire a home from their own resources.

Other Operations. The State Housing Commission conducts certain other housing schemes and has completed, or is currently engaged on, other specific projects on behalf of the State Government. Under a 'Departmental Homes' scheme, which commenced in 1952-53, 1,236 houses were built in the period to 30 June 1968 for State Government Departments and semi-government authorities. A Government Employees' Housing Scheme was introduced in 1958-59 and, up to 30 June 1964, had provided 107 rental houses in country areas. (See also the following section *Government Employees' Housing Authority*.) The Commission has also undertaken the erection of flats for occupation by widows and by aged women pensioners, as well as cottage flats for aged married couples. Design and supervision services have been made available free of cost to several private charitable organisations which are developing pensioner housing schemes financed jointly by these organisations and the Commonwealth Government under the *Aged Persons Homes Act 1954-1967* (Commonwealth). The Commission has also been made responsible from time to time for special housing schemes for industry or major developmental projects.

Housing Units Completed. Statistics of housing units built by the State Housing Commission during the period 1963-64 to 1967-68 are given later in this Part in the section *Building Operations*.

Government Employees' Housing Authority

The Government Employees' Housing Authority is established under the provisions of the *Government Employees' Housing Act, 1964* to provide adequate and suitable housing accommodation for employees of State Government Departments to which the Act applies. The Authority consists of four members comprising the Public Service Commissioner, the Under Treasurer of the State, the Director-General of Education and the General Manager of the State Housing Commission. It is provided that any of these officials may nominate an officer as a member of the Authority in his stead, and that the Public Service Commissioner or his nominee shall be Chairman of the Authority. The Act enables the Authority to purchase, contract for the use of, or otherwise acquire land or houses; to erect houses on land which it has acquired; and to let or dispose of houses or land which it owns or has under its control.

The permanent head of a State Government Department may, where he is of the opinion that houses are required for government employees, apply to the Authority for the allocation of houses.

The Authority is empowered to enter into an agreement with the State Housing Commission whereby the Commission shall act as its agent upon such terms as may be mutually agreed upon by the Authority and the Commission.

A total of 18 houses were completed for the Authority in 1965-66, 49 houses in 1966-67, and 34 in 1967-68.

War Service Homes

Financial assistance by means of loans is provided by the Commonwealth Government, under the *War Service Homes Act 1918-1968*, to Australian ex-service personnel of the first and second World Wars, the Korean War, and the operations in Malaya or such

other areas as may be declared from time to time. Subject to their having resided in Australia prior to enlistment, other British ex-service personnel are eligible for assistance, which may be extended also to the widow or the dependent widowed mother of a member of the Forces. Loans are made within statutory limits for the building of new homes and arrangements may be made in some circumstances for the discharge of mortgages on existing properties.

The State Housing Commission acts as representative in Western Australia of the War Service Homes Division of the Department of Housing (Commonwealth). During 1967-68, 141 homes were constructed, 51 new dwellings were purchased and 83 pre-arranged mortgages were discharged, making a total of 275 new houses for which finance was provided. Assistance was also granted in respect of 211 ex-servicemen acquiring secondhand homes.

Homes Savings Grants

The *Homes Savings Grant Act 1964-1967* (Commonwealth), which came into operation on 28 May 1964, is designed to 'assist young married persons, and young widowed persons with dependent children, to purchase or build their own homes'. The Act is administered, subject to any directions of the Minister, by the Secretary to the Department of Housing.

The Act provides for the payment to eligible persons of a grant of \$1 for every \$3 saved for a home by one or both of the marriage partners. The grant takes the form of a gift free of tax and is payable in respect of a house, a home unit or a flat. The maximum benefit is \$500 payable on savings of \$1,500 which must be 'acceptable' savings within the meaning of the Act.

To qualify for the grant a person must be married or a widowed person with one or more dependent children; must have lived and saved in Australia for at least three years and was an Australian citizen throughout that period; must, on or after 2 December 1963, have entered into a contract to buy a home or to have a home built, or have begun to build a home; must be under 36 years of age at the date of marriage and at the date of entering into a contract to buy or build the home or at the date on which building began; must not have already received a grant and must not be, nor previously have been, married to a person who has received a grant during the marriage. An undischarged bankrupt or a person serving a term of imprisonment may not receive a grant.

The grant is not payable in respect of a home where the cost, including the cost of land, exceeds \$15,000.

Grants are financed from the National Welfare Fund and the first payments were made during the year ended 30 June 1965. Expenditure on grants in Western Australia amounted to \$698,698 in 1964-65, \$761,652 in 1965-66, \$666,181 in 1966-67 and \$739,967 in 1967-68.

Housing Loan Guarantee Act

The purposes of the *Housing Loan Guarantee Act, 1957-1968* are to encourage, through provisions for guarantees and indemnities, the building and the purchasing of new houses. Under this Act, the Government provides guarantees to lenders of funds to Building Societies and other approved financial organisations making advances to persons desiring to purchase or build their own home on low deposits.

The maximum rate of interest which an approved institution may charge on a loan to a borrower is 6½ per cent (December 1968). In the metropolitan region loans may be made up to 95 per cent of the value of the house and land provided that the value of the house alone does not exceed \$10,000, the maximum loan being \$10,000. Outside the metropolitan region and south of the 26th parallel, loans may be made up to 95 per cent of the value of the house and land provided that the value of the house alone does not

exceed \$11,000, with a maximum loan of \$10,000. North of the 26th parallel, loans may be made up to 95 per cent of the value of the house and land provided that the value of the house alone does not exceed \$17,500. The maximum loan permitted is \$13,000.

Complementary action has been taken by the Commonwealth in establishing the Housing Loans Insurance Corporation to foster high-ratio loans (see following section).

Housing Loans Insurance Scheme

The Housing Loans Insurance Corporation was established by the *Housing Loans Insurance Act 1965* (Commonwealth) to insure approved lenders against losses arising from the making of housing loans. The Corporation consists of a chairman (who is also managing director) and a deputy chairman, who are full-time members, and three part-time members, all of whom are appointed by the Governor-General. The main purpose of the activities of the Housing Loans Insurance Corporation is to assist people to obtain, as a single loan and at a reasonable rate of interest, the money they need and can afford to borrow to obtain a home suited to their requirements.

To encourage the making of high-ratio loans the Corporation will insure loans up to 95 per cent of valuation for houses valued at \$15,000 or less. Where the valuation of a home exceeds \$15,000 the maximum insurable amount is 95 per cent of the first \$15,000 of valuation plus 70 per cent of the balance or \$20,000, whichever is the lesser. A once-and-for-all premium of $1\frac{1}{2}$ per cent of the amount of the loan is charged by the Corporation for loans of from 80 per cent to 90 per cent of valuation. For loans below 80 per cent of valuation, lesser premium rates apply. The premium is payable by the borrower, but lenders may agree to add it to the amount of the loan for repayment by the borrower over the duration of the loan. The maximum rate of interest that may be charged on insured loans (December 1968) is $7\frac{1}{2}$ per cent per annum and the maximum period for repayment is forty years. The maximum rate of interest is kept under continuing review and may be varied by the Corporation, with the concurrence of the Minister for Housing, whenever changes appear to be warranted by movements in interest rates generally or by other developments.

The Housing Loans Insurance Corporation insures loans that are made for a wide range of purposes in addition to the purchase or construction of a dwelling. The other purposes include alterations, extensions or improvements to a dwelling, and the provision or improvement of roads, kerbing and footpaths. An insured loan may be made only by an approved lender. Approved lenders are appointed by the Corporation from within approved classes of lenders specified by the Minister for Housing. The approved classes include banks, building societies, co-operative housing societies, friendly societies, life insurance companies, general insurance companies, and trustee companies. The Housing Loans Insurance Corporation commenced its insurance operations in November 1965 and to 30 June 1968 had insured loans in Western Australia amounting to \$10.3 million.

CONTROL OF BUILDING

Each of the local government authorities as constituted under the provisions of the *Local Government Act, 1960-1968* has power to exercise general control over the erection of buildings in its own district. The powers of local government authorities to control building derive from the Town Planning and Development Act and the Local Government Act.

The *Town Planning and Development Act, 1928-1967* gives local authorities the right to make by-laws covering such aspects of town planning as the purchase or reservation of land for thoroughfares, the density of dwelling accommodation per acre, the classification of areas for residential, commercial, industrial and recreational use, the prescription of building standards, and the general planning of new subdivisions. Town planning measures proposed by a local authority are subject to the approval of the Minister for Town Planning, who has the advice of a Town Planning Commissioner and a Town Planning Board.

The *Local Government Act, 1960-1968* contains provisions for the control of building which are compatible with those exercised under the Town Planning and Development Act but are in a more detailed form. Many local government authorities have adopted comprehensive by-laws relating to building construction, and the erection of all buildings must be carried out in compliance with these by-laws. The Local Government Act provides that no new building or the alteration of an existing building may be begun before the plans have been approved by the local authority. The Governor may by Order, at the request of a local authority, suspend the operation of this provision in its district. Generally, in remote parts of the State prior approval of plans is required only in the case of building in townsite areas. Where any local authority refuses to approve plans, the Act provides that an appeal may be made to the Minister for Local Government, who has the power to modify or reverse the decision of the local authority. Other appeals or matters in dispute in relation to the control of building may be determined only by two referees, one of whom is appointed by the Governor and the other by the local authority concerned.

BUILDING OPERATIONS

Since the end of the second World War, the Australian Statisticians have undertaken a quarterly collection of statistics of building operations. The first of these collections in Western Australia related to the quarter ended 30 September 1945.

The survey covers the activities of building contractors who undertake the construction of new buildings; the building operations of Commonwealth, State, semi-government and local government authorities; and work performed by owner-builders.

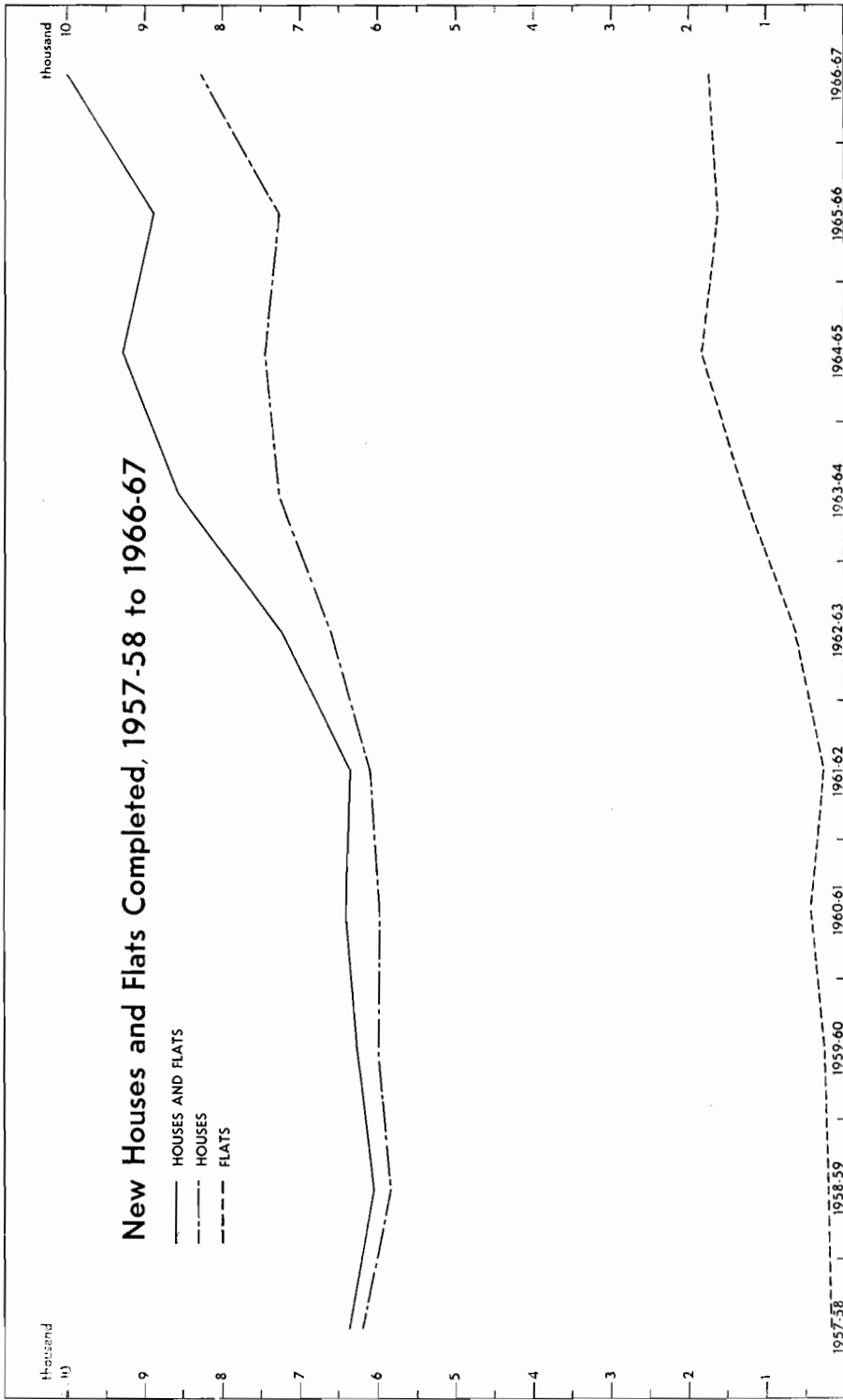
The statistics in succeeding pages relate only to the erection of buildings as distinct from the construction of railways, bridges, earthworks, etc.

In the following table the value of new buildings completed, classified according to the function each building is intended to serve, is shown for the period 1963-64 to 1967-68. The values shown for each type of building exclude the value of land and represent the estimated value of the buildings on completion.

VALUE OF NEW BUILDINGS COMPLETED: TYPE OF BUILDING
(\$'000)

Type of building	1963-64	1964-65	1965-66	1966-67	1967-68
Houses—					
Material of outer walls—					
Brick, brick veneer, concrete, stone	42,716	47,094	46,895	61,942	79,812
Wood (weatherboard, etc.)	162	148	107	107	115
Fibro-cement	8,818	9,700	10,822	14,985	17,147
Other	78	296	265	1,044	295
Total, Houses	51,774	57,238	58,089	78,078	97,370
Flats	5,596	9,046	9,096	9,322	12,577
Total, Houses and Flats	57,370	66,284	67,185	87,400	109,947
Other new buildings—					
Hotels, hostels, etc.	1,850	2,744	3,211	4,990	8,759
Shops	1,548	2,890	4,860	7,692	5,079
Factories	5,384	6,816	9,631	9,841	15,061
Office premises	5,996	2,820	10,576	7,093	14,608
Other business premises	3,664	5,102	6,999	7,150	6,809
Education	6,226	8,044	8,459	10,477	12,051
Religion	1,184	1,300	965	1,147	683
Health	3,278	3,076	7,415	8,927	3,436
Entertainment and recreation	2,044	1,952	2,247	3,080	3,670
Miscellaneous	4,324	6,072	8,630	14,338	15,299
Total, Other new buildings	35,498	40,816	62,993	74,735	85,456
TOTAL, ALL NEW BUILDINGS	92,868	107,100	130,178	162,135	195,403

New Houses and Flats Completed, 1957-58 to 1966-67



The following table shows the number of new houses and flats completed, according to ownership, in each of the five years 1963-64 to 1967-68. A building is classified as 'private' or 'government' according to ownership at date of commencement. Thus 'government' includes buildings erected for Commonwealth and State Governments, semi-government and local government authorities, either by contractors or by day labour, whether these buildings are for their own use or for rental or sale after completion. Houses erected for particular persons under government-sponsored building schemes or with government financial assistance are classified as 'private'.

NUMBER OF NEW HOUSES AND FLATS COMPLETED ACCORDING TO OWNERSHIP

Year	Private ownership (a)			Government ownership (a)			Total		
	Houses	Flats	Houses and flats	Houses	Flats	Houses and flats	Houses	Flats	Houses and flats
1963-64	5,330	1,221	6,551	1,946	74	2,020	7,276	1,295	8,571
1964-65	5,612	1,826	7,438	1,833	15	1,848	7,445	1,841	9,286
1965-66	5,228	1,547	6,775	2,037	77	2,114	7,265	1,624	8,889
1966-67	6,676	1,730	8,406	1,596	12	1,608	8,272	1,742	10,014
1967-68	8,533	2,382	10,915	1,325	10	1,335	9,858	2,392	12,250

(a) See letterpress preceding table.

As an indication of the distribution of building activity throughout the State, the number of new houses completed in each Statistical Division during 1963-64 to 1967-68 is shown in the following table.

NUMBER OF NEW HOUSES COMPLETED IN STATISTICAL DIVISIONS

Statistical Division	Year ended 30 June—				
	1964	1965	1966	1967	1968
Perth Statistical Division	5,473	5,473	5,098	5,330	6,812
Other Divisions—					
South-West	579	597	687	696	820
Southern Agricultural	293	326	334	387	359
Central Agricultural	284	319	354	360	367
Northern Agricultural	301	351	367	491	513
Eastern Goldfields	115	156	121	223	382
Central	12	18	25	14	11
North-West	72	62	107	277	110
Pilbara	38	18	72	401	423
Kimberley	109	125	100	93	61
Total	1,803	1,972	2,167	2,942	3,046
WESTERN AUSTRALIA	7,276	7,445	7,265	8,272	9,858

Employment in Building

Details of building employment are given in the following table. The figures shown relate to persons working on the jobs of contractors who undertake the erection of new buildings and on the jobs of government authorities which erect new buildings on their own account. They include persons actually engaged on alterations, additions, repairs, and maintenance when these jobs are undertaken by such contractors and authorities. The figures also include the number of persons working on new private buildings (other than houses) erected without the services of a contractor responsible for the whole job.

Informants are asked to supply details of all persons employed on their jobs *on a specified day*, including working principals, men working as or for sub-contractors, and men temporarily laid off on account of weather. Because of the intermittent employment of

various types of sub-contractors on any particular job, it is sometimes difficult for informants to provide precise particulars of the number of sub-contractors and sub-contractor employees working on their jobs on the specified day. This factor may cause some understatement in the figures shown in the tables. In other cases, because of frequent movement between jobs of some types of tradesmen (such as electricians) who may work on several jobs on the one day, some duplication may occur.

The figures *exclude* persons working on owner-built houses, and employees of building firms which undertake only alterations, additions, repairs, and maintenance.

EMPLOYMENT IN BUILDING (a)

Classification	End of June—				
	1964	1965	1966	1967	1968
Occupational status—					
Contractors	568	576	574	639	697
Sub-contractors	2,377	2,451	1,881	2,539	2,882
Wage earners	8,608	9,609	9,893	11,327	13,233
Total	11,553	12,636	12,348	14,505	16,812
Occupation—					
Carpenters	3,433	3,573	3,591	4,026	4,569
Bricklayers	1,522	1,546	1,584	1,966	2,469
Painters	1,078	1,195	1,105	1,341	1,494
Electricians	821	886	825	1,014	1,126
Plumbers	984	1,164	1,064	1,275	1,577
Builders' labourers	1,876	1,982	2,047	2,210	2,602
Other	1,839	2,290	2,132	2,673	2,975
Total	11,553	12,636	12,348	14,505	16,812

(a) See letterpress preceding table.

Operations of The State Housing Commission

The following table shows the number of housing units completed by The State Housing Commission in various categories during each year from 1963-64 to 1967-68. It also shows the numbers of housing units in connection with which the Commission provided design and supervisory services free of cost to private charitable organisations.

THE STATE HOUSING COMMISSION—SUMMARY OF OPERATIONS

Category	Financial year				
	1963-64	1964-65	1965-66	1966-67	1967-68
Housing units (a) completed—					
State Housing Act	630	887	957	560	390
Commonwealth and State Housing Agreements	1,092	692	995	698	824
McNess Housing Trust	73	.....	.....	.....	.....
Departmental Homes	165	198	155	195	147
Government Employees' Housing	14	31	34	49	34
War Service Homes	176	174	118	143	141
Other (b)	31	52	36	111	8
Total	2,181	2,034	2,295	1,756	1,544
Other activities (c)	139	97	185	20	13

(a) Comprises houses and individual flat units. (b) Comprises houses built by the Commission in terms of the *Laporte Industrial Factory Agreement Act, 1961-1965*, the *Broken Hill Proprietary Company's Integrated Steel Works Agreement Act, 1960* and the *Exmouth development scheme*. (c) The figures shown represent housing units built by charitable organisations in connection with which the Commission provided design and supervisory services.

DWELLINGS COMPLETED IN AUSTRALIA

The following table shows the numbers of new houses and flats completed in each of the Australian States and Territories during the five-year period ended 30 June 1968. In Western Australia the number of new houses and flats completed per thousand of mean

population was 11·65, compared with 9·48 in the rest of Australia and 9·64 in Australia as a whole. The proportion of houses to flats completed in Western Australia was 4·5:1, and throughout Australia 3·0:1.

NEW HOUSES AND FLATS COMPLETED—AUSTRALIAN STATES AND TERRITORIES
1 JULY 1963 TO 30 JUNE 1968

State or Territory	Houses	Flats (a)	Houses and flats (a)		
			Total number completed	Proportion of Australian total (per cent)	Per thousand of mean population
New South Wales	130,671	61,960	192,631	34·76	9·15
Victoria	110,267	45,274	155,541	28·07	9·75
Queensland	58,595	13,191	71,786	12·95	8·66
South Australia	48,689	7,520	56,209	10·14	10·45
Western Australia	40,116	8,894	49,010	8·84	11·65
Tasmania	13,446	1,015	14,461	2·61	7·81
Northern Territory	2,496	626	3,122	0·56	11·26
Australian Capital Territory	10,130	1,322	11,452	2·07	24·78
AUSTRALIA	414,410	139,802	554,212	100·00	9·64

(a) Individual living units.

Chapter V—continued

Part 5—Social Benefits, Relief Payments and Child Welfare

NOTE. The rates and the conditions applying to payment of the several benefits dealt with in this Part are described as they existed at 1 January 1969.

The information given is intended to serve as a general guide to the main provisions relating to social benefits and relief payments provided by the Commonwealth and State Governments. For more complete details of the Commonwealth benefits, reference should be made to the *Official Year Book of the Commonwealth of Australia*.

Social benefits are provided by the Commonwealth Government under a series of Acts, and their payment is financed from a National Welfare Fund. Payments from the fund are made in respect of benefits only, and do not include the cost of administering the benefits nor of capital works associated with them. The fund receives each year by transfer from the Consolidated Revenue Fund an amount equal to the payments made. Other income of the National Welfare Fund is derived from interest on investments.

War and service pensions are paid by the Commonwealth Government from the Consolidated Revenue Fund.

The *Social Services Act* 1947-1968 provides for the payment of age and invalid pensions, widows' pensions, unemployment, sickness, and special benefits, maternity allowances and child endowment; the *Repatriation Act* 1920-1968, for war pensions and service pensions; and the *Tuberculosis Act* 1948, for allowances to sufferers from tuberculosis as well as assistance to the States in a national campaign against the disease.

Health services, such as medical, hospital and pharmaceutical benefits, are provided under the *National Health Act* 1953-1968.

War pensions, child endowment, maternity allowances and health service benefits, other than tuberculosis allowances, are paid regardless of income received from other sources or of property owned by the claimant. These payments do not affect eligibility for other social services benefits.

Age and invalid pensions (other than pensions paid to blind persons), widows' pensions and service pensions are subject to a means test in respect of both income and property. Only income is taken into account in assessing eligibility for unemployment and sickness benefits or tuberculosis allowances. Generally, a person receiving a pension or an allowance under one category is ineligible for benefit under any other.

Under the provisions of legislation passed in 1963 and 1964 certain allowances payable on account of children were extended to include 'student' children. For the purposes of the *Social Services Act* 1963 and the *Repatriation Act* 1963 the term 'student child' meant a dependent child aged between sixteen and eighteen years receiving full-time education at a school, college or university, and the allowance continued until the end of the calendar year in which the child attained the age of eighteen years. The Acts made provision for payment in respect of student children of age pensioners, invalid pensioners, widow pensioners and service pensioners. The benefit was extended to include also student children of recipients of tuberculosis allowances. The *Social Services Act* 1964 provides for the payment of child endowment on account of students until the twenty-first birthday.

In terms of amendments made to the Social Services Act and the Repatriation Act in 1965, the payment of allowances in respect of student children, which previously ceased at the end of the calendar year in which the child attained the age of eighteen years, was extended until the twenty-first birthday.

The State Government makes certain payments for the relief of women and others in necessitous circumstances which in most cases supplement benefits provided by the Commonwealth Government.

SOCIAL SERVICES BENEFITS

Age and Invalid Pensions

Age pensions were first paid on 1 July 1909 and invalid pensions on 15 December 1910. Pensions are payable subject to a means test which does not, however, apply to pensions paid to persons who are permanently blind.

The age pension is payable to men aged sixty-five years and over and to women aged sixty years and over who have resided in Australia continuously for at least ten years, which need not be immediately prior to the date of claim for a pension. If a person has not completed ten years' continuous residence but has been so resident for a period of not less than five years, the period of ten years' continuous residence otherwise required is reduced by the total of his periods of residence in excess of ten years. Residence in New Zealand or the United Kingdom may be treated as residence in Australia. Certain absences do not affect eligibility.

Invalid pensions are payable to persons aged sixteen years and over who have resided in Australia for a continuous period of not less than five years (including certain absences), and are permanently incapacitated for work to the extent of at least 85 per cent or are permanently blind. If the incapacity or blindness first occurred outside Australia, except during a temporary absence, a period of not less than ten years' continuous residence is necessary. If a person has not completed ten years' continuous residence but has been so resident for a period of not less than five years, the period of ten years' continuous residence otherwise required is reduced by the total of his periods of residence in excess of ten years. Residence in New Zealand or the United Kingdom may be treated as residence in Australia. Certain absences do not affect eligibility.

AGE AND INVALID PENSIONS—WESTERN AUSTRALIA

Particulars	Year ended 30 June—				
	1963	1964	1965	1966	1967
Number of pensioners at 30 June—					
Age—					
Males	12,190	12,467	12,596	13,020	13,796
Females	28,471	29,352	30,110	30,856	31,945
Persons	40,661	41,819	42,706	43,876	45,741
Invalid—					
Males	4,628	4,719	4,911	4,817	4,641
Females	3,542	3,587	3,704	3,758	3,666
Persons	8,170	8,306	8,615	8,575	8,307
	\$	\$	\$	\$	\$
Average weekly pension at 30 June (a)—					
Age	10.15	10.68	11.11	11.26	12.30
Invalid	10.55	11.23	11.71	12.18	13.30
	\$'000	\$'000	\$'000	\$'000	\$'000
Amount paid during year ended 30 June (b)	25,582	27,373	29,413	30,760	33,794

(a) Includes allowances and supplementary assistance. (b) Includes amounts paid to benevolent homes for maintenance of pensioners and to pensioner inmates of these homes. Includes also allowances and supplementary assistance.

The maximum rate of pension payable to an unmarried person (*i.e.* single, widowed or divorced) is \$14 per week. This rate applies also to a married pensioner where the

spouse is not receiving an age or invalid pension, a tuberculosis allowance or a service pension. In the case of a married couple, both of whom are pensioners, the maximum weekly rate is \$12.50 for each pensioner. A wife's allowance may be granted, subject to the means test, to the wife of an invalid pensioner or of an age pensioner permanently incapacitated or blind, or if she has the care of a child and is not receiving an age or invalid pension, or a service pension. The maximum weekly rate of a wife's allowance is \$7. The pension may also be increased by \$2.50 per week, subject to the means test, for each child under sixteen years. This allowance applies also to each student child of a pensioner. A guardian's allowance of up to \$4 per week is payable to widowers and other unmarried age or invalid pensioners who have one or more children in their care.

If the pensioner pays rent and is entirely or substantially dependent on the pension, supplementary assistance to a maximum of \$2 per week, subject to a means test, may be paid to a single pensioner or to a married pensioner whose spouse does not receive a pension or tuberculosis allowance.

The rate of pension is reducible by the application of a means test in respect of income and property which, for the purposes of assessment, excludes the pensioner's home, furniture, car, personal effects and some other specified assets.

Rehabilitation Service. Since 10 December 1948 a rehabilitation service has been provided for invalid pensioners and others whose disabilities are remediable and who have reasonable prospects of engaging in a suitable vocation within three years. With the aim of restoring disabled persons to independence and usefulness, the service provides the necessary treatment and training together with books, tools and equipment. Rehabilitation and training allowances are paid. Commonwealth expenditure in respect of the Rehabilitation Service in Western Australia was \$149,228 in 1962-63; \$161,966 in 1963-64; \$173,944 in 1964-65; \$186,924 in 1965-66; and \$196,410 in 1966-67.

Funeral Benefit. From 1 July 1943, a funeral benefit of up to \$20 has been payable to persons who are required to meet the funeral expenses of an age or invalid pensioner. This benefit is increased to a maximum of \$40 where a person receiving either an age, invalid or widows' pension, or a wife's allowance, is required to meet the funeral expenses of another pensioner or those of a non-pensioner spouse or dependent child. Commonwealth payments of funeral benefit in Western Australia amounted to \$51,392 in 1962-63; \$54,850 in 1963-64; \$59,386 in 1964-65; \$66,127 in 1965-66; and \$87,635 in 1966-67.

Widows' Pensions

Widows' pensions have been paid since 30 June 1942 and are granted subject to a means test. The term 'widow' is extended to include deserted wives, divorcees and women who have been deprived of support by the insanity or imprisonment of the husband.

Pensions and allowances payable to widows vary according to classes designated 'A', 'B' and 'C' in terms of the Social Services Act. To qualify for pension under Class 'A' a widow must have the custody, care and control of one or more children who may be either less than sixteen years of age or student children as defined in the Act. The maximum rate of pension is \$18 per week (including a mother's allowance of \$4 per week), together with an additional \$2.50 per week in respect of each child. A Class 'B' pensioner is one who has not the custody, care and control of any child under sixteen years of age (or any student child) and who is at least fifty years of age, or is not less than forty-five years of age when her Class 'A' pension ceases because she no longer has a child in her custody, care and control. The maximum rate of pension payable is \$12.50 per week. A Class 'C' pensioner is a widow who, at the time of her husband's death or within twenty-six weeks thereafter, is less than fifty years of age, has not the custody, care and control of any child under sixteen years of age (or any student child), and is in necessitous circumstances. Pension at the rate of \$12.50 per week may be paid for a period of twenty-six weeks immediately after the husband's death but, if the widow is pregnant, may be continued until the birth of the child, when she may qualify for a Class 'A' pension.

A widow pensioner who pays rent and is considered to be entirely or substantially dependent on her pension may, subject to a means test, receive supplementary assistance up to a maximum of \$2 per week.

The rate of pension is reducible by the application of a means test in respect of income and property which, for the purposes of assessment, excludes the pensioner's home, furniture, car, personal effects and some other specified assets.

WIDOWS' PENSIONS—WESTERN AUSTRALIA

Particulars	Year ended 30 June—				
	1963	1964	1965	1966	1967
Number of pensions current at 30 June—					
Class 'A' pensioners (a)	1,930	2,120	2,221	2,288	2,333
Class 'B' pensioners (b)	2,548	2,607	2,692	2,775	2,885
Class 'C' pensioners (c)	8	7	13	8	10
Total	4,486	4,734	4,926	5,071	5,228
Average weekly pension at 30 June (d)	\$ 10.25	\$ 13.40	\$ 13.78	\$ 13.97	\$ 15.43
Amount paid during year ended 30 June (d)	\$'000 2,377	\$'000 3,115	\$'000 3,463	\$'000 3,602	\$'000 4,011

(a) Widow having custody, care and control of one or more children aged less than 16 years, or of a student child or children.
 (b) Widow aged 50 years or over with no dependent children. (c) Widow, other than Class 'A' or 'B', in necessitous circumstances following death of husband. (d) Includes allowances and supplementary assistance.

Unemployment, Sickness and Special Benefits

Payments to persons unemployed or temporarily incapacitated for work by sickness or accident were introduced on 1 July 1945 and are subject to residential qualifications and a means test in respect of income but not of property. Unemployment and sickness benefits are paid to men over sixteen and under sixty-five years of age and to women over sixteen and under sixty years of age.

The maximum weekly rate of benefit for an unmarried claimant over twenty-one years of age is \$8.25 per week. For unmarried juveniles, the rate is \$3.50 for those aged under eighteen years and \$4.75 for those aged eighteen and under twenty-one years. A married claimant with dependent spouse may receive \$14.25 per week, with an additional \$1.50 per week for each dependent child under sixteen years of age. In the case of a claimant aged over twenty-one years or a married claimant aged less than twenty-one years, income of \$4 per week is allowed in addition to the benefit but any income in excess of \$4 is deducted from the benefit. Where the claimant is less than twenty-one years of age, the permissible weekly income is \$2 and the rate of benefit is reducible by the amount of any income in excess of \$2 per week. For unemployment benefit purposes, the incomes of both husband and wife are taken into account. For sickness benefit purposes, any payment received on account of the sickness from an approved friendly society or similar body is disregarded. A married woman is not eligible to receive a sickness benefit if it is reasonably possible for her husband to maintain her. Where her husband is able to maintain her only partially a benefit may be paid at such rate as is considered reasonable in the circumstances. There is a waiting period of seven days, during which time neither unemployment nor sickness benefit is payable.

Special benefits have been provided since 1 July 1945. A special benefit may be granted to a person not qualified for unemployment or sickness benefit and who receives no Commonwealth pension if, on account of age, physical or mental disability or for any other reason, he is unable to earn a sufficient livelihood for himself and his dependants. Special benefits are also paid to migrants who are in reception centres and are awaiting their first placement in employment. The maximum rate for special benefit is the same as for unemployment or sickness benefit.

UNEMPLOYMENT, SICKNESS AND SPECIAL BENEFITS—WESTERN AUSTRALIA

Particulars	Year ended 30 June—				
	1962-63	1963-64	1964-65	1965-66	1966-67
Unemployment benefit—					
Number admitted to benefit during year	15,115	14,971	10,175	5,883	6,573
Average number on benefit at end of each week	2,674	2,677	1,679	785	718
Number on benefit at end of year—					
Males	2,062	1,360	503	389	387
Females	1,117	1,007	634	354	398
Persons	3,179	2,367	1,137	743	785
Sickness benefit—					
Number admitted to benefit during year	6,008	6,127	5,862	5,756	5,759
Average number on benefit at end of each week	790	866	832	752	729
Number on benefit at end of year—					
Males	658	623	581	544	436
Females	249	236	236	224	251
Persons	907	859	817	768	687
Special benefit—					
Ordinary—					
Number admitted to benefit during year	115	101	84	78	69
Average number on benefit at end of each week	129	122	106	107	81
Number on benefit at end of year—					
Males	33	26	21	24	16
Females	97	86	78	76	54
Persons	130	112	99	100	70
Migrants—					
Number admitted to benefit during year	247	45	....	....	....
Average number on benefit at end of each week	16	1	....	....	....
Number on benefit at end of year	24	....	....	....	....
	\$'000	\$'000	\$'000	\$'000	\$'000
Benefits paid during year—					
Unemployment	1,438	1,403	842	368	374
Sickness	505	522	512	457	445
Special (a)	63	54	46	47	36
Total (a)	2,006	1,978	1,401	872	855

(a) Includes benefits paid to migrants in reception centres.

Maternity Allowances

Maternity allowance payments were introduced on 10 October 1912. The allowance is payable to a woman who, at the date of giving birth to a child (live or stillborn), is residing in Australia. There is no means test. Part of the allowance may be paid four weeks before the expected date of birth, and the balance immediately after the birth.

The allowance is \$30 where there are no other children, \$32 where the mother has one or two other children under sixteen years of age, or \$35 where she has three or more other such children. The amount payable is increased by \$10 for each additional child of a multiple birth.

MATERNITY ALLOWANCES—WESTERN AUSTRALIA

Particulars	Year ended 30 June—				
	1963	1964	1965	1966	1967
Number of claims paid during year ended 30 June—					
Single births: amount of allowance—					
\$30	5,097	5,275	5,451	5,698	6,447
\$32	8,012	7,852	7,654	7,665	7,848
\$35	3,879	3,680	3,389	3,232	3,006
Multiple births: amount of allowance—					
Twins—					
\$40	27	48	42	48	56
\$42	79	87	88	87	111
\$45	58	45	43	31	41
Triplets—					
\$50	....	....	....	1	....
\$52	....	1	....	1	....
\$55	....	....	....	1	1
Total number of claims paid	17,152	16,988	16,667	16,764	17,510
	\$'000	\$'000	\$'000	\$'000	\$'000
Amount paid during year ended 30 June	552	546	534	536	559

Child Endowment

Child endowment was introduced on 1 July 1941. The payment of endowment is not subject to a means test. A person who is resident in Australia and has the custody, care and control of one or more children under the age of sixteen years, or of a student child or children, is qualified to receive endowment in respect of each child. Approved institutions of which children are inmates are similarly entitled.

At the inception of the scheme, the first child of a family was not endowed. From 20 June 1950 child endowment has applied in respect of the first or only child of a family at the rate of 50 cents per week. Endowment for the second child is at the rate of \$1 per week, and for the third child, \$1.50 per week. For each subsequent child the endowment increases progressively by 25 cents, so that the weekly rate payable for the fourth child is \$1.75, for the fifth child \$2, and so on. Endowment is payable to a person having the custody, care and control of a student child (or children) aged sixteen years but under twenty-one years who is receiving full-time education at a school, college or university and is not in employment or engaged in work on his own account. Endowment is at the rate of \$1.50 per week for each such child.

An approved institution is qualified to receive \$1.50 per week in respect of each child (including student children) in its care.

CHILD ENDOWMENT—WESTERN AUSTRALIA

Particulars	Year ended 30 June—				
	1963	(a) 1964	(a) 1965	(a) 1966	(a) 1967
Endowed families at 30 June—					
Number of claims in force in respect of—					
Children under 16 years of age	113,464	115,645	117,528	120,973	125,554
Student children (a)	...	7,386	8,248	8,092	9,517
Number of endowed children—					
Children under 16 years of age	267,268	272,356	275,978	282,827	291,705
Student children (a)	...	7,809	8,784	8,679	10,579
Average number of endowed children per claim—					
Children under 16 years of age	2.36	2.36	2.35	2.34	2.32
Student children (a)	...	1.06	1.06	1.07	1.11
Institutions at 30 June—					
Number of institutions	69	69	64	64	66
Number of endowed child inmates—					
Children under 16 years of age	3,468	3,554	3,664	3,707	3,923
Student children (a)	...	56	60	90	118
Total number of endowed children at 30 June—					
In families	267,268	(b)280,165	(b)284,762	(b)291,506	(b)302,284
In institutions	3,468	(b) 3,610	(b) 3,724	(b) 3,797	(b) 4,041
Total	270,736	(b)283,775	(b)288,486	(b)295,303	(b)306,325
Amount paid during year ended 30 June (c) (d)	\$'000 10,485	\$'000 (e) 12,994	\$'000 13,406	\$'000 13,624	\$'000 (e) 15,498

(a) Payment of endowment for student children aged 16 years but under 21 years has operated from 14 January 1964. (b) Includes student children; see note (a). (c) Includes payments to institutions. (d) A number of endowments are paid every twelve weeks. During two years in every three, there are four such payments each year, and five in the third year. (e) Expenditure in this year includes five twelve-weekly payments; see note (d).

Reciprocal Arrangements with other Countries

Reciprocal arrangements in respect of payment of age and invalid pensions, widows' pensions, unemployment and sickness benefits and child endowment have been in force between the Governments of Australia and New Zealand since 1 July 1949 and between Australia and the United Kingdom since 7 January 1954.

WAR AND SERVICE PENSIONS

War Pensions

The *Repatriation Act 1920-1968* provides for the payment of pensions to ex-servicemen (and ex-servicewomen) and their dependants in respect of disability or death accepted as due to war service.

For members of the forces who served outside Australia, or within Australia in circumstances which can be regarded as combat against the enemy, pensions are payable in respect of incapacity or death which may result from any occurrence during the whole period of service. If a member served only in Australia, incapacity or death to be pensionable must have been attributable to service. In all cases, providing a member had at least six months' camp service, a condition which existed at the time of enlistment may be pensionable if it is considered that the condition was aggravated by service. If, at any time after discharge, an ex-serviceman who served in a theatre of war becomes incapacitated or dies from pulmonary tuberculosis, war pension is payable as if the incapacity or death resulted from an occurrence on service.

WAR PENSIONS (a)—WESTERN AUSTRALIA

Particulars	Year ended 30 June—				
	1963	1964	1965	1966	1967
Number of pensions current at 30 June—					
Incapacitated ex-servicemen	19,089	19,273	19,253	19,188	19,038
Dependants of incapacitated ex-servicemen	34,340	33,540	32,366	31,016	29,532
Dependants of deceased ex-servicemen	4,114	4,197	4,262	4,317	4,356
Miscellaneous (b)	37	37	39	39	41
Total	57,580	57,047	55,920	54,560	52,967
Amount paid in pensions during year ended 30 June (c)...	\$'000	\$'000	\$'000	\$'000	\$'000
	10,527	11,564	11,447	12,637	11,889

(a) Including pensions in respect of ex-servicewomen. (b) Pensions payable under Seamen's War Pensions and Allowances Act, Interim Forces Benefits Act, Native Members of the Forces Benefits Act and various Cabinet decisions. (c) Includes widows' allowances.

The main classes of war pensions are the special (T.P.I.) rate, the intermediate rate, the general rate and the war widows' pension. The special rate of war pension, \$33.50 per week, is payable to those who are totally and permanently incapacitated and are unable to earn more than a negligible percentage of a living wage. The intermediate rate of war pension, \$24.25 per week, is payable to an ex-serviceman who, because of the severity of a war-caused incapacity, can work only part-time or intermittently and, in consequence, is unable to earn a living wage. The wife of a pensioner receiving the special rate or the intermediate rate of war pension is paid \$4.05 per week plus \$1.38 per week for each child under sixteen years of age. The general rate of war pension is the rate payable to those who suffer war-caused disabilities but are not thereby prevented from working, although their earning capacity may be reduced. The actual pension payable is assessed in accordance with the degree of incapacity suffered. The maximum (100 per cent) rate is \$12 per week. A wife and children also receive pensions at rates according to the assessed degree of incapacity of the ex-serviceman, the maximum being \$4.05 per week for a wife and \$1.38 per week for each child under sixteen years of age. A war widow's pension at the rate of \$14 per week is paid to the widow of an ex-serviceman who died as a result of war service. Children under the age of sixteen years are pensionable at a weekly rate of \$5.40 for the first child, and \$4.25 for the second and each subsequent child. Where both parents are dead, pension at the rate of \$10.15 per week is payable for each child under the age of sixteen years.

Provision is also made for the payment of certain allowances, among which are the domestic allowance, the attendant's allowance, the special compensation allowance, the sustenance allowance, and allowances for clothing and recreation transport. A domestic allowance at the rate of \$7 per week is paid, in addition to pension, to the widow of an ex-serviceman whose death is due to war service, if she is over fifty years of age; or is permanently unemployed; or has a dependent child under the age of sixteen years, or a dependent child aged sixteen years or more who is undertaking education or training and is not in receipt of an adequate living wage. An attendant's allowance at a maximum rate of \$12 per week is paid, in addition to pension, to certain classes of seriously disabled ex-servicemen including the war blinded, those who are paralysed, and certain

double amputees. A special compensation allowance ranging from \$2.25 to \$3 per week is payable to certain general rate pensioners with assessed incapacity ranging from 75 per cent to 100 per cent. A sustenance allowance is payable where an ex-serviceman is prevented from following his usual occupation through necessities of treatment of a disability accepted as due to war service, or while undergoing medical investigation. The rate payable is the difference between the general (100 per cent) rate pension and his current war pension. In certain circumstances, when the period exceeds twenty-eight days and the ex-serviceman is still under treatment which prevents him from following his usual occupation, an additional sustenance allowance may be paid to bring the allowance to the equivalent of the special (T.P.I.) rate. Where an ex-serviceman is receiving in-patient treatment for a war-caused disability or undergoing periods of essential convalescence immediately following discharge from hospital, a higher rate to bring the sustenance allowance up to the equivalent of the special (T.P.I.) rate is payable. A wife and any children aged under sixteen years may also receive sustenance equal to the difference between the general (100 per cent) rate for wives and children and their current rate of war pension. A clothing allowance at rates ranging from 43 cents to 85 cents per week is payable, to compensate for exceptional wear and tear or damage to clothing, to an ex-serviceman who has suffered the loss of a limb due to war service. An amount of up to \$22.10 a year may be paid for other damage to clothing under specified conditions. A recreation transport allowance not exceeding \$20 per calendar month may be paid in certain circumstances.

Service Pensions

The payment of service pensions is provided for in the *Repatriation Act 1920-1968* and has operated since 1 January 1936. A means test is applied in respect of income and property.

A service pension may be granted to a former member of the forces who is suffering incapacity from pulmonary tuberculosis, or who has served in a theatre of war (or, in the case of an ex-servicewoman, served abroad) and has attained the age of sixty years (or, in the case of an ex-servicewoman, fifty-five years) or is permanently unemployed.

SERVICE PENSIONS (a)—WESTERN AUSTRALIA

Particulars	Year ended 30 June—				
	1963	1964	1965	1966	1967
Number of pensions current at 30 June—					
Ex-servicemen	5,875	6,103	6,181	6,187	6,086
Dependants of—					
Living service pensioners	1,293	1,262	1,181	1,131	1,130
Deceased service pensioners	358	389	417	437	456
Miscellaneous .....	.....	.....	1	2	2
Total	7,526	7,754	7,780	7,757	7,674
Amount paid in pensions during year ended 30 June	\$'000 2,927	\$'000 3,177	\$'000 3,320	\$'000 3,571	\$'000 3,612

(a) Including pensions in respect of ex-servicewomen.

The maximum weekly rate of pension payable to an ex-serviceman (or an ex-servicewoman) is \$14. This rate applies to an unmarried person (*i.e.* single, widowed or divorced) or to a married person where the spouse is not receiving a Commonwealth pension or allowance. Where the spouse is receiving any such benefit the maximum rate is \$12.50 per week. The maximum rate payable to the wife of an ex-serviceman is \$7 per week. The rate for eligible children is \$2.50 for the first child, and 25 cents for each additional child, up to and including the fourth child of the family. An eligible child is a child under sixteen years of age, or a child aged up to twenty-one years who is not receiving an invalid pension and is undergoing full-time education. The service pension of an ex-serviceman is increased by \$2.50 per week for each eligible child whether or not such children qualify for pension in their own right.

A service pensioner who is unmarried, widowed, divorced, or married but separated, and who has care and control of one or more children, qualifies for a guardian's allowance of \$4 per week.

Supplementary assistance up to a maximum of \$2 per week may be paid to an ex-serviceman who is paying rent, or for lodging, or board and lodging.

An ex-serviceman or ex-servicewoman in receipt of a service pension is entitled, with certain exceptions, to free medical benefits for disabilities not caused by war. These benefits include general practitioner service, specialist service where necessary, full pharmaceutical benefits, surgical aids and appliances (including spectacles), dental treatment and treatment in Repatriation General Hospitals.

NATIONAL HEALTH SERVICES

The *National Health Act* 1953-1968 provides for expenditure from the National Welfare Fund in respect of a free general practitioner service to eligible pensioners and their dependants, and hospital, medical and pharmaceutical benefits to the community generally. Other services financed from the Fund are the nutrition of children by the free supply of milk, the payment of allowances to sufferers from tuberculosis, reimbursement to State Governments of maintenance expenditure in relation to the diagnosis, treatment and control of tuberculosis, and a number of miscellaneous health services.

Hospital and Nursing Home Benefits

The payment of hospital and nursing home benefits is authorised under Part V of the National Health Act. Benefits are payable only in respect of treatment received in approved hospitals and approved nursing homes. For the purposes of the National Health Act, premises which provide medical treatment, care and accommodation for sick persons are approved either as hospitals or as nursing homes depending mainly on their clinical standards and the type of patients accommodated. The basic principle of the provision of Commonwealth hospital benefits is the encouragement of voluntary insurance by individuals against the costs involved.

An amendment to the National Health Act passed in 1962 and effective from 1 January 1963 altered the basis and method of payment of Commonwealth benefit. Prior to the amendment, Commonwealth hospital benefits were of two types, 'ordinary' hospital benefit and 'additional' hospital benefit. Commonwealth ordinary hospital benefit was provided for patients in public and approved private hospitals, by way of deduction from the patient's hospital account, at the rate of 80 cents per day. For pensioners enrolled in the Pensioner Medical Service and their dependants while patients in public hospitals, \$1.20 per day was provided. Commonwealth additional benefit was paid through approved hospital benefit organisations to their financial members at rates varying with the amount of fund benefit for which the member was contributing.

Payment of \$2 per day is now made for patients in approved hospitals who are contributors to a registered hospital benefit fund, the benefit being paid through the fund. Payment of 80 cents per day is made direct to the hospital for patients who are not contributors to a benefit organisation.

Under arrangements made with the States, pensioners who are enrolled in the Pensioner Medical Service and are treated in public wards of public hospitals are entitled (with a few exceptions) to free public ward treatment. For this the Commonwealth pays the hospitals a benefit of \$5 per day for each pensioner.

Commonwealth benefit of \$2 per day is paid for all qualified patients in approved nursing homes, whether the patient is insured or not. An additional benefit of \$3 per day is payable for those patients in approved nursing homes who need and receive intensive nursing home care.

The following table shows the amounts of benefit paid in Western Australia during each financial year from 1962-63 to 1966-67, and the number and membership of registered benefit organisations at 30 June in each year. It should be noted that the total

number of persons covered by hospital benefit schemes is considerably higher than the number of members shown, as many members contribute on account of dependants as well as for personal benefits.

HOSPITAL BENEFITS—WESTERN AUSTRALIA

Particulars	Year ended 30 June—				
	1963	1964	1965	1966	1967
Registered organisations—					
Number at 30 June	10	9	9	9	9
Membership at 30 June	265,765	260,663	267,694	279,192	288,232
Amount of benefit paid—					
Commonwealth benefit—	\$'000	\$'000	\$'000	\$'000	\$'000
Under arrangements applying before 1 January 1963—					
Ordinary benefits (a)	857	....	....	....	....
Additional benefits (b)	1,347	....	....	....	....
Under arrangements applying from 1 January 1963—					
Insured patients	500	1,550	1,569	1,577	1,685
Uninsured patients	57	151	151	152	148
Pensioner patients	398	1,204	1,349	1,443	1,787
Nursing home patients	600	1,565	1,734	1,897	2,033
Special account deficits (c)	431	235	184	217	229
Total	4,189	4,705	4,987	5,286	5,882
Fund benefit	3,256	3,362	3,856	4,386	5,638

(a) Paid to hospitals in respect of occupied beds. (b) Paid through benefit organisations. (c) Reimbursements paid to benefit organisations; see letterpress immediately following table.

A 'special account' system was introduced on 1 January 1959 to provide an assured rate of hospital fund benefits to contributors who would otherwise have been excluded from fund benefits on account of organisations' rules covering pre-existing ailments, chronic illnesses and maximum fund benefit. The hospital fund benefit generally payable in such cases is \$3 per day and is paid either from special accounts guaranteed by the Commonwealth or from the ordinary accounts of the organisations. One condition of payment is that the treatment in respect of which the fund benefit was paid was given in an approved hospital, although fund benefit is paid in certain circumstances in respect of treatment given in approved nursing homes. If the payments from special accounts exceed the contributions credited to the account, the amount of the deficit is reimbursed by the Commonwealth.

Australian residents who receive hospital treatment in recognised hospitals in overseas countries, while temporarily absent from Australia, are eligible to receive the Commonwealth and fund benefits to which they are entitled.

Medical Benefits

A Medical Benefits Scheme commenced to operate from 1 July 1953, being authorised under the National Health (Medical Benefits) Regulations. These regulations were superseded by the National Health Act. The basic principle of the scheme is the encouragement of voluntary insurance by individuals against the costs of medical attention. The scheme provides for the payment of benefits by the Commonwealth, through medical insurance organisations registered for the purpose. The Commonwealth benefits supplement the benefits paid by the registered organisations in respect of a proportion of the medical expenses, such as fees for medical and surgical treatment, incurred by members of those organisations and their dependants. Benefits provided by the Commonwealth are paid either on a fee-for-service basis or in the form of a subsidy representing a proportion of the payments made to medical practitioners by registered organisations under contract arrangements.

The Act was amended in 1958 to enable registered organisations to extend their payment of medical benefits by means of the special account system referred to in the preceding section. Medical fund benefits previously disallowed in cases of pre-existing disabilities and protracted illnesses have been paid from 1 January 1959 under the provisions of this amendment.

Australian residents who, while temporarily absent from Australia, receive medical attention by registered medical practitioners are entitled, if insured, to the Commonwealth benefit and the medical fund benefit to which they would be entitled if the service were rendered in Australia.

The following table shows the number of medical services rendered in Western Australia to members of medical benefit organisations and their dependants during each financial year from 1962-63 to 1966-67. The number of organisations and their membership at 30 June in each year are also shown. It should be noted that the total number of persons covered by medical benefit schemes is considerably higher than the number of contributors, as many members subscribe for benefits on account of dependants as well as for themselves.

MEDICAL BENEFITS—WESTERN AUSTRALIA

Particulars	Year ended 30 June—				
	1963	1964	1965	1966	1967
Registered organisations—					
Number at 30 June	8	8	8	8	8
Membership at 30 June	237,029	247,192	254,440	268,719	279,373
Number of medical services received (a)—	'000	'000	'000	'000	'000
General practitioner services	1,384	1,416	1,395	1,463	1,536
Other	591	654	726	770	868
Total	1,975	2,070	2,121	2,233	2,404
Amount of benefit paid—					
Commonwealth benefit—	\$'000	\$'000	\$'000	\$'000	\$'000
Ordinary	1,984	2,117	3,001	3,337	3,848
Special account deficits (b)	41	44	55	50	77
Total	2,026	2,161	3,056	3,387	3,925
Fund benefit	2,597	2,928	3,096	3,269	3,850

(a) From 1 July 1966 excludes services received by members of contract organisations.

(b) Reimbursements paid to benefit organisations.

A Pensioner Medical Service, which commenced on 21 February 1951, was introduced under the authority of the National Health (Medical Services to Pensioners) Regulations made under the provisions of the *National Health Service Act 1948-1949*. The service has been continued under the provisions of the *National Health Act 1953-1968*.

From 1 November 1955 to 31 December 1965, a special means test applied in determining eligibility for benefits provided by the Pensioner Medical Service. By an amendment to the National Health Act operative from 1 January 1966, this provision was relaxed so that all pensioners satisfying the means test in force at that date for payment of a full or partial age, invalid, widow's or service pension become eligible for enrolment in the Pensioner Medical Service. The benefits extend also to persons who receive a tuberculosis allowance and are able to satisfy this means test. Under the scheme, qualified persons and their dependants, including student children aged up to twenty-one years, are provided with a free general practitioner service. Specialist services are not provided. A small fee may be charged by practitioners who attend qualified patients outside normal surgery or visiting hours. Practitioners in the scheme are remunerated on a fee-for-service basis by the Commonwealth Government.

Pharmaceutical Benefits

The Pharmaceutical Benefits Scheme was inaugurated on 4 September 1950 when certain life-saving and disease-preventing drugs became available to the general community free of charge if duly prescribed by a medical practitioner registered in Australia. From 1 March 1960 a charge of 50 cents has been levied, except in the case of pensioners or

their dependants, for each prescription dispensed and for each repeat supply. This amount represents the first 50 cents of the total cost, the remainder being met by the Commonwealth. With the introduction of this charge, the list of drugs available as pharmaceutical benefits was greatly expanded and now comprises a wide range of drugs, including the majority of those covered by the British Pharmacopoeia. Additions are recommended from time to time by the Pharmaceutical Benefits Advisory Committee, a committee of experts which advises the Government on the value of drugs most suitable for the treatment of various diseases.

A service providing pharmaceutical benefits free of charge to pensioners has been in operation since 2 July 1951. The full range of medicines supplied under the general scheme, and certain additional drugs, are available for this service. Persons qualifying for benefits are those who hold a Pensioner Medical Service entitlement card, and the dependants of such persons including student children aged up to twenty-one years.

Free Milk for School Children

The *States Grants (Milk for School Children) Act 1950* provides for the distribution of free milk to school children throughout the Commonwealth, with the object of improving their diet. All children under the age of thirteen years attending school are eligible to receive this issue. The cost of the milk plus half the capital or incidental costs, including expenses incurred in administering the scheme, is reimbursed by the Commonwealth to the State, which arranges for the distribution.

Tuberculosis Campaign

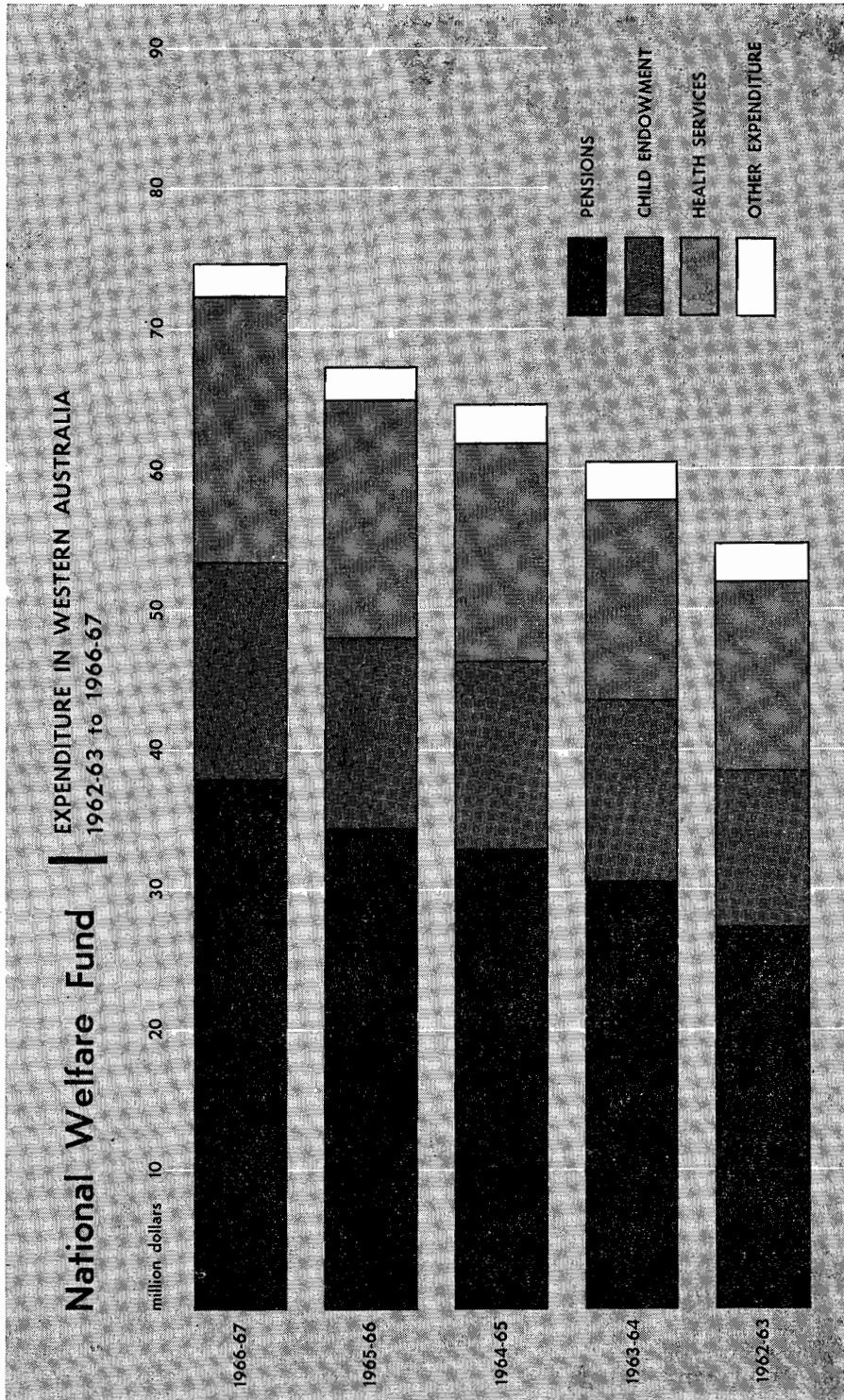
The *Tuberculosis Act 1948* provides for a joint Commonwealth and State campaign against tuberculosis. The Commonwealth has an arrangement with the States, whereby each State is required to conduct a campaign against tuberculosis and to provide adequate facilities for that purpose. In consideration of this, the Commonwealth undertakes to reimburse the State for all approved capital expenditure in relation to tuberculosis and for net maintenance expenditure to the extent that it is in excess of net maintenance expenditure for the base year 1947-48. Thus, the States are required to carry out the actual physical or field work of the national campaign with the Commonwealth acting in an advisory, co-ordinating and financial capacity.

The Act provides also for the payment of allowances to sufferers and their dependants at such rates as the Director-General of Health, subject to the direction of the Minister, determines. Payments under the scheme commenced on 13 July 1950. The maximum rate of allowance to a married sufferer with dependent wife is \$28.25 per week. An amount of \$2.50 per week is payable for each dependent child under sixteen years of age and for each student child. A sufferer without dependants is eligible to receive a maximum of \$17.25 per week or, if receiving hospital treatment free of charge, \$14 per week. There is a means test, which applies only to income and not to property. The allowance is reduced by the amount by which income from other sources exceeds \$14 per week in the case of a married sufferer and \$7 per week in the case of a person without a dependent wife.

The amounts of expenditure shown in the next table exclude Commonwealth payments to the State Government in the form of reimbursement of capital expenditure in connection with the campaign. These payments were \$66,988 in 1962-63; \$43,778 in 1963-64; \$11,434 in 1964-65; and \$2,034 in 1965-66. No payment was made to Western Australia during 1966-67.

Miscellaneous Health Services

Other expenditure from the National Welfare Fund in relation to health services includes the cost of Commonwealth Health Laboratory services, subsidies to home-nursing services, radio-active isotopes provided under the National Health Act, running expenses of the blood fractionation plant of the Commonwealth Serum Laboratories and hearing aids for school children.



Summary of Expenditure

Expenditure on health services in Western Australia from the National Welfare Fund in each financial year from 1962-63 to 1966-67 is summarised in the following table.

NATIONAL WELFARE FUND EXPENDITURE ON HEALTH SERVICES—WESTERN AUSTRALIA (\$'000)

Service	Year ended 30 June—				
	1963	1964	1965	1966	1967
Hospital benefits (a)	4,189	4,705	4,987	5,286	5,881
Medical benefits (a)	2,026	2,161	3,056	3,387	3,925
Medical benefits for pensioners	632	648	660	958	1,020
Pharmaceutical benefits	3,844	3,856	3,824	4,205	4,730
Pharmaceutical benefits for pensioners	1,317	1,386	1,470	1,665	1,989
Free milk for school children	584	615	637	619	698
Tuberculosis campaign—					
Allowances	85	89	80	61	53
Maintenance	800	751	742	697	547
Miscellaneous services	25	27	30	28	156
TOTAL	13,501	14,238	15,486	16,906	18,998

(a) For further details, see tables *Hospital Benefits—Western Australia* on page 221 and *Medical Benefits—Western Australia* on page 222.

Mental Health Institutions

The Commonwealth provides financial assistance to the States for or in connection with the building or equipment of mental health institutions. Payments are made from the Consolidated Revenue Fund.

Under the provisions of the *States Grants (Mental Institutions) Act 1955* the Commonwealth was authorised to make payments up to a total of \$20 million, of which Western Australia's share was fixed at \$1.44 million. The assistance available to a State took the form of a grant equal to one-third of the State's capital expenditure on or in connection with mental institutions. The first payments were made in respect of the financial year 1955-56.

The *States Grants (Mental Health Institutions) Act 1964-1967* repeals the earlier legislation and authorises payments commencing with the financial year 1964-65. The provision of grants equal to one-third of a State's capital expenditure on mental health institutions is continued.

Assistance extended to Western Australia under these Acts amounted to \$1.97 million during the period from 1955-56 to 1966-67.

STATE RELIEF PAYMENTS

Under the provisions of the *Welfare and Assistance Act, 1961*, the State Government, through the Child Welfare Department, extends financial assistance to indigent persons. These relief payments which in many cases supplement the social benefits provided by the Commonwealth Government are made primarily to ensure that dependent children do not suffer hardship from the indigence of parents or guardians. Those assisted include deserted wives, unmarried mothers, divorced women, widows having the care of children, and families where the husband is unable to provide adequate support because of sickness, unemployment, age or imprisonment.

Other aid provided by the State for persons in need includes rail passes for country people requiring medical treatment in the metropolitan area and the provision of school requisites for children of women receiving financial assistance. In certain circumstances, the burial of indigent persons is arranged at State expense.

Deserted wives and unmarried mothers applying to the Department for assistance are given advice concerning the legal redress available to them and it is usual for application to be made to a Summary Relief Court or a Children's Court for an order requiring

the husband or the father to provide maintenance. Court orders are enforceable throughout Australia and in certain overseas countries.

State monetary assistance to widows, not in receipt of a Commonwealth widow's pension, is at the rate of \$12.50 per week, plus \$8 per week for the first dependent child and \$2.50 per week for each other dependent child. Unmarried mothers receive State monetary assistance at the same rate. To a widow receiving a Commonwealth pension the State pays \$3 per week if she has three or more dependent children. In this context, the term 'widow' includes deserted wives, divorced women, and women deprived of support by the insanity or imprisonment of husbands. If an age or invalid pensioner has dependent children, the State allows \$2 per week where there is one child, \$2.50 per week where there are two children and \$3.50 per week where there are more than two children.

Where Commonwealth unemployment or sickness benefits are payable to married men, the State allows \$3 per week where there are one or two dependent children, \$2.50 where there are three or four children and \$2 where there are five or more children. In addition, Commonwealth child endowment is payable in respect of all dependent children. Details of Commonwealth Social Services benefits are given earlier in this Chapter in the section *Social Services Benefits*. The amount of State assistance granted is subject to a means test and in assessing income the earnings of the children of a family are taken into account.

FAMILIES RECEIVING FINANCIAL ASSISTANCE FROM CHILD WELFARE DEPARTMENT

Description	Number at 30 June—				
	1963	1964	1965	1966	1967
Widows	206	94	88	77	61
Unmarried mothers	35	64	39	46	48
Deserted wives	414	300	377	395	359
Husband pensioner	156	170	160	152	123
Husband sick or unemployed	645	320	173	187	130
Husband imprisoned	63	48	38	48	59
Divorced women	13	3	4	19	10
Foster-mothers	74	102	89	95	76
Special cases	2	3	3	3	6
Total	1,608	1,104	971	1,022	872

Under the *States Grants (Deserted Wives) Act* 1968, effective from 1 January 1968, the Commonwealth shares on a \$1 for \$1 basis with participating States in the cost of helping certain mothers with dependent children who are ineligible for a Class 'A' widow's pension. The main groups of women assisted are deserted wives during the first six months of desertion; wives during the first six months of the husband's imprisonment; deserted *de facto* wives; and *de facto* wives of prisoners. The grant by the Commonwealth to a State is equal to half the cost of the approved assistance paid by the State to each eligible person but may not exceed half the amount that would have been payable to such a person under the Social Services Act had she been eligible for a Class 'A' widow's pension. Payments are made from the National Welfare Fund, and Western Australia received an amount of \$35,406 during the period to 30 June 1968.

CHILD WELFARE

Under the provisions of the *Child Welfare Act, 1947-1968* the State Government, through the Child Welfare Department, is responsible for the care of State wards and children placed under supervision or released on probation by Children's Courts. For the purposes of the Act, a child is defined as 'any boy or girl under the age of eighteen years'. Institutions caring for children, as well as children brought to Western Australia under child migration schemes, are subject to supervision by the Department, as also are foster-

mothers who have in their care children under six years of age and are required under the Act to be licensed for this purpose. Among other functions of the Department are the arranging of legal adoptions and the licensing of children employed in street trading and in public entertainment. A provision of the Child Welfare Act vests in the Department the right to decide which institution or what form of treatment is appropriate to the needs of a child committed by a Children's Court to the care of the Department for treatment, discipline and training.

Children's Courts are established at Perth and at other centres throughout the State and have jurisdiction in all cases where children under eighteen years of age are involved whether as offenders or as being neglected or destitute. The Courts also have jurisdiction to deal with adults committing certain specified offences against children. The public may be excluded from Court hearings and names of juvenile offenders are withheld from publication unless with the express authority of the Court. Adults charged with certain indictable offences against children may forgo the right to trial by jury and agree to be dealt with summarily by Children's Courts. This power to exercise summary jurisdiction is designed to eliminate as far as possible the necessity for children to appear in open courts as witnesses in cases dealing with sex offences. A Children's Court may commit such offenders for sentence by the Supreme Court.

Children guilty of minor offences may be cautioned, fined, bound over, placed on probation, or dismissed without a conviction being recorded. A Court may declare a child to be neglected or destitute and may order the child to be committed to the care of the Child Welfare Department or released on probation. Children found guilty of offences punishable by imprisonment may be committed to the care of the Department, released on security given by parents, or released on probation under the supervision of the Department. Those guilty of less serious or first offences are generally placed in the care of their parents or suitable guardians under appropriate supervision by officers of the Child Welfare Department. Supervision and probation cases, other than State wards, numbered 509 at 30 June 1967.

Expenditure. The following table gives details of the annual expenditure of the Child Welfare Department during the five-year period ended 30 June 1967.

EXPENDITURE OF CHILD WELFARE DEPARTMENT
(£'000)

Nature of expenditure	Year ended 30 June—				
	1963	1964	1965	1966	1967
Administration	352	396	411	445	516
Departmental institutions	376	408	516	632	722
Maintenance of wards	267	332	358	385	440
Maintenance of migrant children	29	26	19	12	7
Outdoor relief (a)	313	321	337	351	393
Unemployment relief	101	91	69	42	40
Parole classes	3	3	4	3	3
Burial of indigents	6	9	7	9	8
Total expenditure	1,447	1,586	1,720	1,879	2,130
Total revenue	141	154	166	193	198
Net expenditure	1,306	1,432	1,554	1,686	1,932

(a) Assistance to women with dependent children and to the infirm.

Wards of the Child Welfare Department. A child committed to the care of the Child Welfare Department or to the custody of the Director of Child Welfare becomes a ward of the Department. A ward may be placed in an institution, boarded out with a relative or other approved person, paroled or placed in suitable employment. The Director of Child Welfare has authority to place wards of working age in employment or apprenticeship. Where a ward is required to live at the place of employment, a service agreement covering wages and working conditions is made between the employer and the Department, which continues to watch the interests of the ward. The *Immigration (Guardian-*

ship of Children) Act 1946-1952 (Commonwealth) provides that the Minister for Immigration shall be the guardian of migrant children under the age of twenty-one years who are not in the care of a parent or other relative. In Western Australia this function is exercised, under delegation, by the Director of Child Welfare.

At 30 June 1967 there were 4,077 wards, of whom 1,221 were in institutions (including 147 migrant children, 441 at missions for Aborigines, 56 in hospital and 18 in prison), 831 were boarded out on subsidy, and 2,025 were on parole or probation or in employment.

Private Children. In addition to wards, there are some private children under the supervision of the Department. These comprise children under six years of age who may be either in institutions or in the care of licensed foster-mothers. At 30 June 1967 the Department had under its supervision 262 private children in institutions and forty-four in the care of foster-mothers.

Maintenance of Children. Payments by the Child Welfare Department to foster-parents having the care of State wards are at the weekly rate of \$5.60 for the first child, \$5.20 for the second child and \$5 for each additional child. Institutions are paid subsidies of from \$5.10 to \$6 per week for each ward in their care. The British Government pays \$2.50 per week for each British migrant child in institutions or boarded out and the State Government pays an additional amount of 60 cents per week. A further grant of \$1 per week for each child maintained is paid to the institutions by the State Lotteries Commission. Where an institution refuses assistance from the Commission on religious or moral grounds the State Government may grant an equivalent allowance to the institution for each ward maintained. All institutions and foster-parents having the care of children receive Commonwealth child endowment payments.

Parents or step-parents are required to contribute towards the maintenance of wards in institutions or boarded out.

Employment of Children. The *Child Welfare Act, 1947-1968* provides that children may not engage in street trading except under license granted by the Department. The issue of licences is restricted to those aged twelve years and over and it is an offence to employ an unlicensed child. Most of the licences issued are for the sale of newspapers.

The Act provides further that children under the age of sixteen years may not take part in any form of public entertainment for profit or reward unless under licence, except in the case of an occasional entertainment for the benefit of a school or charitable or patriotic object. Most of these licences are issued for concerts arranged by dancing teachers and other tutors.

Adoption of Children. Any person who takes charge of a child with the object of adoption must notify the Director of Child Welfare. Legal adoptions may be arranged by the Department or privately by solicitors. In either case, the Director is required to investigate the suitability of applicants and an order for adoption must be obtained from a Judge of the Supreme Court. During the year ended 30 June 1967, adoption orders numbering 570 were granted. Of this total, 307 were arranged by the Department and 263 were arranged privately.

Institutions. The State Government subsidises homes for children in Western Australia. Most of these institutions are conducted by religious organisations. All institutions having the care of wards (including migrant children) or private children under six years of age are subject to the supervision of the Department.

'Hillston' Anglican Farm School at Stoneville and 'Riverbank' at Caversham are reformatories for delinquent boys. 'Riverbank' is a maximum security institution for the treatment of the more difficult offenders and is controlled by the Child Welfare Department. The Home of the Good Shepherd at Leederville cares for delinquent and maladjusted girls.

The Child Welfare Department maintains a Reception Home at Mount Lawley which serves as a temporary shelter for deprived or neglected children awaiting placement, and as a haven for children whose parents are temporarily unable to care for them. 'Longmore' Remand and Assessment Centre at Bentley is a maximum security institution which provides personal supervision for boys and girls aged thirteen to eighteen years. Children accommodated are those who are on remand from a Children's Court or have been newly committed to the care of the Department. While at the Centre they undergo medical, mental or social investigation to determine appropriate subsequent action. The Centre is designed to accommodate sixty children.

The following table shows details of children in institutions under the supervision of the Child Welfare Department at 30 June 1967.

CHILDREN IN INSTITUTIONS AT 30 JUNE 1967 (a)
(Excluding missions for Aborigines)

Institution	State wards		Migrant children (b)		Private children		Total		
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Children
CHILD WELFARE DEPARTMENT—									
Longmore, Bentley	32	20	.....	.....	.....	.....	32	20	52
Reception Home, Mount Lawley	14	15	.....	.....	2	1	16	16	32
Riverbank, Caversham	34	.....	.....	.....	.....	.....	34	.....	34
Total	80	35	.....	.....	2	1	82	36	118
ANGLICAN—									
Hillston Farm School, Stoneville	62	.....	.....	.....	.....	.....	62	.....	62
Parkerville Children's Home, Parkerville	33	14	.....	.....	34	32	67	46	113
W.A. Saw Seaside Home, Coogee	4	2	.....	.....	9	6	13	8	21
Total	99	16	.....	.....	43	38	142	54	196
METHODIST—									
Allandale Boys' Cottage, East Victoria Park	3	.....	.....	.....	7	.....	10	.....	10
Mofflyn, East Victoria Park	5	7	.....	.....	25	13	30	20	50
Total	8	7	.....	.....	32	13	40	20	60
PRESBYTERIAN—									
Sister Kate's Children's Home, Queens Park	34	40	.....	.....	10	7	44	47	91
ROMAN CATHOLIC—									
Castledare Boys' Home, Wilson	14	.....	7	.....	85	.....	106	.....	106
Clontarf Boys' Town, Wilson	22	.....	1	.....	130	.....	153	.....	153
Home of the Good Shepherd, Leederville .....	.....	48	.....	.....	.....	38	.....	86	86
Keaney College, Bindoon	2	.....	1	.....	.....	.....	3	.....	3
Nazareth House, Geraldton	6	9	.....	1	12	38	18	48	66
Saint Joseph's Orphanage, Wembley .....	.....	7	.....	7	.....	64	.....	78	78
Saint Mary's Agricultural School, Tardun	11	.....	8	.....	47	.....	66	.....	66
Saint Vincent's Foundling Home, Wembley	10	11	.....	.....	34	22	44	33	77
Total	65	75	17	8	308	162	390	245	635
SALVATION ARMY—									
Boys' Home, Nedlands	40	.....	.....	.....	12	.....	52	.....	52
Girls' Home, Mosman Park .....	.....	9	.....	.....	.....	26	.....	35	35
Total	40	9	.....	.....	12	26	52	35	87
UNDENOMINATIONAL—									
Kingsley Fairbridge Farm School, Pinjarra	6	2	68	54	.....	.....	74	56	130
Ngal-a, Kensington	23	15	.....	.....	.....	.....	23	15	38
Wanslea, Cottesloe	3	2	.....	.....	.....	.....	3	2	5
Total	32	19	68	54	.....	.....	100	73	173
GRAND TOTAL	358	201	85	62	407	247	850	510	1,360

(a) Excludes 56 State wards in hospitals and 18 State wards in prison.

(b) See letterpress Wards of the Child Welfare Department on pages 227-8.

Chapter V—continued

Part 6—Law Courts, Police and Prisons

LAW COURTS

The principal courts operating in Western Australia are the High Court of Australia, the Supreme Court of Western Australia, the Third Party Claims Tribunal, Courts of Session, the Magistrates' and Coroners' Courts, the Summary Relief Court and the State Licensing Court. In Chapter X, Part 1, reference is made to the Commonwealth Industrial Court, the Commonwealth Conciliation and Arbitration Commission, the Western Australian Industrial Appeal Court, and The Western Australian Industrial Commission.

High Court of Australia

The High Court of Australia is the Federal Supreme Court and its powers are defined in the Commonwealth Constitution and in the *Judiciary Act* 1903–1968. The High Court consists of a Chief Justice and six other Justices. Sittings are held in the capital city of each State as occasion may require. The High Court exercises both original and appellate jurisdiction, acting as a court of appeal for Australia.

An appeal may lie from a judgment of the High Court of Australia to the Judicial Committee of the Privy Council in London. However, the *Privy Council (Limitation of Appeals) Act* 1968 (Commonwealth), which came into operation on 1 September 1968, limits the matters which may be the subject of special leave of appeal from a decision of the High Court. The Act provides, in part, that leave of appeal 'may be asked only in a matter in which the decision of the High Court was a decision that (a) was given on appeal from a decision of the Supreme Court of a State given otherwise than in the exercise of federal jurisdiction; and (b) did not involve the application or interpretation' of the Australian Constitution, or of a Commonwealth law (including any ordinance, rule, regulation or by-law made under such a law).

Supreme Court of Western Australia

The Supreme Court of Western Australia, as constituted under the *Supreme Court Act, 1935–1964*, consists of a Chief Justice and such other Judges, not exceeding six in number, as may from time to time be appointed. The jurisdiction of the Court in both civil and criminal matters is exercised by a single Judge, sitting alone or with a jury, unless it is provided that an action must be brought before a Full Court. Criminal cases are heard before a jury. Criminal sittings of the Supreme Court are held at Perth each month from February to December. Civil sittings and Full Court sittings are held at times fixed by the Court from year to year.

The Circuit Court sits at Albany, Bunbury, Geraldton and Kalgoorlie four times a year, and a Judge of the Supreme Court usually presides.

Any two or more Judges together comprise a Full Court except that when sitting as a court of criminal appeal there must be an uneven number of Judges. The Full Court sits at least five times in every year with additional sittings when necessary. Appeals are heard against judgments of the Supreme Court and of the Circuit Courts and Courts of Session as well as against decisions of the magistrates in lower courts.

Appeal from a judgment of the Supreme Court of Western Australia lies to the High Court of Australia, subject to the provisions of the *Judiciary Act* 1903–1968 (Commonwealth), and may also be made direct to the Privy Council.

Third Party Claims Tribunal

The Third Party Claims Tribunal is established under the provisions of the *Motor Vehicle (Third Party Insurance) Act Amendment Act, 1966*. The Tribunal consists of three members, including a Chairman, appointed by the Governor. The Chairman must be either a Judge or a legal practitioner of not less than eight years' standing and practice. The Tribunal has exclusive jurisdiction to hear and determine all actions and proceedings brought against an owner or driver of a motor vehicle, or against The Motor Vehicle Insurance Trust, claiming damages in respect of the death of, or bodily injury to, any person caused by or arising out of the use of a motor vehicle. The Tribunal may, in respect of any claim, delegate powers to the magistrate of a Local Court. Any party dissatisfied with any decision, determination or judgment of the Tribunal in any action or proceedings under the Act may appeal to the Full Court of the Supreme Court.

Courts of Session

Courts of Session are held four times a year, or as required, at the principal court house of each of the fourteen session divisions. Either a Judge of the Supreme Court or the Chairman of the Court of Session may preside. The Chairman of a Court of Session is the Stipendiary Magistrate stationed at the centre at which a Court is held. Only criminal cases are dealt with and a jury is therefore required at all sittings. A case may be reserved for hearing before a Judge of the Supreme Court.

Magistrates' and Coroners' Courts

In addition to their usual functions, magistrates act as coroners and mining wardens where required. Two or more Justices of the Peace sitting together in petty sessions may deal with cases which could be decided by a magistrate sitting alone.

POLICE COURTS. Police Courts are held at centres of population throughout the State. Minor offences are dealt with summarily, but a person charged with an indictable offence may be committed to a higher court for trial or sentence if there is sufficient evidence to justify this course.

CHILDREN'S COURTS. Children's Courts are established under the provisions of the *Child Welfare Act, 1947-1968* to deal with offenders under the age of eighteen years and to hear certain specified cases of offences against children. Certain cases of offences concerning children may be remanded for hearing or committed for sentence before the Supreme Court. The public may be excluded from Children's Court hearings and names of juvenile offenders are withheld from publication unless with the express authority of the Court. Children's Courts operate in Perth, and at other centres as required. Further reference to Children's Courts appears in the section *Child Welfare* in Part 5 of this Chapter.

CORONERS' COURTS. Coroners' Courts may be held to inquire into the circumstances of sudden or unnatural deaths or the cause and origin of fires. A Coroner may charge a person with a major offence and commit him for trial at a higher court.

SUMMARY RELIEF COURT. The Summary Relief Court is established under the provisions of the *Married Persons and Children (Summary Relief) Act, 1965-1967* and is empowered to make orders providing for separation, payment of maintenance, legal custody of a child and access to a child.

LOCAL COURTS. Local Courts are held throughout the State to determine minor civil issues, largely the recovery of small debts. Jurisdiction is limited in most cases to claims not exceeding \$1,000.

State Licensing Court

The State Licensing Court consists of three members appointed by the Governor to administer the Licensing Act and to issue licences for the sale of alcoholic liquor.

COURT PROCEEDINGS

Higher Courts

The term *Higher Courts*, as used in the following table and in the tables on pages 233 and 236, refers to courts presided over by a Judge. The general jurisdiction of the higher courts includes appeals from the lower courts, cases of crime committed from lower courts, and civil cases. Under the *Bankruptcy Act 1966-1968* (Commonwealth) the Supreme Court of Western Australia is invested with jurisdiction in bankruptcy, and under the *Matrimonial Causes Act 1959-1966* (Commonwealth) with jurisdiction in divorce and related matters. Decrees of dissolution of marriage, nullity of marriage, and judicial separation may be granted by the Supreme Court or the Circuit Court.

Civil Proceedings

Particulars of civil cases dealt with by the courts in the five years ended 31 December 1967 are shown in the following table.

CIVIL PROCEEDINGS

Particulars	1963	1964	1965	1966	1967
Number of proceedings—					
Bankruptcy (a)—					
Sequestration orders	171	186	236	197	195
Compositions and assignments without sequestration	70	55	72	80	82
Divorce (b)—					
Petitions filed	629	656	738	791	890
Decrees granted (c)	554	545	606	640	727
Other civil proceedings—					
Higher courts—					
Writs issued	1,121	1,255	1,463	1,776	2,063
Judgments signed and entered	380	408	490	652	633
Local courts—					
Plaints entered	54,916	60,023	56,141	54,289	55,559
Verdicts for plaintiffs	24,283	26,834	27,910	23,885	25,769
Amounts awarded—	\$'000	\$'000	\$'000	\$'000	\$'000
Higher courts—					
Judgments signed and entered	1,137	1,237	2,228	2,274	5,770
Local courts—					
Verdicts for plaintiffs	2,182	2,534	2,627	2,446	2,822

(a) Figures relate to year ended 30 June; for further details see pages 274-5. (b) For further details see pages 157-8.
(c) Comprises decrees for dissolution of marriage, nullity of marriage, and judicial separation.

Third Party Claims Tribunal

The Third Party Claims Tribunal established under the provisions of the *Motor Vehicle (Third Party Insurance) Act Amendment Act, 1966* acquired jurisdiction in December 1967. In the period to 31 December 1968, 409 claims were filed with the Tribunal, awards were made for damages amounting to \$405,000, and settlements involving damages of a total value of \$123,000 were approved.

CONVICTIONS IN COURTS

Aborigines

The figures shown in the tables on pages 233-4 and 236 include, for the first time, particulars of Aborigines and are therefore not comparable with those appearing in earlier issues of the Year Book. An analysis of convictions of Aborigines during each year of the period from 1963 to 1967, according to class of offence, is given on page 235.

Number of Convictions

It is important to bear in mind when considering the particulars shown in the tables on pages 233-6 that the figures relate to the *number of convictions* recorded and not to the *number of persons* convicted. Thus, where a person is convicted on more than one count at the same hearing, each conviction so recorded has been included in the statistics appearing in the tables.

Higher Courts

HIGHER COURTS—NUMBER OF CONVICTIONS (a)

Class of offence	1963	1964	1965	1966	1967
Offences against the person—					
Murder	4	3	3	1	2
Attempted murder	1	1	1	3	3
Manslaughter	13	6	8	7	4
Negligent driving causing death	1	12	8	11	4
Sex offences	22	19	38	36	32
Assault	11	5	17	13	25
Other	2	6	8	7	7
Total	53	51	83	78	77
Offences against property—					
Breaking, entering, and stealing	303	219	258	271	329
Stealing, receiving	81	101	55	46	95
Other	41	14	16	19	14
Total	425	334	329	336	438
Forgery and offences against the currency	17	3	53	63	31
Offences against good order	7	13	4	3	8
Other offences .....	....	16	4	8	9
GRAND TOTAL	502	417	473	488	563

(a) See letterpress *Aborigines* on page 232.

Magistrates' Courts

MAGISTRATES' COURTS (a)—NUMBER OF CONVICTIONS (b)

Class of offence	1963	1964	1965	1966	1967
Offences against the person—					
Sex offences	148	169	110	148	172
Assault	516	574	674	717	801
Other	3	2	2	3	1
Total	667	745	786	868	974
Offences against property—					
Breaking, entering, and stealing	1,020	831	789	1,406	1,546
Stealing, receiving	5,210	4,796	4,787	4,879	5,461
Unlawfully on premises	300	249	370	444	503
Unlawfully using motor vehicles	815	954	717	1,173	1,107
Wilful damage	403	397	491	527	562
Other	26	35	39	53	46
Total	7,774	7,262	7,193	8,482	9,225
Forgery and offences against the currency	9	10	11	7	8
Offences against good order—					
Drunkenness	7,294	7,910	8,395	9,033	10,722
Disorderliness	1,605	2,029	2,267	2,359	2,899
Vagrancy	520	396	502	569	625
Escaping legal custody	608	677	121	124	141
Offences against police	100	86	672	729	826
Other .....	....	....	104	83	87
Total	10,127	11,098	12,061	12,897	15,300
Other offences—					
Breach of—					
Traffic Act	30,516	30,772	35,428	33,905	36,468
Liquor laws	1,400	1,293	1,582	1,735	2,811
Health laws	277	330	251	195	214
Gaming	297	212	251	81	118
Industrial offences	156	131	147	86	151
Maintenance offences	704	630	696	634	842
Taxation offences	624	219	684	522	642
Other offences	5,361	6,285	6,452	5,344	6,045
Total	39,335	39,872	45,491	42,502	47,291
GRAND TOTAL	57,912	58,987	65,542	64,756	72,798

(a) Including Children's Courts.

(b) See letterpress *Aborigines* on page 232.

Convictions of Juveniles

The term *juvenile*, as used in relation to the statistics given in this Part, means a person under the age of eighteen years. Convictions of juvenile offenders are included in the figures shown in the tables on pages 233 and 235, and are given separately in the tables below and on page 236.

The following table shows the number of convictions of juvenile offenders in higher (Judges') courts and magistrates' courts (including Children's Courts) in Western Australia during the five years ended 31 December 1967.

OFFENCES BY JUVENILES—NUMBER OF CONVICTIONS (a) (b)

Class of offence	1963	1964	1965	1966 (b)	1967 (b)
Offences against the person—					
Sex offences	70	66	50	56	76
Assault	49	73	56	80	107
Other	1	1	....	1	1
Total	120	140	106	137	184
Offences against property—					
Breaking, entering, and stealing	953	780	687	1,402	1,544
Unlawfully on premises	86	77	84	126	163
Stealing, receiving	2,023	1,826	1,823	2,038	2,318
Unlawfully using motor vehicles	434	516	396	840	761
Wilful damage	177	160	190	250	268
Other	13	20	26	34	38
Total	3,686	3,379	3,206	4,690	5,092
Forgery and offences against the currency	6	7	10	3	4
Offences against good order—					
Drunkenness	47	83	91	166	161
Disorderliness	163	230	176	256	300
Vagrancy	19	37	27	46	33
Escaping legal custody	17	....	10	19	10
Offences against police	58	89	79	112	143
Other	33	15	16	32	34
Total	337	454	399	631	681
Other offences—					
Breach of—					
Traffic Act	1,845	2,231	2,416	2,394	2,442
Liquor laws	176	204	222	243	488
Other offences	171	243	187	198	188
Total	2,192	2,678	2,825	2,835	3,118
GRAND TOTAL	6,341	6,658	6,546	8,296	9,079

(a) Comprises convictions in higher courts and magistrates' courts (including Children's Courts). (b) There is a break in continuity in this series; figures for years prior to 1966 exclude convictions of Aborigines, while those for 1966 and later include Aborigines.

The following table gives a classification, according to age of offender, of convictions of juveniles in courts in Western Australia during the year ended 31 December 1967.

CONVICTIONS OF JUVENILES, 1967 (a) (b)
AGES OF OFFENDERS

Class of offence	Age last birthday (years)												Not stated	Total
	7	8	9	10	11	12	13	14	15	16	17			
Against the person .....	....	....	....	....	2	1	9	15	22	59	74	....	2	184
Against property	3	29	77	151	306	439	522	694	913	940	915	103	....	5,092
Forgery, etc. ....	....	....	....	....	....	....	1	....	1	2	....	....	....	4
Against good order .....	....	....	....	....	2	....	14	41	111	211	294	8	....	681
Other offences (c) .....	....	....	....	....	....	....	....	....	....	....	....	3,118	....	3,118
Total	3	29	77	151	310	440	546	750	1,047	1,212	1,283	3,231	....	9,079

(a) Comprises convictions in higher courts and magistrates' courts (including Children's Courts). (b) See letterpress Aborigines on page 232. (c) The figures shown comprise mainly convictions for traffic offences and breaches of liquor laws.

Convictions of Aborigines

Convictions recorded against Aboriginal offenders are included in the figures contained in the tables on page 233 and, except for the years 1963 to 1965, in those on page 234. The total number of convictions of Aborigines in each year from 1963 to 1967 are shown in the following table. The figures relate to convictions in higher courts and magistrates' courts (including Children's Courts).

OFFENCES BY ABORIGINES—NUMBER OF CONVICTIONS (a)

Class of offence	1963	1964	1965	1966	1967
Offences against the person—					
Murder .....	....	....	1	....	....
Manslaughter	3	2	1	3	....
Sex offences	23	11	16	22	18
Assault	116	172	241	274	299
Other	1	....	4	1	....
Total	143	185	263	300	317
Offences against property—					
Breaking, entering, and stealing	47	60	107	230	280
Stealing, receiving	276	341	442	356	627
Unlawfully on premises	38	47	64	77	104
Unlawfully using motor vehicles	92	134	113	114	213
Wilful damage	57	81	97	84	99
Other .....	....	3	2	23	3
Total	510	666	825	884	1,326
Forgery and offences against the currency	1	....	....	....	3
Offences against good order—					
Drunkenness	2,417	3,381	3,742	3,922	5,376
Disorderliness	495	747	938	1,005	1,561
Vagrancy	113	126	165	185	223
Escaping legal custody	116	183	39	35	65
Offences against police	4	2	164	183	240
Other .....	....	....	16	6	11
Total	3,145	4,439	5,064	5,336	7,476
Other offences—					
Breach of—					
Native Welfare Act	626	383	420	350	196
Traffic Act	450	617	537	521	712
Liquor laws	87	108	91	132	232
Health laws .....	....	3	....	2	....
Gaming	7	19	16	8	....
Maintenance offences	26	24	27	13	9
Other offences	89	112	115	117	147
Total	1,285	1,266	1,206	1,143	1,296
GRAND TOTAL	5,084	6,556	7,358	7,663	10,418

(a) Comprises convictions in higher courts and magistrates' courts (including Children's Courts).

It will be seen from the table that more than half the convictions were connected with the consumption of alcoholic liquor. From 1 July 1964, when the *Licensing Act Amendment Act (No. 4), 1963* came into operation, the former restrictions on the consumption of alcoholic liquor by Aborigines have been limited to areas of the State declared for the purpose. The restricted area which, from 1 July 1964, was the portion of Western Australia outside the South-West Land Division (see page 135), was reduced with effect from 1 November 1966 so as to comprise approximately that area of the State lying east of longitude 121°E.

Summary of Convictions in Courts

The following table gives a summary of convictions in courts in Western Australia during each of the five years to 31 December 1967, together with an analysis according to class of offence of convictions recorded during the year ended 31 December 1967.

COURT CONVICTIONS—SUMMARY

Particulars	Higher courts (a)			Magistrates' courts (a)			Convictions of juveniles (b) (c)			
	Males	Females	Total	Males	Females	Total	Males	Females	Total	
FIVE YEARS ENDED 31 DECEMBER 1967										
Year—										
1963	490	12	502	52,514	5,398	57,912	5,949	392	6,341	
1964	405	12	417	53,363	5,624	58,987	6,245	413	6,658	
1965	437	36	473	58,723	6,819	65,542	6,110	436	6,546	
1966	427	61	488	57,695	7,061	64,756	7,666	630	8,296	
1967	547	16	563	64,256	8,542	72,798	8,331	748	9,079	

YEAR ENDED 31 DECEMBER 1967

Class of offence—	Males	Females	Total	Males	Females	Total	Males	Females	Total
Against the person	70	7	77	937	37	974	180	4	184
Against property	430	8	438	8,282	943	9,225	4,632	460	5,092
Forgery, etc.	31	.....	31	7	1	8	3	1	4
Against good order	8	.....	8	12,560	2,740	15,300	563	118	681
Other offences	8	1	9	42,470	4,821	47,291	2,953	165	3,118
Total	547	16	563	64,256	8,542	72,798	8,331	748	9,079

(a) See letterpress *Aborigines* on page 232. (b) Included in figures shown under *Higher courts* and *Magistrates' courts*. (c) There is a break in continuity in this series; figures for years prior to 1966 exclude convictions of Aborigines, while those for 1966 and later include Aborigines.

Regulations under the Traffic Act allow fines to be imposed without court action for minor traffic offences. Similar provisions apply under parking facilities legislation and municipal by-laws. These minor offences (which are, of course, excluded from the tables relating to court convictions) numbered 43,970 in 1963; 49,488 in 1964; 51,167 in 1965; 64,842 in 1966; and 62,827 in 1967.

LIQUOR LICENCES

The following table shows the number of liquor licences of the several types in force in Western Australia at 31 December of each year from 1963 to 1967. The figures in the table relate to licences granted under the provisions of the *Licensing Act, 1911-1967*.

LIQUOR LICENCES IN FORCE

Class of licence	At 31 December—				
	1963	1964	1965	1966	1967
Publican's general	403	407	411	413	418
Limited hotel	3	3	3	3	3
Wayside house	47	43	42	42	41
Australian wine, beer and spirits	1	1	1	1	1
Australian wine	48	48	48	47	47
Australian wine, bottle	6	5	5	5	6
Packet	9	9	9	9	9
Railway refreshment room	2	1	1	1	.....
Spirit merchant's	43	44	44	44	44
Brewer's	4	4	4	4	4
Gallon	215	214	211	212	212
Eating-house, boarding-house, lodging-house	2	.....	.....	.....	.....
Club	218	230	236	237	240
Canteen	8	5	15	14	8
Restaurant	22	24	24	22	23
Total	1,031	1,038	1,054	1,054	1,056

By a provision of the *Government Railways Act, 1904-1967*, The Western Australian Government Railways Commission is authorised to lease railways premises for the sale of refreshments, subject to the provisions of the Licensing Act. Where the licensee is not an officer employed by the Commission, the lease requires the sanction of the Licensing Court and is subject to such conditions as the Court may impose.

A licence applying to premises at Perth International Airport is issued in terms of the *Airports (Business Concessions) Act 1959* (Commonwealth).

POLICE

The Western Australian Police Force comprises five main branches under the direction of the Commissioner of Police. The Commissioner is responsible to the Minister for Police and is assisted by a Deputy Commissioner.

For the administration of the Uniformed Branch, the State is divided into three metropolitan districts and seven country districts, each under the direction of an Inspector-in-Charge. There are three specialised branches, the Criminal Investigation Branch, the Plain Clothes Branch and the Traffic Branch, each of which is headed by an Inspector-in-Charge. The Women Police form the fifth branch.

The following table shows the numbers and classification of members of the Western Australian Police Force at 30 June in each of the years 1966 and 1967.

POLICE FORCE—NUMBER AND CLASSIFICATION (a)
AT 30 JUNE 1966 AND 30 JUNE 1967

Classification	Branch and number of officers										Total (a)	
	Uniformed Branch		Criminal Investigation Branch		Plain Clothes Branch		Women Police		Traffic Branch			
	1966	1967	1966	1967	1966	1967	1966	1967	1966	1967	1966	1967
Inspector	25	27	4	4	1	1	.....	.....	6	5	36	37
Sergeant	162	158	.....	.....	5	5	2	3	26	31	195	197
Detective sergeant	.....	.....	39	40	.....	.....	.....	.....	.....	.....	39	40
Detective constable	.....	.....	62	61	.....	.....	.....	.....	.....	.....	62	61
Constable	767	782	.....	.....	47	50	17	17	153	188	984	1,037
Total	954	967	105	105	53	56	19	20	185	224	1,316	1,372

(a) In addition to the numbers shown there were a Commissioner of Police, a Deputy Commissioner of Police and a Chief Inspector of Police.

The Uniformed Branch comprises the main body of the Police Force and is responsible for the routine maintenance of law and order throughout the State. Where required, officers of the Branch act as Clerks of Courts and perform special duties for other government authorities.

The Criminal Investigation Branch is centred in Perth, with several sub-branches in the metropolitan area and at Albany, Bunbury, Geraldton, Kalgoorlie, Kellerberrin, Narrogin and Northam. The Branch is equipped with radio patrol cars and the usual facilities for work on fingerprints, photography and ballistics. Special staffs attached to the Criminal Investigation Branch are responsible for security and for police work in connection with gold stealing, pillaging and thefts from retail shops.

The Plain Clothes Branch is concerned mainly with the enforcement of the liquor laws and laws for the suppression of vice and gaming. Licensing of firearms is also a responsibility of the Branch.

The Women Police are employed mainly in police duties concerning women and children. Policewomen are stationed at Perth, Fremantle, Geraldton and Kalgoorlie.

The Traffic Branch has its principal office in Perth and has eight sub-branches. It is responsible for the regulation of traffic and the licensing of motor vehicles in the Metro-

politan Traffic Area. In other parts of the State these functions are performed by the local government authorities. Licences to drive motor vehicles are issued by police officers throughout the State. The Traffic Branch is responsible for the patrol of major highways to check commercial vehicles for overloading and for excessive speed. Officers of the Branch instruct school children in the principles of road safety and assist the National Safety Council of Western Australia to conduct a school where young persons are instructed in the proper use of motor cycles. Traffic Education Classes, although held mainly for the instruction of minor offenders against traffic laws, also admit members of the public who attend voluntarily.

Police and Citizens' Youth Clubs are established by the Police Department to provide recreational facilities for young people and to give them an appreciation of civic responsibilities. In 1967, there were nine clubs in the metropolitan area and twenty in country districts, with a total membership exceeding 6,000.

PRISONS

In Western Australia there are eight prison establishments under the control of the Prisons Department, and twelve police gaols administered jointly by the Prisons Department and the Police Department. The principal institution is at Fremantle and there are regional gaols at Albany, Broome and Geraldton, and at Kalgoorlie (established in March 1968). Fremantle Prison has outstations at Barton's Mill, Pardelup Prison Farm, and Karnet Rehabilitation Centre at Keysbrook.

The following table shows the number of receivals for penal imprisonment in gaols in Western Australia during each of the five years to 30 June 1967. It is important to note that the figures relate to *receivals* and not to *distinct persons*, i.e. a prisoner has been counted once for each time he or she was received.

PENAL IMPRISONMENT—NUMBER OF RECEIVALS (a)

Institution	Year ended 30 June—									
	1963		1964		1965		1966		1967	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Prisons—										
Fremantle (b)	2,871	303	2,659	294	2,506	282	2,474	297	2,795	309
Albany (c) ....	.....	.....	.....	.....	.....	.....	.....	.....	186	41
Broome	89	11	111	8	145	9	113	14	161	19
Geraldton (d) ....	.....	.....	.....	.....	185	31	189	41	286	52
Total	2,960	314	2,770	302	2,836	322	2,776	352	3,428	421
Police gaols	1,321	134	1,476	233	1,231	165	1,107	155	1,291	217
GRAND TOTAL	4,281	448	4,246	535	4,067	487	3,883	507	4,719	638

(a) Excludes imprisonment for debt.
 (c) Opened 16 September 1966.
 during year ended 30 June 1965.

(b) Includes Barton's Mill, Karnet Rehabilitation Centre and Pardelup Prison Farm.
 (d) Administration transferred from Police Department to Prisons Department

Fremantle gaol is divided into separate sections for females, prisoners on remand or awaiting trial, juvenile prisoners, and other sentenced prisoners. There are workshops where prisoners are employed in bootmaking, carpentry, printing, tailoring, tin-smithing and welding, and in making cement and plaster products. Prisoners can also qualify as cooks and bakers. A school is conducted by teachers supplied by the Education Department, and tuition by correspondence is also available.

Barton's Mill, Pardelup Prison Farm and Karnet Rehabilitation Centre are minimum security institutions housing male prisoners. At Barton's Mill the main activity is the cutting of firewood for government establishments. This production is declining as timber resources in the area are becoming depleted, and trade training workshops are being developed. Farming is carried on at Pardelup Prison Farm and Karnet Re-

habilitation Centre, and inmates receive instruction in animal husbandry, market gardening, and the operation and maintenance of farm machinery. Karnet Rehabilitation Centre is a dual-purpose institution with accommodation in two dormitory blocks, one of which houses convicted inebriates. The other block provides for selected inmates, mainly young first offenders, for whom accommodation is being increased by the erection of single cabins adjacent to the dormitory block.

Police gaols are established in Perth and at other centres. They are used for the detention of short-sentence prisoners and prisoners awaiting trial. In addition, provision is made for holding prisoners for short periods at police stations throughout the State.

The following table shows the number of prisoners, excluding trial and remand prisoners and debtors, in gaols in Western Australia at 30 June in each year from 1963 to 1967.

PRISONERS IN GAOL

Institution	At 30 June—									
	1963		1964		1965		1966		1967	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Prisons—										
Fremantle	459	28	457	23	405	33	459	27	521	46
Albany (a)									48	5
Barton's Mill	89		86		77		90		119	
Broome	23	1	28	1	40	1	35	1	51	7
Geraldton (b)					17	2	21		43	3
Karnet Rehabilitation Centre (c)—										
Inebriates' Section			35		38		37		57	
Other	43		58		46		53		60	
Pardelup Prison Farm	46		49		50		51		62	
Total	660	29	713	24	673	36	746	28	961	61
Police gaols	81	4	81	7	85	9	84	5	105	10
GRAND TOTAL	741	33	794	31	758	45	830	33	1,066	71

(a) Opened 16 September 1966. (b) Administration transferred from Police Department to Prisons Department during year ended 30 June 1965. (c) Opened 29 March 1963.

PROBATION AND PAROLE SERVICE

The Probation and Parole Service, a branch of the Crown Law Department, is constituted under the provisions of the *Offenders Probation and Parole Act, 1963-1965*.

Part II of the Act, dealing with the probation of offenders, came into operation on 1 January 1965. Probation officers appointed under the Act carry out supervision of offenders placed on probation by the courts. A court may require the Chief Probation Officer to report on an offender before sentence is imposed.

Part III, which relates to the parole of offenders, came into operation on 1 October 1964. It establishes a Parole Board of five members, comprising a Judge of the Supreme Court as chairman, the Comptroller-General of Prisons, and three members appointed by the Governor.

The Act requires that where a person is sentenced to imprisonment for twelve months or longer the court shall, unless special circumstances make it inappropriate, fix a minimum term during which the convicted person is not eligible to be released. The court is given discretionary power to fix a minimum term where the sentence is for less than twelve months. Provision is made for the reduction of a minimum term, as a reward for good conduct or industry. Where no minimum term has been fixed, remission of up to 25 per cent of the sentence may be allowed for diligence and good conduct.

The Parole Board is empowered to release on parole a prisoner who has served a minimum term fixed by a court, or a prisoner being detained at the Governor's pleasure. The Governor may direct the release on parole of a prisoner sentenced to imprisonment

for life, a prisoner undergoing a sentence of imprisonment for life commuted from a sentence of death, or an unconvicted person held in custody during the Governor's pleasure following acquittal because of unsoundness of mind.

Parole officers establish contact with prisoners before release on parole and supervise them during the parole period.

The following table gives particulars of the operations of the Probation and Parole Service from inception to 30 June 1967.

PROBATION AND PAROLE

Particulars	Probation			Parole (a)		
	1965 (b)	1966 (c)	1967 (c)	1965 (d)	1966 (c)	1967 (c)
Number of persons—						
Under supervision at beginning of period .....	....	120	415	69	141	208
Admitted to probation or released on parole during period	120	347	403	109	226	232
Under supervision during period	120	467	818	178	367	440
Cancellation of probation or parole .....	....	14	56	23	56	81
Completion of probation or parole .....	....	38	108	14	103	151
Under supervision at end of period	120	415	654	141	208	208

(a) Includes particulars of cases transferred from the former Indeterminate Sentences Board to the Parole Board on 1 October 1964. (b) Six months ended June 1965. (c) Year ended 30 June. (d) Nine months ended June 1965.

CHAPTER VI—FINANCE

Part 1—Public Finance

In Western Australia there are three groups of authorities responsible for the collection and expenditure of public moneys. They are the State Government and associated semi-governmental authorities; the Commonwealth Government; and the local government authorities, comprising City Councils, Town Councils and Shire Councils.

COMMONWEALTH-STATE FINANCIAL RELATIONS

The Financial Agreement of 1927

Under the terms of the Financial Agreement, the Commonwealth Government took over from the States their public debts existing at 30 June 1927 and assumed responsibility for all future loan raisings by the Australian Governments. The Commonwealth also agreed to contribute annually for a period of 58 years from 1 July 1927 an amount of \$15,169,824 towards the interest payable on the State debts, Western Australia's share of this amount being \$946,864. A Sinking Fund, under the control of the National Debt Commission, was created to finance all State debts. In respect of the net public debts of the States at 30 June 1927, a contribution of three-eighths per cent per annum was prescribed, the Commonwealth paying one-third and the States the remaining two-thirds, each according to the amount of its net indebtedness at the date of transfer. All moneys and securities standing to the credit of sinking, redemption and similar funds of the States at 30 June 1929 were assigned to the National Debt Commission, except in cases where the conditions relating to a fund precluded a transfer.

In the case of loans raised by a State after 30 June 1927 it is provided that, for a period of 53 years from the date of the raising, the sinking fund contribution shall be at the rate of one-half per cent per annum shared equally between the Commonwealth and the State. This provision does not, however, apply to loans raised by a State to meet a revenue deficit. In respect of debt incurred in financing deficits accruing after 30 June 1927 and before 1 July 1935 it was agreed that until 30 June 1944 the rate of one-half per cent per annum shared equally between the Commonwealth and the State should operate, but that for a period of 39 years from 1 July 1944 the annual contribution should be one-quarter per cent from the Commonwealth and three-quarters per cent from the State. For the funding of all other revenue deficits contributions are at a rate of not less than 4 per cent per annum to be paid wholly by the State.

The Australian Loan Council

The Australian Loan Council was established by the Financial Agreement Act of 1928 to co-ordinate the public borrowings of the Commonwealth and the States. The Council has as its Chairman the Prime Minister of the Commonwealth, or a Minister nominated by him, and the other members are the Premiers of the States or, in the absence of a Premier, a Minister nominated by him. The Commonwealth and each State submits to the Council a programme of its desired loan raisings during each financial year, including the amount of any revenue deficit to be funded. The Commonwealth Government's borrowings for defence purposes are expressly excluded from its submissions to the Council. If the Council decides that the total amount of the loan programme for a year cannot be borrowed at reasonable rates and conditions it decides the amount to be borrowed during the year, and may by unanimous decision allocate this amount between the Commonwealth and the States. Where the members fail to arrive at a un-

animous decision the Commonwealth is entitled to a maximum of one-fifth of the total sum to be borrowed. Of the balance, each State is entitled to an amount in the proportion which its net loan expenditure during the preceding five years bears to the aggregate for all the States.

The Commonwealth Grants Commission

Section 96 of the Commonwealth Constitution provides that the States may be granted financial assistance and Western Australia has regularly received assistance under this provision. In 1933 the Commonwealth Parliament passed the Commonwealth Grants Commission Act establishing a Commission of three members to inquire into and report on applications made by States for grants of financial aid. During the initial period of its work the Commonwealth Grants Commission considered compensation for disabilities arising from Federation as a possible basis upon which its recommendations should be made. It considered also the basis of financial need. In its Third Report, submitted in 1936, the Commission finally rejected the principle of compensation for disabilities arising from Federation, and chose instead the principle of financial need, having come to the conclusion that 'special grants are justified when a State through financial stress from any cause is unable efficiently to discharge its functions as a member of the Federation and should be determined by the amount of help found necessary to make it possible for that State by reasonable effort to function at a standard not appreciably below that of other States.' Another essential feature of special grants, noted in the Commission's Second Report, is that they are 'continuous in principle with other transfers of Commonwealth revenue to the States. They should be the amount required to complete the work begun by other transfers, and to reduce the financial inequality of the States sufficiently for the harmonious and effective working of Federal Government.'

In each year from 1934-35, in respect of which the Commission made its first recommendation, Western Australia has received a special grant. Western Australia has, however, ceased to be a claimant State from and including the year 1968-69, in accordance with an agreement made between the Commonwealth and the State at a Premiers' Conference in June 1968. In terms of this agreement the Commonwealth will pay to Western Australia an amount of \$15.5 million in each of the years 1968-69 and 1969-70, in addition to the Financial Assistance Grant (see letterpress *Financial Assistance Grants* below), as a substitute for any special grant that might have been recommended by the Commission for those years.

The amounts received in the form of special grants during the period 1962-63 to 1966-67 are shown in the table on page 244.

Tax Reimbursements

With the passage of enabling legislation in 1942, the Commonwealth Government became the sole taxing authority in the field of income tax. At the time of introduction of this 'uniform tax scheme', Western Australia was levying three separate taxes on incomes. These were income tax on individuals and on companies, a hospital fund contribution, and a tax on the profits of gold-mining companies. The *States Grants (Income Tax Reimbursement) Act* 1942 provided for the payment to each State of a fixed annual amount by way of financial assistance to compensate for loss of revenue from income tax. The Act was repealed in 1946 by the *States Grants (Tax Reimbursement) Act* which prescribed a fixed grant for each of the financial years 1946-47 and 1947-48 and, for subsequent years, an amount to be varied in accordance with changes in population and in average wages per person employed.

Special and Additional Financial Assistance

With the increasing financial needs of the States it became necessary for the Commonwealth Government to make grants in excess of those prescribed by the *States Grants (Tax Reimbursement) Act* 1946-1948. Financial aid was extended by a *States Grants (Special Financial Assistance) Act* passed in each year from 1951 to 1958 and by the *States Grants (Additional Assistance) Acts* of 1958, 1962, 1963 and (No. 2) 1963.

Financial Assistance Grants

The *States Grants Act 1959* repealed the States Grants (Tax Reimbursement) Act and provided for a new system of annual payments which are described as 'Financial Assistance Grants'. The Act incorporated an arrangement, unanimously agreed to by the States at a Premiers' Conference in June 1959, which was designed to eliminate the need for supplementary grants in the form of Special Financial Assistance and to reduce to a marginal level the special grants provided for under the *Commonwealth Grants Commission Act 1933-1957*.

The amount of the Financial Assistance Grant to Western Australia for 1959-60, the first year of operation of the scheme, was prescribed by the Act as \$50,924,000. The grant was essentially a *per capita* payment, which varied as between States. For each year subsequent to 1959-60, this *per capita* payment was increased, if average wages paid in Australia as a whole increased in the preceding year, by a percentage equal to 1.1 times the percentage rise in average wages. By this means, not only were the effects on State finances of population changes and wage increases taken into account but a 'betterment factor' was also introduced to enable a State Government to extend the range or improve the standard of its services.

The *States Grants Act 1965-1968* repeals the Act of 1959 and gives effect to an agreement, reached at a Premiers' Conference held at Canberra in June 1965, on a revised arrangement to operate for a period of five years from 1 July 1965. Under this arrangement the amount of the annual grant continues to be related to changes in a State's population and in the level of wages paid in Australia as a whole. The grant payable in respect of any year is determined by adjusting the amount of the previous year's grant for these two factors and increasing the result by 1.2 per cent. The Act provides that the system may be reviewed in relation to grants for any year subsequent to 1969-70.

The *States Grants Act 1968* gives authority for the payment to Western Australia of an additional amount of \$15.5 million in each of the years 1968-69 and 1969-70, to which reference is made above in the section *The Commonwealth Grants Commission*.

Other Financial Assistance

As well as providing general financial assistance to the States by means of grants, the Commonwealth Government has allocated to them funds for specific purposes. These include moneys for roads (see letterpress, Chapter IX, Part 3), railway standardisation (Chapter IX, Part 3), the tuberculosis campaign (Chapter V, Part 5), mental health institutions (Chapter V, Part 5), universities, colleges of advanced education and approved research projects (Chapter V, Part 1) and also, in the case of Western Australia, for water supply (Chapter VII, Part 2) and the development of the part of the State north of 20°S. latitude (Chapter VII, Part 2). These payments, together with various forms of assistance to industries and contributions for road safety practices, blood transfusion services, housekeeper services and the relief of natural disasters, are made from the Consolidated Revenue Fund. In addition, finance for housing (see letterpress, Chapter V, Part 4) is provided from Loan Fund, for social services and health services (Chapter V, Part 5) and homes saving grants (Chapter V, Part 4) from the National Welfare Fund, for war and service pensions (Chapter V, Part 5), aged persons' homes and the accommodation of disabled persons (Chapter V, Part 3) and assistance to schools in science teaching and technical training (Chapter V, Part 1) from Consolidated Revenue, and for war service land settlement (Chapter VII, Part 1) from Consolidated Revenue and from Loan Fund.

FINANCIAL ASSISTANCE TO WESTERN AUSTRALIA

Consolidated Revenue Fund

The following table gives particulars of payments made by the Commonwealth Government from Consolidated Revenue Fund to or on behalf of the Government of Western Australia in each of the financial years 1962-63 to 1966-67. Subsidy and bounty payments are not included, as particulars are not available for individual States.

COMMONWEALTH CONSOLIDATED REVENUE FUND
FINANCIAL ASSISTANCE TO WESTERN AUSTRALIA (a)
(\$'000)

Nature of payment	Financial year				
	1962-63	1963-64	1964-65	1965-66	1966-67
Financial Agreement—					
Interest on State debts	947	947	947	947	947
Sinking fund contribution	1,403	1,519	1,616	1,726	1,844
General revenue grants—					
Financial Assistance Grants	62,480	65,597	70,498	78,474	86,396
Additional Assistance Grants (b)	2,728	3,764	.....	.....	.....
Special Grants (c)	12,420	12,144	17,120	24,038	19,406
Transport and communication—					
Roads—					
Commonwealth Aid Roads Acts—					
Grants	16,164	16,988	21,945	22,618	23,475
Additional grants	2,811	3,538	1,062	2,121	3,201
Beef cattle roads grants	1,400	1,500	1,500	1,500	1,500
Eyre Highway—Contribution to maintenance	25	25	25	25	25
Road safety practices	17	16	17	16	19
Railways—Standardisation agreement (d)	4,325	7,526	10,265	17,828	17,996
Exmouth township development	.....	.....	380	750	1,952
Replacement of Derby jetty (e)	600	700	300	.....	.....
Education—					
University—					
Current expenditure	1,377	1,595	2,060	2,152	2,306
Capital expenditure	923	1,161	940	901	1,160
Colleges of advanced education—					
Current expenditure	.....	.....	.....	232	363
Capital expenditure	.....	.....	.....	502	457
Science laboratories in schools	.....	.....	708	502	899
Technical training	.....	.....	714	269	551
Research grants	.....	.....	.....	142	155
Development of resources and assistance to industry—					
Development of North Western Australia (f)	2,864	2,166	2,568	2,266	.....
Water—					
South-west region water supplies (g)	.....	.....	.....	1,250	1,250
Investigation of water resources—					
Surface	.....	.....	52	116	152
Underground	.....	.....	84	95	83
Expansion of agricultural advisory services	52	54	54	54	163
Dairy industry extension grant	42	50	48	50	50
Encouragement of meat production	.....	.....	.....	.....	8
Health—					
Mental institutions—Contribution to capital expenditure	116	332	447	338	260
Tuberculosis Act—Reimbursement of capital expenditure	67	44	11	2	.....
Blood transfusion services	35	37	42	44	92
Welfare—					
Housekeeper services	2	2	1	1	2
Migrant centre	.....	34	.....	.....	.....
Other—					
Coal mining industry long service leave	31	30	32	34	34
Total	110,830	119,770	133,437	158,492	164,746

(a) Excludes subsidy and bounty payments. Payments from the National Welfare Fund and War and Service Pension payments are also excluded. (b) The amounts shown represent Western Australia's share of grants totalling \$75 million made to the States for the stimulation of employment, in terms of the States Grants (Additional Assistance) Acts of 1962 and 1963. (c) See letterpress *The Commonwealth Grants Commission* on page 242. (d) Includes repayable advances: 1963-64, \$4,427,000; 1964-65, \$6,038,000; 1965-66, \$10,487,000; 1966-67, \$10,586,000. (e) Includes repayable advances: 1962-63, \$300,000; 1963-64, \$350,000; 1964-65, \$150,000. (f) Includes repayable advances: 1963-64, \$350,000; 1964-65, \$550,000; 1965-66, \$577,000. (g) Repayable advances.

National Welfare Fund

The National Welfare Fund was established in 1943 by the National Welfare Fund Act passed by the Commonwealth Parliament in that year. The purpose of the Fund is to provide for the payment of social service and health benefits. Payments from the fund are made in respect of benefits only, and do not include the cost of administering the benefits nor of capital works associated with them. The fund receives each year by transfer from the Consolidated Revenue Fund an amount equal to the payments made. Other income of the National Welfare Fund is derived from interest on investments.

NATIONAL WELFARE FUND—PAYMENTS IN WESTERN AUSTRALIA (a)
(S'000)

Pension or benefit	Financial year				
	1962-63	1963-64	1964-65	1965-66	1966-67
Social services—					
Age and invalid pensions	25,582	27,373	29,413	30,760	33,794
Rehabilitation service	149	162	174	187	196
Funeral benefits	51	55	59	66	88
Widows' pensions	2,377	3,115	3,463	3,602	4,011
Unemployment, sickness and special benefits—					
Unemployment	1,438	1,403	842	368	374
Sickness	505	522	512	457	445
Special	63	54	46	47	36
Maternity allowances	552	546	534	536	559
Child endowment	10,485	12,994	13,406	13,624	15,498
National health services—					
Hospital benefits (b)	4,189	4,705	4,987	5,286	5,881
Medical benefits (c)	2,026	2,161	3,056	3,387	3,925
Medical benefits for pensioners	632	648	660	958	1,020
Pharmaceutical benefits	3,844	3,856	3,824	4,205	4,730
Pharmaceutical benefits for pensioners	1,317	1,386	1,470	1,665	1,989
Milk for school children	584	615	637	619	698
Tuberculosis campaign—					
Allowances	85	89	80	61	53
Maintenance (d)	800	751	742	697	547
Miscellaneous (e)	25	27	30	28	156
Homes savings grants .....	....	....	699	762	666
TOTAL	54,705	60,460	64,635	67,316	74,666

(a) For conditions applying to payment of social service and health benefits, see Chapter V, Part 5. (b) For details, see table *Hospital Benefits—Western Australia* on page 221. (c) For details, see table *Medical Benefits—Western Australia* on page 222. (d) Figures exclude payments and reimbursements from Commonwealth Consolidated Revenue Fund in respect of capital expenditure by the State Government; see preceding table. (e) See letterpress *Miscellaneous Health Services* on page 223.

COMMONWEALTH AND STATE TAXATION

Commonwealth Taxation

COMMONWEALTH TAXATION—NET COLLECTIONS IN WESTERN AUSTRALIA
(S'000)

Tax, duty, charge or levy	Financial year				
	1962-63	1963-64	1964-65	1965-66	1966-67
Customs duties	8,574	9,782	10,077	13,363	11,851
Excise duties	35,874	37,746	43,083	53,077	57,673
Sales tax	18,926	19,109	20,055	23,062	25,866
Income tax and social services contribution	84,981	94,018	119,240	130,675	165,475
Pay-roll tax	7,373	8,045	8,746	10,192	11,574
Estate duty	1,075	1,459	1,784	1,652	2,267
Gift duty	290	488	479	611	962
Total	157,093	170,648	203,462	232,633	275,669
Other (a)—					
Wool tax	668	778	1,756	2,283	2,370
Stevedoring industry charge	879	941	939	961	1,025
Export charges on primary products	64	68	46	41	42
Tobacco charge	1	....	....	....	....
Dairy produce levy (b)	26	27	30	(c) 3	....
Canning-fruit charge	(d)	(d)	(d)	....	1
Cattle slaughter levy (e)	52	65	101	....	....
Honey levy (f)	(d)	7	9	9	8
Livestock slaughter levy (g)—					
Cattle .....	....	....	32	93	85
Sheep and lambs .....	....	....	9	28	62
Butter fat levy (h) .....	....	....	....	65	61
Total (a)	1,690	1,885	2,921	3,483	3,653
GRAND TOTAL	158,783	172,534	206,384	236,116	279,322

(a) Transferred to trust funds or relevant authorities and used for purposes of the industry concerned. (b) Replaced by Butter fat levy from 1 July 1965. (c) Arrears; see note (b). (d) Less than \$500. (e) Discontinued 1 August 1964; see note (g). (f) Introduced 1 March 1963. (g) Operative from 1 August 1964; see note (e). (h) Operative from 1 July 1965; see note (b).

It is important to note that, although the figures shown in the preceding table represent the amounts of taxes actually collected in Western Australia, they do not necessarily indicate the amounts contributed by the people of the State, as moneys may be collected in one State in respect of goods consumed or assessments made in other States. Further, administrative arrangements for the collection of certain taxes are such that a large proportion of the revenue (or, as in the case of Wheat Tax, the whole of the revenue) is brought to account in a State other than Western Australia.

Details of the purposes and rates applicable to the main forms of Commonwealth taxation are given in the *Official Year Book of the Commonwealth of Australia: No. 54, 1968* on pages 327-30 (customs duties), 376 (excise duties), 797-804 (income tax), and 751-4 (other taxation).

State Taxation

The net amounts collected in Western Australia in the form of State taxation in each year from 1962-63 to 1966-67 are shown in the table on page 251. Information concerning rates of tax and the relevant legislation is given below.

ESTATE DUTY (PROBATE AND SUCCESSION DUTIES). The *Death Duties (Taxing) Act, 1934-1966* imposes duties on the estates of deceased persons and specifies the rates of duty. Conditions relating to probate and the administration of estates are contained in the *Administration Act, 1903-1966*. Differential rates of estate duty and amounts of exemption apply according to distinct categories of legatee. The following table shows the amounts of duty payable at 30 June 1968 on estates of persons who died after 12 December 1966, the date of commencement of the *Administration Act Amendment Act, 1966*.

ESTATE DUTY—AMOUNTS PAYABLE AT 30 JUNE 1968
CLASSIFIED ACCORDING TO VALUE OF ESTATE

Value of estate (a)	Amount payable where estate passes to—			
	Widow, widower, etc. (b)	Children aged 21 years or over (c)	Brothers, sisters, or parents	Any other person (d)
\$	\$	\$	\$	\$
1,500	Nil	Nil	Nil	Nil
3,000	Nil	Nil	90	120
5,000	Nil	Nil	250	300
10,000	Nil	300	750	850
15,000	Nil	650	1,350	1,500
20,000	600	1,100	1,950	2,150
30,000	1,950	2,200	3,350	3,650
50,000	4,950	5,000	6,750	7,250
70,000	8,550	8,600	10,750	11,450
90,000	12,600	13,000	15,550	16,450
110,000	17,300	18,400	21,150	22,450
130,000	22,800	24,800	27,750	29,450
150,000	29,200	32,200	35,350	37,450
170,000	36,800	40,400	44,150	46,650
200,000	49,950	52,000	59,150	62,250
250,000	62,500	65,000	75,000	80,000
500,000	125,000	130,000	150,000	160,000

(a) Final balance of real and personal estate of the deceased person after deducting all debts.
(b) Widow, widower, children aged under 21 years, wholly dependent adult children, or wholly dependent widowed mother, of the deceased. (c) Children aged 21 years or over (other than wholly dependent adult children) or other issue of the deceased. (d) Or any body corporate or unincorporate.

STAMP DUTIES. The *Stamp Act, 1921-1968* imposes stamp duties and prescribes the rates applying to a great number of transactions relating to a wide range of property, commodities and services.

LAND TAX. The *Land Tax Assessment Act, 1907-1968* authorises a tax, with certain specified exemptions, on every owner of land, and the rates of tax are prescribed by the *Land Tax Act, 1948-1968*. It is provided by section 8 of the Land Tax Assessment Act that,

in respect of the assessment years 1960-61 to 1967-68, the tax that would have been payable on improved land at the prescribed rates shall be reduced by 10 per cent.

The following table shows the effective rates of tax and the amounts of tax payable, in respect of the assessment year 1967-68, on improved land and unimproved land of the values specified.

LAND TAX—RATES OF TAX AND AMOUNTS PAYABLE
ASSESSMENT YEAR 1967-68 (a)

Unimproved value—		Improved land		Unimproved land	
Exceeding	Not exceeding	Tax on amount in first column (b)	Tax per dollar on remainder (b)	Tax on amount in first column	Tax per dollar on remainder
\$	\$	\$	cents	\$	cents
Nil	10,000	Nil	0·5625	Nil	1·0416
10,000	40,000	56.25	0·7500	104.16	1·2500
40,000	60,000	281.25	1·1250	479.16	1·6666
60,000	80,000	506.25	1·5000	812.50	2·0833
80,000	100,000	806.25	1·8750	1,229.16	2·5000
100,000	120,000	1,181.25	2·2500	1,729.16	2·9166
120,000	upwards	1,631.25	2·6250	2,312.50	3·3333

(a) The *Land Tax Act Amendment Act, 1968* provides for reductions in tax on improved land, and increases in tax on unimproved land valued at more than \$6,000, commencing with the assessment year 1968-69. (b) Net after deducting rebate of 10 per cent; see letterpress preceding table.

LIQUOR LICENCES. Licences relating to the sale or supply of fermented and spirituous liquors are granted under the provisions of the *Licensing Act, 1911-1967*. The Act prescribes the fees payable in respect of licences authorising the sale of liquor. With certain minor exceptions, fees are assessed as a proportion of the gross amount paid for liquor purchased for licensed premises or, in the case of spirit merchants' and brewers' licences, the gross amount received for liquor sold. For the year 1968, the proportion prescribed by the Act was 5½ per cent.

TOTALISATOR AGENCY BOARD BETTING TAX. The *Totalisator Agency Board Betting Tax Act, 1960-1966* imposes a tax on all moneys paid to the Board in respect of bets made through or with the Board. The rate of tax payable at 30 June 1968 was 5½ per cent.

BETTING INVESTMENT TAX. The *Betting Investment Tax Act, 1959-1966* imposes a tax on each bet made by a bookmaker in registered premises and on each bet made through or with the Totalisator Agency Board. The amount of tax payable at 30 June 1968 was 3 cents on each such bet.

TOTALISATOR DUTY. The *Totalisator Duty Act, 1905-1960* authorises the payment of duty on the takings of totalisators operated by horse-racing clubs and prescribes the rates to be paid. Differential rates apply to totalisators operated within a radius of twenty-five miles from the General Post Office, Perth and those situated outside this area. In 1967-68, the principal rates of duty payable in respect of totalisators in the former area were 9 per cent of the gross takings from win and place transactions and 5 per cent of the gross takings from wagering transactions known as 'jack pots', 'quinellas' and 'doubles'; for totalisators outside that area, the rate was 5 per cent in respect of all transactions.

BOOKMAKERS BETTING TAX. The *Bookmakers Betting Tax Act, 1954-1959* provides for a tax on money paid or promised as the consideration for bets made by or on behalf of bookmakers. In respect of turnover of the year ended 31 July 1968 the rates applying to on-course transactions were 1¼ per cent of amounts up to \$100,000 and 1½ per cent of the remainder. For off-course transactions the rate was 2¼ per cent of amounts up to \$50,000, the rate payable on each additional \$50,000 of turnover increasing by ½ per cent up to \$300,000; on turnover exceeding \$300,000 the rate was 3½ per cent.

TOTALISATOR LICENCES. The *Totalisator Regulation Act, 1911* provides for the licensing of totalisators operated by horse-racing clubs. Licence fees are prescribed by regulation and are payable annually in respect of the calendar year. For the year 1968 the fee payable was \$2 for each \$2,000 (or part of \$2,000) passing through the totalisator.

MOTOR VEHICLE REGISTRATION FEES. The *Traffic Act, 1919-1968* provides for the registration of vehicles and prescribes the licence fees to be paid in respect of the several classes of vehicles required to be registered. Fees are based on the tare weight of the vehicle (except for motor cycles, which are subject to a standard fee). In 1968 the annual licence fee for a motor car or station wagon, for example, was \$2 where the tare weight did not exceed one cwt, the fee increasing progressively to \$39 where the tare weight was 31 cwt, and thereafter by \$1 for each additional cwt. The annual fee for a motor cycle was \$5. The fee payable on transfer of a licence was \$2 in the case of a motor car or station wagon, and \$1 in the case of a motor cycle.

MOTOR VEHICLE DRIVERS' LICENCES. The *Traffic Act, 1919-1968* authorises the issue of drivers' licences to persons of a minimum age of seventeen years, specifies other conditions to be satisfied, and prescribes the fees to be paid on application for, and issue or renewal, of a licence. In 1968 the fee payable on application was \$4, and on issue or annual renewal \$3 (or \$1 in the case of a licence to drive a passenger vehicle).

MOTOR VEHICLE THIRD PARTY INSURANCE SURCHARGE. The *Motor Vehicle (Third Party Insurance Surcharge) Act, 1962-1968* imposes a surcharge of \$2 per annum on premiums paid in respect of policies of insurance with The Motor Vehicle Insurance Trust.

ROAD MAINTENANCE CONTRIBUTION. The *Road Maintenance (Contribution) Act, 1965* imposes a charge on the operations of any commercial goods vehicle having a load capacity of more than 8 tons. In 1968 the rate of the charge was five-eighteenths of a cent per ton-mile calculated on the basis of the tare weight plus two-fifths of the load capacity. The Act provides that, in specified circumstances, the charge may be levied on vehicles having a load capacity of 8 tons or less.

TRANSPORT COMMISSION LICENCES. The *Road and Air Transport Commission Act, 1966-1968* provides for the licensing of public vehicles in the categories of omnibus, commercial goods vehicle, trailer or semi-trailer, and aircraft. Licence fees are as determined from time to time by the Commissioner of Transport, subject to certain maximum charges prescribed by the Act. In the case of an omnibus, for example, the fee may not exceed 6 per cent of the gross earnings, or \$10 per annum for each unit of the maximum number of passengers which it is licensed to carry, the basis of assessment being that considered by the Commissioner to be the more appropriate.

PASSENGER VEHICLE AND CARRIERS' LICENCES. Prior to the operation of the *Traffic Act Amendment Act (No. 4), 1965* the annual fee payable under the provisions of the Traffic Act for a passenger vehicle licence (subject to certain exceptions) or a carriers' licence was \$1.50 per wheel or per pair of dual wheels. The fee was abolished with effect from 1 December 1965.

TAXI CONTROL BOARD LICENCES. The *Taxi-cars (Co-ordination and Control) Act, 1963-1968*, under which the Taxi Control Board is constituted, requires that taxi-cars operating in the Metropolitan Traffic Area and other areas as declared shall be licensed, and prescribes maximum fees payable. In 1968 these fees were \$30 on the issue or annual renewal of a licence, and \$4 on the transfer of a licence.

METROPOLITAN REGION IMPROVEMENT TAX. The *Metropolitan Region Improvement Tax Act, 1959-1966* authorises a tax, with certain specified exemptions, on every owner of land within the Metropolitan Planning Region. (The Region is coterminous with the Perth Statistical Division; see map at back of Year Book). The rate of tax payable for the assessment year ended 30 June 1968 was one-quarter of a cent for every dollar of the unimproved value of all land chargeable with the tax.

VERMIN RATE. The *Vermin Act, 1918-1965*, in addition to prescribing levies imposed for the purposes of local Vermin Boards, authorises a special vermin rate, the revenue

from which is used by the Agriculture Protection Board for the control or eradication of animals, birds and insects declared to be vermin within the meaning of the Act. Subject to certain exemptions, every holding of an area of more than 5 acres is rateable. The rate, as prescribed by the Act, may not exceed $2\frac{1}{2}$ cents in the dollar of the unimproved capital value in the case of land held under pastoral lease, or five-twelfths of a cent in the dollar in the case of other holdings. For the assessment year 1967-68, the rate was $1\frac{1}{4}$ cents in the dollar on pastoral leases and one-fifth of a cent in the dollar on other holdings.

NOXIOUS WEEDS RATE. The *Noxious Weeds Act, 1950-1965* contains provisions relating to noxious weeds which are generally similar to those of the Vermin Act in relation to declared vermin. The maximum rate as prescribed by the Act is, in the case of a pastoral lease, $1\frac{1}{4}$ cents and, in the case of other land, five twenty-fourths of a cent in the dollar of the unimproved value of the holding. In 1967-68 the rate was not levied in respect of pastoral land. The rate payable on other land was two twenty-fifths of a cent in the dollar.

FRUIT FLY ERADICATION. The *Plant Diseases Act, 1914-1967* provides for the compulsory registration of orchards and prescribes registration fees, which are paid to a fund to finance the control, prevention, and eradication of the fruit fly pest. In 1968 the annual fee payable for an orchard containing twenty-four trees or less was 20 cents; for an orchard containing more than twenty-four but less than one hundred trees, 50 cents; and for an orchard of not less than one acre, 50 cents per acre and 50 cents for each additional part of an acre.

STATE GOVERNMENT FINANCE

Moneys collected and expended by the State Government are dealt with through accounts based on funds of three types, the Consolidated Revenue Fund, the General Loan Fund and Trust Funds. The transactions of these Funds are summarised in the Public Accounts prepared each year by the Treasurer and in the Financial Statement presented to the Parliament by the Treasurer in introducing the annual budget.

Consolidated Revenue Fund

All State revenues, apart from those which are credited to trust or special accounts, are paid into the Consolidated Revenue Fund. Disbursements from the Fund are authorised by the Parliament, each year under an Appropriation Act, or under Special Acts subject to periodical review. Among the permanent appropriations by Special Acts are such items as the salaries of the Governor of Western Australia, the Judges of the Supreme Court and Members of Parliament, interest charges on the public debt, contributions to the Public Debt Sinking Fund, payments to the State Superannuation Fund and the annual subsidy to the University of Western Australia.

The principal sources of revenue, as shown in the following table, are the grants and other financial assistance received from the Commonwealth Government; the income of public utilities; departmental revenues from reimbursements, fees and services; taxation; and territorial revenues.

The payments made to Western Australia by the Commonwealth Government from Consolidated Revenue during each of the years from 1962-63 to 1966-67 appear in the table on page 244. Not all of these moneys are paid to the State Consolidated Revenue Fund, as some of them are provided for specific purposes and are therefore paid to trust or other accounts.

In the five-year period ended 30 June 1967, revenues collected by the State amounted to \$486 million. Of this total \$227 million (46.7 per cent) came from public utilities, the principal contributor being government railways which accounted for \$195 million. Departmental revenues amounted to \$126 million, or 25.9 per cent of the total collected

by the State. The main contributing Departments in 1966-67 were Treasury (\$18·3 million, including \$17·0 million on account of interest and sinking funds), Harbour and Light (\$2·50 million), Police (\$1·44 million), Forests (\$1·24 million), Printing (\$1·02 million), Public Works (\$0·97 million), Education (\$0·82 million), and Agriculture (\$0·78 million).

CONSOLIDATED REVENUE FUND—SOURCES OF REVENUE
(\$'000)

Nature of revenue	Financial year				
	1962-63	1963-64	1964-65	1965-66	1966-67
Collected by the State—					
Taxation (a)	14,762	17,604	19,512	22,574	27,536
Territorial revenues (b)	3,501	3,751	4,107	4,598	7,655
Public utilities—					
Railways	33,817	34,929	36,381	41,864	48,194
Water supplies, sewerage and drainage	9,224	9,968	(c) 2,906	(c) 3,308	(c) 4,073
Other public utilities	518	480	491	511	520
Departmental revenue—Reimbursements, fees, etc.	18,134	20,948	26,712	28,753	31,461
Other	1,378	1,222	1,468	1,589	1,959
Total	81,334	88,901	(c) 91,578	(c) 103,196	(c) 121,398
Received from the Commonwealth (d)—					
Interest on State debts	947	947	947	947	947
Special grants	12,420	12,144	17,120	24,038	19,406
Financial assistance grants	62,481	65,597	70,498	78,474	86,396
Additional financial assistance .....	.....	300	.....	.....	.....
Total	75,847	78,988	88,565	103,459	106,748
GRAND TOTAL	157,182	167,888	(c) 180,143	(c) 206,655	(c) 228,146

(a) For net amounts collected, see table *Net Collections of State Taxation* on page 251. (b) Comprises revenue from royalties, sales, leases and licences relating to land, mining and timber. (c) Excludes particulars of the Metropolitan Water Supply, Sewerage, and Drainage Board which replaced the former Metropolitan Water Supply, Sewerage and Drainage Department from 1 July 1964. (d) See table on page 244

The figures appearing against the item 'Taxation' comprise Consolidated Revenue Fund receipts from probate and succession duties, stamp duties, land tax, liquor licences, totalisator duty and licences, bookmakers' betting tax, bookmakers' licences, Totalisator Agency Board betting tax, betting investment tax, motor vehicle third party insurance surcharge, and certain licences in addition to those already mentioned. Some account of the rates and conditions applying to the several taxes and other levies is given in the section *Commonwealth and State Taxation* on pages 245-9.

Territorial revenues are those derived from royalties, sales of Crown land, and the issue of leases, licences and permits in connection with land, mining and timber. Reference to the several types of tenure in these categories will be found in Chapter VII, Part 1—*Land Tenure and Settlement*.

There has been a considerable increase in recent years in revenue for mining royalties, due principally to greatly accelerated exploitation of iron-ore deposits and the commencement of oil drilling on a commercial scale. Reference to these developments will be found in the final section, *Mining and Quarrying*, of Chapter VIII, Part 1. Collections of royalties on all minerals amounted to \$0·25 million in 1962-63, \$0·24 million in 1963-64, \$0·29 million in 1964-65, \$0·48 million in 1965-66, and \$2·64 million in 1966-67. Total revenue from this source in 1967-68 was \$6·24 million, comprising \$4·95 million from iron ore, \$1·04 million from crude petroleum, \$0·10 million from bauxite, \$0·04 million from ilmenite, \$0·03 million from manganese, \$0·03 million from coal, and \$0·06 million from all other minerals.

The following table gives details of net collections of State taxation. Payments to trust or special accounts as well as to Consolidated Revenue are shown.

NET COLLECTIONS OF STATE TAXATION
(S'000)

Nature of tax	Financial year				
	1962-63	1963-64	1964-65	1965-66	1966-67
Paid to Consolidated Revenue Fund—					
Probate and succession duties	3,074	3,069	3,006	3,924	4,765
Stamp duties not elsewhere included	5,342	6,849	7,670	8,709	11,681
Land	2,499	2,646	2,831	3,324	3,514
Liquor licences	1,382	1,809	1,927	2,013	2,323
Racing—					
Totalisator Agency Board betting tax	1,114	1,355	1,680	1,794	1,971
Betting investment tax	419	440	514	549	574
Totalisator duty	275	279	307	356	395
Bookmakers betting tax and licences	251	174	132	134	152
Stamp duty on betting tickets	85	64	58	56	55
Totalisator licences	5	5	5	5	6
Stamp duty on totalisator dividends	2	1	1	1	1
Motor vehicle—					
Registration fees (a)	23	29	51	(b) 24	(b) 693
Drivers' and riders' licences and fees (a) (c)	29	92	127	168	1,306
Stamp duty on registration and transfer	223	538	572	609	661
Third party insurance surcharge	6	4	11	6	22
Other	324	521	595	565	600
Licences not elsewhere included					
Total	15,052	18,146	20,176	23,203	28,719
Paid to trust or special accounts—					
Motor vehicle (d)—					
Registration fees (e) (f)	6,293	6,852	7,406	8,944	10,357
Drivers' and riders' licences (f)	581	649	658	891	545
Road maintenance	166	199	248	392	2,540
Transport Commission licences	40	42	39	(g) 25	(g) 358
Passenger vehicle and carriers' licences (g)	1	2	17	15	15
Taxi Control Board licences	7	9	13	20	3
Other	371	390	474	489	550
Other vehicle registration fees	260	307	374	450	441
Metropolitan region improvement	35	36	56	82	140
Vermin			42	41	37
Noxious weeds					
Fruit fly eradication					
Total	7,755	8,484	9,329	11,667	15,003
GRAND TOTAL	22,807	26,630	29,504	34,869	43,722

(a) Part collections only; for amounts paid to trust or special accounts, see below. (b) From 1 December 1965, fees previously paid to Consolidated Revenue Fund under this heading have been credited to the Main Roads Trust Account and included in 'Registration fees' below. (c) Includes conductors' licences. (d) See *letterpress Finance for Roads*, Chapter IX, Part 3. (e) For purposes of comparison with other States, fees collected by local government authorities outside the Metropolitan Traffic Area have been treated as State taxation and included here. See also table *Summary of Local Government Revenue* on page 259. (f) Part collections only; for amounts paid to Consolidated Revenue Fund, see above. (g) Abolished with effect from 1 December 1965.

The amounts shown in the preceding table are grouped according to the nature of the tax rather than the method of collection. Thus stamp duties on betting tickets and revenue from bookmakers' licences and totalisator licences are included under the heading 'Racing' and not under 'Stamp duties' or 'Licences'. It will be seen that, although the figures represent net collections, the aggregates of the amounts shown as payments to the Consolidated Revenue Fund exceed those appearing as taxation revenue (gross) in the table on page 250. This is accounted for by the fact that some types of licences and other fees are not included under the heading of taxation in the Public Accounts, earnings from them being credited to departmental revenue. Items dealt with in this way include drivers' and riders' licences and fees as shown in the first part of the table, as well as licences relating to firearms; factories and shops; fishing, pearling and game; and marine collectors. Other moneys paid to departmental revenue are fees collected under the provisions of the Companies Act and the Business Names Act.

Motor vehicle taxation shown as paid to Consolidated Revenue under the heading 'Stamp duty on registration and transfer' is collected by authority of the *Stamp Act, 1921-1968*. An amendment to the Act, effective from 31 December 1963, imposed a duty, subject to certain statutory exemptions, on a motor vehicle licence or the transfer of a licence at the rate of \$1 for every \$200, or part of \$200, of the value of the vehicle to which the licence or transfer relates. A further amendment to the Act increased the rate to \$1.50 with effect from 1 December 1965.

CONSOLIDATED REVENUE FUND
EXPENDITURE ACCORDING TO NATURE OF SERVICE
(\$'000)

Nature of expenditure	Financial year				
	1962-63	1963-64	1964-65	1965-66	1966-67
Expenditure on public utilities—					
Railways	34,068	35,340	(a) 36,965	40,300	45,397
Water supplies, sewerage and drainage	7,333	8,036	(a) 5,441	(a) 5,852	(a) 6,779
Other	866	872	954	955	1,006
Total	42,267	44,247	(a) 43,360	(a) 47,106	(a) 53,182
Departmental expenditure—					
Agriculture	2,581	3,047	3,215	3,519	3,967
Child Welfare	1,447	1,586	1,720	1,879	2,130
Crown Law	1,599	1,772	1,976	2,189	2,596
Education	22,850	25,880	29,133	34,016	36,746
Forests (b)	972	1,090	1,248	1,297	1,402
Harbour and Light	881	1,105	1,299	1,540	1,514
Industrial Development	549	659	647	761	866
Lands and Surveys	2,183	2,353	2,408	2,616	3,087
Mental Health Services	2,670	2,836	3,152	3,481	4,215
Metropolitan (Perth) Passenger Transport Trust—					
Recoup of loss	1,068	840	956	1,325	618
Mines	1,274	1,453	1,639	1,780	2,011
Native Welfare (c)	3,289	(c) 1,517	(c) 1,860	(c) 2,131	(c) 2,245
Police	4,264	4,633	5,166	5,529	6,119
Printing	1,357	1,384	1,449	1,631	978
Prisons	557	804	878	949	1,271
Public Health	13,403	15,869	18,009	19,605	22,213
Public Works	4,205	4,991	5,359	6,196	7,252
Treasury	289	314	339	353	471
University of Western Australia—Additional pay- ments (b)	1,658	1,928	2,421	2,831	2,901
War Service Land Settlement Scheme—Contribu- tion to capital losses	100	145	459	1,382	1,400
Western Australian Coastal Shipping Commis- sion (d)—Recoup of loss	2,323	2,452	2,805	2,481	2,357
Other	10,658	11,356	13,556	16,480	18,327
Total	80,177	88,014	99,694	113,971	124,686
Expenditure under special Acts—					
Forests Act (e)	1,823	1,956	2,152	2,363	2,874
Loan Acts (public debt)					
Interest	24,551	25,925	28,223	31,023	(f) 34,217
Sinking fund contributions	5,429	5,847	6,446	6,903	7,445
Parliamentary allowances	411	436	440	561	572
Superannuation Acts—Government employees	2,243	2,410	2,587	2,709	2,855
University of Western Australia Act (e)	500	500	500	500	500
Other	1,031	1,071	1,131	1,205	1,476
Total	35,988	38,144	41,478	45,264	49,939
Other expenditure	255	275	307	324	366
GRAND TOTAL	158,687	170,681	(a) 184,840	(a) 206,665	(a) 228,174

(a) Excludes particulars of the Metropolitan Water Supply, Sewerage, and Drainage Board which replaced the former Metropolitan Water Supply, Sewerage and Drainage Department from 1 July 1964. (b) For expenditure under Special Acts, see below. (c) From 1 July 1963 Native Welfare expenditure on Education, Health, Police, and Prisons is included in the expenditure of the Department concerned. (d) The Western Australian Coastal Shipping Commission replaced the former State Shipping Service with effect from 15 November 1965. (e) For additional payments, see *Departmental expenditure* above. (f) Includes exchange on overseas payments previously charged to *Departmental expenditure*.

In the five-year period ended 30 June 1967, expenditure under the heading 'Departmental' amounted to \$507 million, or 53.4 per cent of all expenditure from the Consolidated Revenue Fund. Education (\$149 million) and Public Health (\$89 million) together accounted for 46.9 per cent of Departmental expenditure. Other large items were those attributable to Public Works (\$28.0 million), Police (\$25.7 million), Mental Health Services (\$16.4 million), Agriculture (\$16.3 million), and Lands and Surveys (\$12.6 million).

Expenditure on public utilities (\$230 million) amounted to 24.3 per cent of the total, the predominant item being Railways (\$192 million).

Commitments under Special Acts accounted for \$211 million, or 22.2 per cent of all expenditure. The principal amounts were those relating to Loan Acts (\$176 million) and legislation providing pensions for government employees (\$12.8 million).

The amount paid under the *Forests Act, 1918-1964* represents nine-tenths of the net annual revenue of the Department and is credited to a fund for forests improvement and reforestation. The *University of Western Australia Act, 1911-1964* provides for the payment of an annual subsidy of \$500,000 and 'such additional amounts as may be appropriated by Parliament from time to time'. In 1966-67 additional payments amounting to \$2.90 million were made from Departmental expenditure. Further details of University finance are given in Chapter V, Part 1.

The particulars shown in the preceding table and in the table on page 250 are an abridged form of the presentation given in the Public Accounts. It is, of course, possible to present the figures of income and expenditure of the Consolidated Revenue Fund on other bases for particular purposes. One such grouping is a dissection according to function as in the following table. The classification used has been summarised for the purposes of this table from a more detailed statement appearing in the *Statistical Register of Western Australia—Part II, Public Finance*.

CONSOLIDATED REVENUE FUND
REVENUE AND EXPENDITURE CLASSIFIED ACCORDING TO FUNCTION
(S'000)

Function	Financial year					
	1965-66			1966-67		
	Revenue	Expenditure		Revenue	Expenditure	
		Gross	Net		Gross	Net
Legislation .....	....	1,318	1,318	....	1,261	1,261
General administration and services, not elsewhere included	128,468	9,384	Cr.119,084	137,751	12,340	Cr. 125,412
Law, order and public safety	1,515	9,381	7,866	1,939	10,722	8,783
Education	851	39,962	39,112	907	43,328	42,420
Cultural and recreational facilities .....	....	1,258	1,258	....	1,446	1,446
Public health	896	23,530	22,634	1,105	26,976	25,871
Welfare	899	5,800	4,901	295	4,925	4,630
War and defence .....	....	28	28	....	69	69
Immigration .....	....	266	266	....	359	359
Regulation of trade and industry and industrial safety	427	750	324	491	788	297
Development and conservation of national resources and assistance to industry	12,037	25,326	13,289	16,104	29,023	12,919
Transport and communication	44,439	46,817	2,378	50,895	51,238	343
Housing	11	46	36	11	52	41
Banking and insurance	205	60	Cr. 145	367	67	Cr. 300
Public debt charges	16,548	39,238	22,690	17,898	41,968	24,070
Miscellaneous	361	3,500	3,139	383	3,613	3,230
Total	206,655	206,665	(a) 10	228,146	228,174	(a) 27

(a) Published Budget deficit: 1965-66, \$10,110; 1966-67, \$27,494.

The table is designed to show (in respect of the Consolidated Revenue Fund only) the gross and net cost of each function of Government irrespective of the Department or Departments administering these functions. In cases where an activity is such that it involves more than one function, each of its components has been included in that function which is considered to be the most appropriate. For example, in classifying expenditure attributable to child welfare, the custody and care of delinquent children is included under 'Law, order and public safety' and the education of children in institutions under 'Education', only the balance being assigned to the item 'Welfare'.

The amount shown as revenue under the heading 'General administration and services, not elsewhere included' is more than three-fifths of the total. The item includes receipts from the Commonwealth in the form of Special Grants and Financial Assistance Grants as well as taxation collected by the State (see table on page 250), amounting in all to \$125.1 million in 1965-66 and \$133.3 million in 1966-67.

By a provision of the *State Government Insurance Office Act, 1938-1965* the State Government Insurance Office is required to pay each year to the Treasury the equivalent of the amount of State taxes on profits or income that any insurance company, other than a life insurance company, would be liable to pay. The amounts shown as revenue under 'Banking and insurance' include sums of \$196,874 for 1965-66 and \$359,830 for 1966-67 in relation to such payments. The expenditure under the heading of 'Banking and insurance' comprises mainly reimbursements from the Treasury to The Rural and Industries Bank of Western Australia of administration expenses incurred in the conduct of its Government Agency Department. These recoups amounted to \$56,373 in 1965-66 and \$60,533 in 1966-67.

General Loan Fund and Public Debt

General Loan Fund. The first Loan Act in Western Australia was assented to in 1872 and gave authority for the raising of a loan for public works, mainly in connection with harbours and rivers, for the purchase of the Perth-Fremantle telegraph line and for railway surveys in the Champion Bay district. A General Loan Fund was established by the Loans Consolidation Act of 1896 which provided for the merging in the Fund of all loan balances unexpended at 30 June 1896, and since that time the proceeds of each new loan have been paid to the credit of the General Loan Fund.

NET LOAN EXPENDITURE (S'000)

Nature of expenditure	From 1872 to 30 June 1962	Financial year					From 1872 to 30 June 1967
		1962-63	1963-64	1964-65	1965-66	1966-67	
Public works, services, etc.—							
Railways, tramways and omnibuses	150,765	6,204	7,496	6,800	7,628	9,068	187,960
Electricity supply	42,147	500	....	794	1,434	2,427	47,303
Harbours and rivers	38,775	2,438	3,028	2,822	2,583	1,746	51,393
Public buildings—							
Schools	42,159	5,313	5,753	7,008	7,690	8,450	76,373
Hospitals	28,271	4,840	5,032	6,514	6,568	6,021	57,246
Other	11,943	3,267	4,844	6,426	5,650	3,759	35,891
Housing (a)	30,313	2,115	3,382	1,539	1,151	3,082	41,583
Water supplies, sewerage and drainage	127,564	10,770	10,537	10,957	12,667	13,642	186,136
Development of goldfields and mineral resources	15,544	174	113	126	401	128	16,486
Development of agriculture	55,893	626	490	429	463	443	58,343
Miscellaneous	66,546	2,648	2,424	3,362	1,564	2,250	78,794
Total	609,919	38,894	43,100	46,779	47,800	51,015	837,507
Other expenditure—							
Discounts and flotation expenses	9,957	Cr. 2,257	Cr. 44	173	293	735	8,858
Revenue deficits	35,428	1,909	564	6	....	....	37,907
Total	45,385	Cr. 348	520	179	293	735	46,765
GRAND TOTAL	655,304	38,546	43,620	46,958	48,093	51,751	884,272

(a) Excludes expenditure from Commonwealth loans under Commonwealth-State Housing Agreement.

The principal net expenditures from the General Loan Fund during the five years ended 30 June 1967 were those relating to Public buildings (\$87.1 million), Water supplies, sewerage and drainage (\$58.6 million), Railways, tramways and omnibuses (\$37.2 million), Harbours and rivers (\$12.6 million), Housing (\$11.3 million), Electricity supply (\$5.16 million) and Development of agriculture (\$2.45 million).

Of the total expenditure of \$87.1 million on *Public buildings*, \$34.2 million was spent on the construction of new schools, additions and improvements to existing schools, and technical education institutions, including The Western Australian Institute of Technology. Work on regional hospitals at Bunbury and Geraldton, a new hospital at Bentley, a new mental hospital at Guildford, and other new or improved hospitals in both metropolitan and country areas accounted for \$29.0 million. Other expenditure included the cost of work on the construction of a new administrative office building to house Government Departments, the completion of a remand home for boys and girls at Bentley,

extensions to Parliament House, the erection of a regional gaol at Albany and new police headquarters at Perth, new court houses and police stations and government offices at a number of centres, and additions to homes for the aged and infirm.

Expenditure on *Water supplies, sewerage and drainage* included the cost of work on the Goldfields and Agricultural Water Supply and the Great Southern Towns Water Supply, duplication of the Serpentine trunk main, the Ord River irrigation project and a weir on the Fitzroy River for the Liveringa project, developmental and improvement work in northern and south-west irrigation districts including the building of Logue Brook Dam and Waroona Dam, sewerage works construction and extension of services in the metropolitan area and in country towns, and water supplies for towns and stock routes in northern and north-western areas. An account of progress in the field of water conservation and supply is given in Chapter VII, Part 2.

Expenditure under the heading of *Railways, tramways and omnibuses* included the cost of new rolling stock, maintenance and renewals of permanent way, the construction of a new railway bridge over the Swan River at North Fremantle, land resumptions for, and construction of, marshalling yards at Kewdale, construction of a railway between bauxite deposits at Jarrahdale and alumina works at Kwinana, and contribution to costs of railway standardisation. Advances were made to the Metropolitan (Perth) Passenger Transport Trust for the purchase of new omnibuses. Reference is made to the operations of the Trust in Chapter IX, Part 3.

The principal works under the heading of *Harbours and rivers* were those undertaken at the Port of Fremantle, including the building of new headquarters for the Fremantle Port Authority, the reconstruction of quays, dredging, and the installation of new mechanical equipment. Among other works were the construction of breakwaters and land-backed berths at Bunbury and Esperance, harbour improvements and a new berth at Geraldton, improvements at ports on the north and north-west coasts, and the construction of a fishing-boat harbour at Fremantle.

The amounts shown under the heading of *Housing* consist mainly of additional capital provided to The State Housing Commission for the erection of houses, land acquisition and development, and assistance to home builders. The expenditure, which relates only to the General Loan Fund, does not, of course, include moneys applied to the Commission's purposes from Commonwealth loans under the Commonwealth-State Housing Agreement. Reference to the Agreement and to the work of The State Housing Commission will be found in Chapter V, Part 4.

Expenditure attributed to *Electricity supply* includes amounts spent by the State Electricity Commission on a power station at Muja on the Collie coalfield, and the development of the South-West Power Scheme. The figures do not represent all of the Commission's expenditure as they refer only to the General Loan Fund and therefore exclude moneys available to the Commission from its own public loan raisings. The activities of the State Electricity Commission are described in Chapter VIII, Part 2.

Expenditure under the heading of *Development of agriculture* includes the cost of additions to the buildings and laboratories of the Department of Agriculture at South Perth, improvements to research stations operated by the Department and to the Agricultural College at Muresk, land regeneration at the Ord River, and the provision of a cotton ginnery at Kununurra.

Expenditure on the *Development of goldfields and mineral resources* relates to moneys spent on assistance to prospectors, loans to mine owners, drilling in connection with mineral exploration and miscellaneous works at various State Batteries. It also includes advances on account of the Wundowie Charcoal Iron and Steel Industry for expenditure on capital works.

The aggregate expenditure described as *Miscellaneous* amounted to \$12·2 million, of which \$1·24 million was used to provide additional capital for The Rural and Industries Bank of Western Australia and to finance advances by the Bank to primary and secondary industries. A further sum of \$0·46 million was spent on account of the former State Shipping Service (replaced by the Western Australian Coastal Shipping Commission

with effect from 15 November 1965) to meet instalment payments on ships, to provide for structural alterations to some of its fleet and expenditure on cargo containers and radar installations. The remaining expenditure relates to such items as loans and grants to a number of public bodies, pine planting and forest regeneration, assistance to industry including the resumption of land for industrial purposes and services to industry, road works, and advances to the Western Australian Tourist Development Authority for improvement of tourist facilities.

Public Debt. Reference is made on page 241 to the National Debt Commission and its functions in relation to the public debts of the States.

Western Australia's gross public debt at 30 June 1967, was \$749 million, compared with \$555 million at 30 June 1962, representing an increase of \$193 million during the five years. Total raisings in the financial years 1962-63 to 1966-67 amounted to \$231 million and the value of securities repurchased and redeemed in Australia, London, New York and Canada by the National Debt Commission was \$38 million.

The following table presents a summary of public debt transactions in each year of the period between 30 June 1962 and 30 June 1967 and provides a reconciliation between public debt and the aggregate net loan expenditure to each of those dates as shown in the preceding table.

NET LOAN EXPENDITURE AND PUBLIC DEBT
(S'000)

Particulars	At 30 June—					
	1962	1963	1964	1965	1966	1967
Debits—						
Aggregate net loan expenditure	(a) 655,304	693,850	737,470	784,428	832,521	(a) 884,272
Inscribed stock issued under Agricultural Bank Act	3,132	3,132	3,132	3,132	3,132	3,132
The Rural and Industries Bank of Western Australia debenture stock (b) ....	....	....	2,134	2,134	2,134	2,134
Unexpended balance of General Loan Fund	1	....	5	78	38	18
Total debits	658,437	696,982	742,741	789,773	837,825	889,556
Credits—						
Aggregate redemptions	103,307	109,643	116,697	124,153	132,310	140,954
Over-expenditure from General Loan Fund ....	....	3	....	....	....	....
Total credits	103,307	109,646	116,697	124,153	132,310	140,954
Balance, Gross public debt	555,130	587,336	626,045	665,620	705,514	748,601
Amount of public debt maturing in—						
Australia	486,850	515,465	550,362	591,340	632,794	677,807
London	60,824	62,754	66,853	65,844	64,796	63,737
New York	5,866	7,530	7,267	6,890	6,417	5,582
Canada	666	662	638	621	584	551
Netherlands	539	539	539	539	539	539
Switzerland	385	385	385	385	385	385
Total, Gross public debt	555,130	587,336	626,045	665,620	705,514	748,601
Sinking Fund available for further debt redemption	222	485	442	473	267	216
Net public debt	554,908	586,851	625,603	665,147	705,248	748,386

(a) From preceding table. (b) Representing stock issued in connection with the acquisition by the Government of the assets of The Midland Railway Company of Western Australia Limited.

Trust Funds

Trust funds are divided into three groups, governmental, private, and those which deal with moneys advanced by the Commonwealth Government for specific purposes. A detailed list of trust fund transactions is published quarterly in the *Statement of Receipts and Disbursements of Western Australia*. The following table contains a summary of the more important items selected from this list.

SUMMARY OF TRUST FUNDS—RECEIPTS AND EXPENDITURE
(\$'000)

Title of account	Financial year				Balance of fund at 30 June 1967
	1965-66		1966-67		
	Receipts	Expenditure	Receipts	Expenditure	
Governmental trust funds—					
Agriculture Protection Board	266	277	449	389	109
Crown Law Advance	5,876	5,825	6,437	6,241	329
Forests Improvement and Reforestation	3,557	3,700	4,115	3,927	659
Hospital Buildings and Equipment	1,450	1,472	1,163	1,039	159
Hospital Fund Contributions	22,837	22,837	26,729	26,729	....
Housing—					
Government Employees' Housing Authority	1,009	526	787	979	291
Kwinana Housing	248	292	258	302	Dr. 39
State Housing Commission	18,462	22,316	24,636	23,430	4,801
Infant Welfare Centres	321	321	323	323	(a)
Insurance—					
Government Fire and Marine Insurance	1,616	1,445	1,405	1,546	75
Government Workers' Compensation	1,163	1,143	1,114	1,243	231
Railway Accident and Fire Insurance	214	153	224	154	417
State Insurance	9,053	9,078	10,018	9,905	121
Library Board of Western Australia	534	533	621	613	9
Metropolitan Region Improvement	1,995	2,144	1,281	1,351	15
Milk Board	399	321	260	318	26
Milk Board Investment Reserve	228	122	72	106	154
National Parks Board	317	330	268	272	6
Native Welfare Administration	2,194	144	2,393	2,443	....
Noxious Weeds	422	2,379	543	499	93
Plant Hire	1,880	3,784	2,014	1,744	441
Public Debt Sinking Fund	8,649	8,856	9,230	9,281	216
Railways Rolling Stock Replacement	1,045	787	1,034	2,000	933
Roads—					
Central Road Fund	7,666	7,666	10,955	10,955	....
Main Roads	11,657	9,892	27,155	27,518	8,293
Metropolitan Traffic	5,013	5,013	5,833	5,773	60
Roads Maintenance Trust	394	2	2,557	2,635	314
Rural and Industries Bank	2,261	1,924	2,261	4,650	164
State Electricity Commission Loans—Sinking Fund	435	555	335	229	851
Tourist Fund	489	420	722	468	395
Transport Commission	1,248	1,190	1,737	1,602	358
Vermoin Act	959	797	997	912	525
Western Australian Museum	184	179	212	209	23
Other	5,508	5,440	5,448	5,626	6,583
Total	119,547	121,862	153,585	155,409	26,610
Funds financed from Commonwealth advances—					
Colleges of Advanced Education—Building Projects	232	168	457	493	28
Schools—Science Buildings and Equipment	513	730	1,202	1,074	230
Housing—					
Commonwealth-State Housing Agreement	16,669	16,710	18,982	16,169	5,350
Home Builders	3,575	3,442	4,050	4,123	98
War Service Homes	5,530	5,535	4,700	4,693	8
Petroleum Products Subsidy	1,578	1,459	2,524	2,451	192
Pharmaceutical Benefits	910	910	1,522	1,522	....
Roads—					
Beef Cattle Roads	1,639	1,639	1,760	1,760	....
Commonwealth Aid Roads Acts	41,116	41,238	31,937	33,203	563
Scholarship Scheme	666	670	893	810	83
South-West Region Water Supplies	1,250	1,250	1,250	1,250	....
Technical Training—Buildings and Equipment	284	493	552	733	Dr. 82
War Service Land Settlement	986	1,159	174	203	4
Water Resources	211	204	235	235	....
Other	553	580	2,465	2,283	814
Total	75,711	76,187	72,704	71,003	7,289
Private trust funds—					
Charitable Institutions	223	225	286	265	135
Clerk of Courts	4,083	4,088	4,500	4,466	164
Coal Mine Workers' Pensions	488	492	534	508	38
Coal Mine Workers' Pensions Investment Reserve	126	27	120	18	2,102
Country High School Hostels Authority	333	346	371	412	Dr. 9
Public Trustee Common Fund	6,013	5,948	7,002	6,843	226
Superannuation Fund	8,278	8,167	8,577	9,240	Dr. 252
Superannuation Investment Reserve	2,904	1	3,932	78	29,381
Workers' Compensation in Suspense	248	266	402	346	66
Other	2,318	2,168	2,641	2,526	2,575
Total	25,015	21,728	28,367	24,702	34,426
GRAND TOTAL	220,272	219,778	254,656	251,114	68,325

(a) Less than \$500.

LOCAL GOVERNMENT FINANCE

The financial powers of local government authorities in Western Australia are derived principally from the *Local Government Act, 1960-1968*, the main provisions of which are outlined in Chapter III—*Constitution and Government*. Among other statutes affecting local government finance are the Traffic Act, the Health Act, the Water Boards Act, the Vermin Act and the Fire Brigades Act.

General Revenue

TAXATION. As may be seen from the following table, revenue from taxation other than motor vehicle registration fees accounts for about one-third of the total receipts of local authorities and is derived almost entirely from rates. With the commencement of the Local Government Act on 1 July 1961 loan rates and those formerly levied separately for specific purposes, such as the health rate and the vermin rate, were merged in a general rate imposed as a single levy. Other forms of taxation are permits required under building by-laws, dog licences, and licences and permits issued under the Health Act.

PUBLIC WORKS AND SERVICES. Revenue from Public Works and Services amounts to almost one-quarter of the total. Income from property and plant is the largest item and includes rents and hire charges for buildings, plant and recreational facilities as well as sales of land, vehicles and plant. Next in importance are the receipts from construction of private roads, which include driveways to premises, and from sanitary services.

GOVERNMENT GRANTS AND REIMBURSEMENTS. Grants for road works and recoups of road construction costs constitute the main item in this category. The local governing bodies are reimbursed by the State Government for expenditure incurred on its behalf in road construction and maintenance, which is undertaken principally for the Main Roads Department but also for other State authorities as, for example, The State Housing Commission. Grants made by the Western Australian Tourist Development Authority established under the Tourist Act of 1959 are included.

MOTOR VEHICLE REGISTRATION FEES. Revenue from motor vehicle registration fees is an important item in local government finance. In Western Australia, there is no single authority responsible for the licensing of motor vehicles. The Traffic Branch of the Police Department licenses vehicles in the Metropolitan Traffic Area (see the section *Vehicle Registration, Licences and Traffic Control* in Chapter IX, Part 3). Outside this Area each local government authority licenses vehicles in its own district but authority is given under the *Traffic Act Amendment Act, 1967* for such powers to be transferred, subject to the approval of the Minister, to the Commissioner of Police if a local government authority, by resolution of its Council, so requires. Until 1 January 1960 local authorities outside the Metropolitan Traffic Area retained the whole of the fees collected, but from that date could elect to pay a specified part of the revenue into a Central Road Trust Fund account established at the Treasury. Each contributing authority received from the Fund a grant equal to the amount of its contribution increased by a specified proportion. From 1 January 1965 every local government authority outside the Metropolitan Traffic Area has been required to contribute to the Fund and is reimbursed by a sum equal to the amount of its payment, together with an addition of 75 per cent. Where vehicle licensing powers have been voluntarily transferred, however, by a Council to the Commissioner of Police he is required to contribute to the Fund from vehicle licence fees collected for that district, and pay to the local authority a specified proportion of such fees. Metropolitan local authorities receive proportionate allocations of revenue from vehicle licences issued by the Police Department in the Metropolitan Traffic Area. These disbursements are made from the Metropolitan Traffic Trust Account, to which the licence fees for vehicles registered in the Metropolitan Traffic Area are paid in the first instance, and from the Central Road Trust Fund. Further details of the operations of the Central Road Trust Fund and the provision of other moneys for road works are given in the section *Finance for Roads* in Chapter IX, Part 3.

OTHER REVENUE. Revenue derived from the supply of electricity is the most important item under this heading. Only about one-third of the total number of local authorities, however, receive revenue from this source.

SUMMARY OF LOCAL GOVERNMENT REVENUE (a)
(£'000)

Source of revenue	Financial year				
	1962-63	1963-64	1964-65	1965-66	1966-67
Taxation—					
Rates	10,389	11,189	12,216	13,677	15,265
Licences and fees (b)	176	211	222	231	277
Total (b)	10,565	11,400	12,438	13,908	15,542
Public works and services—					
Income from property and plant—					
Parks, gardens and recreational facilities	629	697	720	877	1,068
Vehicles and plant	653	654	674	805	1,004
Halls and other buildings	437	621	656	645	695
Land sales	1,489	1,672	2,448	1,060	998
Other property	721	351	786	351	786
Contributions for road construction, etc.	1,046	1,550	1,608	1,997	3,371
Sanitary services, including garbage collection	1,054	1,063	1,114	1,203	1,344
Water supply	36	35	36	41	50
Sundry works and services	562	646	1,030	996	1,206
Total	5,907	6,938	9,006	7,975	10,523
Government grants and reimbursements—					
Roads—					
Central Road Trust Fund	4,917	5,716	(c) 9,109	2,630	3,292
Main Roads Trust Account				3,383	3,696
Metropolitan Traffic Trust Account				971	861
Other				230	138
Recreational facilities (d)	244	150	115	198	260
Electricity supply	75	13	37	15	23
Vermin destruction bonuses	17	16	16	11	17
Infant health	10	5	24	13	11
Other	28	64	71	95	100
Total	5,291	5,964	(c) 9,372	7,547	8,399
Vehicle licences and fees (e)	2,833	3,034	3,254	3,914	4,432
Other revenue—					
Electricity undertakings	1,723	1,925	1,938	2,271	2,621
Fines and penalties	158	170	189	234	287
Interest	737	929	335	367	333
Other	743	892	892	892	889
Total	2,618	3,023	3,206	3,764	4,130
GRAND TOTAL (f)	27,213	30,359	37,276	37,107	43,027

(a) Includes transactions of Vermin Boards and Water Boards. Loan receipts are excluded; for particulars see page 261.
 (b) Excludes revenue from vehicle licences (see 'Vehicle licences and fees' below) and sanitary and garbage fees (see 'Sanitary services, including garbage collection' below). (c) Includes special grants paid under the *Traffic Act Amendment Act (No. 2), 1964*. (d) Includes grants from the Western Australian Tourist Development Authority. (e) Fees collected by local government authorities outside the Metropolitan Traffic Area. (f) Figures exclude amounts appropriated to general revenue as profits from electricity undertakings.

General Expenditure

GENERAL ADMINISTRATION. The amounts shown under this item in the following table comprise the administrative costs of local government authorities. Expenditure on the administration of such services as water supply, vermin destruction and health and sanitary services is not debited to this item but is included in the figures shown under the heading 'Public works and services'.

DEBT SERVICES. Expenditure on debt services includes debt redemption charges, interest payable under hire purchase agreements and interest charges on loans and overdrafts.

PUBLIC WORKS AND SERVICES. The principal expenditure under the heading 'Public works and services' relates to roads, paths and bridges and includes construction and maintenance costs as well as moneys spent on other road work such as the cleaning and watering of thoroughfares, the construction of private roadways, the provision of street

nameplates and seats, street tree planting and street lighting. Other costs are those connected with health, sanitation and garbage services, capital and maintenance expenditure on property and on vehicles and other plant. Some of the items included under the general heading 'Public works and services' are financed only partly from revenue, the remaining expenditure being from loan funds (see table on page 261).

GRANTS AND DONATIONS. Many of the local authorities make annual contributions as required by the Fire Brigades Act towards the maintenance of fire brigades, while grants are also made in some cases to hospitals and ambulances, to infant health clinics where they are not under the direct control of the local authority concerned, to other local organisations and to the Western Australian State Symphony Orchestra.

ELECTRICITY UNDERTAKINGS. The figures shown for expenditure of electricity undertakings exclude amounts appropriated from profits to the general account of the local authority concerned.

SUMMARY OF LOCAL GOVERNMENT EXPENDITURE (a)
(**\$'000**)

Nature of expenditure	Financial year				
	1962-63	1963-64	1964-65	1965-66	1966-67
General administration	2,319	2,538	2,740	3,131	3,403
Debt services (b)—					
Interest and other charges.....	1,677	1,894	2,065	2,292	2,510
Redemptions	2,546	2,834	3,138	3,573	3,933
Total (b)	4,223	4,728	5,203	5,864	6,443
Public works and services—					
Roads, paths and bridges—					
Construction and maintenance	7,029	8,086	9,762	11,044	13,208
Other road work	633	582	651	519	501
Street lighting	410	441	477	509	547
Property and plant—					
Parks, gardens and recreational facilities	2,238	2,585	2,575	2,870	3,580
Halls and other buildings	1,759	1,600	1,763	2,578	1,878
Vehicles and plant	1,531	1,876	2,410	2,358	2,674
Other property	938	1,591	1,023	1,005	1,849
Other public works and services—					
Sanitary and garbage services	1,280	1,331	1,366	1,461	1,648
Other health services	532	542	639	617	644
Water supply	118	125	153	156	182
Sundry works and services	1,331	1,771	2,212	2,746	3,270
Total	17,798	20,530	23,032	25,863	29,980
Grants and donations—					
Fire brigades.....	266	296	300	335	364
Hospitals and ambulances	21	21	21	22	26
Other	116	122	161	166	195
Total	403	440	482	522	585
Electricity undertakings (including debt services) (c)	1,671	1,746	1,873	2,273	2,623
Other expenditure	446	637	577	520	525
GRAND TOTAL (c)	26,859	30,618	33,907	38,174	43,562

(a) Includes transactions of Vermin Boards and Water Boards. Loan expenditure is excluded; for particulars see page 261.
 (b) Excludes debt services of electricity undertakings. (c) Figures exclude amounts appropriated to general revenue as profits from electricity undertakings.

Loan Transactions

Under the provisions of the local government legislation, local government authorities are constituted as corporate bodies and are authorised to raise loans for works and undertakings and for the liquidation of existing loan debts. The conditions imposed by the *Local Government Act, 1960-1968* in relation to loan raisings, the levying of loan rates, the expenditure of loan moneys and the repayment of loans are summarised on pages 121-2 under the heading *Financial Provisions*.

Loans are raised mainly from banks, insurance companies and superannuation funds. The State Government exercises a measure of supervision over the loan transactions of local government authorities and, where a loan is repayable in full at maturity, maintains the necessary sinking fund at the Treasury.

The following table gives a dissection of the loan receipts and expenditure of local government authorities in each financial year during the period from 1962-63 to 1966-67.

LOCAL GOVERNMENT LOAN RECEIPTS AND EXPENDITURE
(£'000)

Item	Financial year				
	1962-63	1963-64	1964-65	1965-66	1966-67
RECEIPTS					
Ordinary services	6,639	5,994	6,701	6,942	7,871
Health services	343	193	176	81	61
Water supply	95	80	78	139	83
Electricity undertakings	591	713	907	602	816
Total	7,668	6,980	7,862	7,764	8,831
EXPENDITURE					
Roads, paths and bridges	1,505	1,774	1,951	1,910	2,097
Property and plant	3,909	2,587	2,717	3,198	3,544
Parks, gardens and recreational facilities	1,148	1,051	976	1,742	1,977
Water supply	87	109	59	117	98
Electricity undertakings	588	509	862	783	667
Other works and services	195	168	261	296	266
Redemptions	11	8	7	2	....
Other loan charges, transfers, etc.	518	428	280	142	27
Total	7,960	6,634	7,113	8,190	8,676

The following table shows the aggregate local government loan debt outstanding at 30 June of each year during the period from 1963 to 1967.

LOCAL GOVERNMENT LOAN DEBT
(£'000)

Nature of debt	At 30 June—				
	1963	1964	1965	1966	1967
Loan debt outstanding	36,329	40,293	44,723	*48,661	53,386
Sinking fund balances	116	127	140	151	149
Net loan debt	36,214	40,166	44,584	*48,511	53,237
Net loan debt on account of—					
Ordinary services	32,442	35,733	39,327	42,864	46,965
Health services	1,320	1,432	1,509	1,500	1,453
Water supply	452	492	525	* 610	677
Electricity undertakings	2,000	2,508	3,222	3,536	4,140
Total, Net loan debt	36,214	40,166	44,584	*48,511	53,237

* Revised.

Chapter VI—continued
Part 2—Private Finance
CURRENCY

The power to legislate with respect to currency, coinage and legal tender and the issue of paper money is vested by the Constitution in the Commonwealth Parliament. This power was originally exercised by the Commonwealth Government under the Coinage Act of 1909 and the Australian Notes Act of 1910. These Acts, and later amendments, were superseded by the *Reserve Bank Act 1965* and the *Currency Act 1965*, when a decimal currency system was adopted in Australia with effect from 14 February 1966.

Prior to the introduction of decimal currency the Australian monetary system was based on that used in the United Kingdom and therefore had as its unit the pound (£) divided into twenty shillings (s.) each of twelve pence (d.). The *Currency Act 1965*, which replaced the *Coinage Act 1909-1947*, provides for the adoption of a monetary unit known as the 'dollar', equivalent in value to ten shillings in the currency previously in use. The dollar is divided into 100 minor units, or 'cents'. Coins are in the denominations of 50 cents, 20 cents, 10 cents, 5 cents, 2 cents and 1 cent. The *Reserve Bank Act 1965* authorises the issue of notes in the denominations of one dollar, 2, 5, 10, 20 and 50 dollars, or in any other denomination that the Treasurer determines. Notes currently issued are in the denominations of 1, 2, 5, 10 and 20 dollars.

Australian notes are legal tender in Australia to any amount, coins of the denominations of 5, 10, 20 or 50 cents for amounts not exceeding five dollars, and two-cent and one-cent coins for amounts up to and including 20 cents.

Rates of Exchange

At 30 June 1968 the par value of the Australian dollar (\$A1) as agreed with the International Monetary Fund was, in terms of sterling currency, nine shillings and fourpence (£stg 0.47), and \$US 1.12 in terms of American currency.

The following table shows the average telegraphic transfer selling rates of exchange for Sydney (New South Wales) on a selection of overseas countries. The figures appearing in the table, which are averages of daily quotations, are based generally on rates quoted by the Commonwealth Trading Bank of Australia.

**OVERSEAS EXCHANGE RATES—AVERAGE TELEGRAPHIC TRANSFER SELLING RATES
 SYDNEY ON OVERSEAS COUNTRIES: JUNE 1968**

Country	Basis of quotation	Australian currency equivalent	Country	Basis of quotation	Australian currency equivalent
Belgium	Francs to \$A1	54.93	Netherlands	Guilders to \$A1	3.99
Canada	Dollars to \$A1	1.19	New Zealand (a) (c)	\$A to \$NZ1	1.0020
Ceylon (a)	Rupees to \$A1	6.58	Norway	Kroner to \$A1	7.87
China (mainland) (b)	New Yuan to \$A1	2.72	Pakistan	Rupees to \$A1	5.28
Denmark (a)	Kroner to \$A1	8.25	Singapore	Dollars to \$A1	3.39
France	Francs to \$A1	(d) 5.49	South Africa	Rands to \$A1	0.795
Germany, Federal Republic of	Deutsche Marks to \$A1	4.41	Sweden	Kronor to \$A1	5.69
Hong Kong (a)	Dollars to \$A1	6.76	Switzerland	Francs to \$A1	4.75
India	Rupees to \$A1	8.33	Union of Soviet Socialist Republics (b)	Roubles to \$A1	1.004
Italy	Lire to \$A1	686.00	United Kingdom (e)	\$A to £stg1	2.1514
Japan	Yen to \$A1	398.80	United States of America	Dollars to \$A1	1.11

(a) See note (e). (b) Rate of exchange used by the Department of Customs and Excise in converting import values to Australian currency for the purpose of calculating customs duty. (c) On 10 July 1967 New Zealand adopted a decimal currency system with \$NZ 1 equal to 10s. in the previous currency. (d) September 1968. (e) On 18 November 1967 sterling currency was devalued by 14.3 per cent. Of the countries shown in the table, Ceylon, Denmark, Hong Kong and New Zealand also devalued.

BANKING

The banking system in Western Australia comprises the Commonwealth banking institutions, The Rural and Industries Bank of Western Australia and the private trading banks.

Commonwealth Banking Institutions

Prior to the operation of the Reserve Bank Act and the Commonwealth Banks Act, passed by the Commonwealth Parliament in 1959, the Commonwealth banking institutions were the Commonwealth Bank, the Commonwealth Trading Bank and the Commonwealth Savings Bank. The Commonwealth Bank, in addition to performing the functions of a central bank, controlled the Australian note issue through a Note Issue Department and also provided special banking facilities through the Rural Credits Department, the Mortgage Bank Department and the Industrial Finance Department. The policy of the Banks was determined by a Commonwealth Bank Board.

The *Reserve Bank Act* 1959 repealed the Commonwealth Bank Acts, the first of which was passed in 1911, and established the Reserve Bank of Australia under the control of a Reserve Bank Board. The Reserve Bank was constituted as the central bank and took over the Note Issue Department and the Rural Credits Department of the former Commonwealth Bank. The function of the Rural Credits Department is to make available to statutory authorities or co-operative associations of primary producers advances to assist the marketing or processing of primary products.

The *Commonwealth Banks Act* 1959 constituted the Commonwealth Banking Corporation, which came into being on 14 January 1960 as the authority responsible for the operations of the Trading Bank, the Savings Bank and a new Development Bank. The Development Bank was formed basically from the Mortgage Bank Department and the Industrial Finance Department of the Commonwealth Bank, to provide finance and advice to persons to assist them in primary production or in the establishment or development of industrial undertakings, particularly small enterprises.

The Rural and Industries Bank of Western Australia

The Rural and Industries Bank of Western Australia was established by the State Government under the Rural and Industries Bank Act of 1944 to replace the former Agricultural Bank of Western Australia. The Bank consists of a Rural Department and a Government Agency Department, and management is vested in five Commissioners. The Rural Department provides general banking services, and since 1956 has also conducted savings bank business through a Savings Bank Division.

Trading Banks

The nine trading banks conducting business in Western Australia comprise the Commonwealth Trading Bank of Australia, The Rural and Industries Bank of Western Australia (Rural Department) and seven private trading banks.

The private banks, each of which has its head office either in London or in another State, are the Australia and New Zealand Bank Limited, The Bank of Adelaide, the Bank of New South Wales, The Commercial Bank of Australia Limited, The Commercial Banking Company of Sydney Limited, The English, Scottish and Australian Bank, Limited and The National Bank of Australasia Limited. The operations of trading banks are governed by the *Banking Act* 1959-1967 (Commonwealth) which places them under a degree of control by the central bank, the Reserve Bank of Australia.

The following table shows the averages of total amounts on deposit with the trading banks and of their outstanding advances during each of the years 1962-63 to 1966-67. The figures relate to Western Australian business only and represent the annual average of amounts as at the close of business each Wednesday. The information is prepared

from returns furnished under the requirements of the *Banking Act 1959-1967* by all trading banks except The Rural and Industries Bank of Western Australia, which supplies information by special arrangement.

TRADING BANKS—AVERAGES OF AMOUNTS ON DEPOSIT AND OF ADVANCES
(\$'000)

Particulars	Financial year				
	1962-63	1963-64	1964-65	1965-66	1966-67
Amounts on deposit—					
Not bearing interest—					
Australian Governments....	1,092	1,238	1,356	1,734	1,673
Other	143,248	154,882	159,486	174,565	202,679
Bearing interest—					
Australian Governments....	20	62	1,586	3,101	5,315
Other—Current	9,336	11,280	12,686	13,875	15,466
Fixed	66,256	74,806	97,316	117,160	130,769
Total	219,952	242,268	272,430	310,432	355,899
Loans, advances and bills outstanding (a)	153,528	164,878	186,000	195,190	212,023
Ratio of advances to deposits (per cent)	69·8	68·1	68·3	62·9	59·6

(a) Excludes loans to authorised dealers in the short-term money market.

In July 1967 the outstanding advances of the trading banks, excluding The Rural and Industries Bank of Western Australia, amounted in total to \$202·2 million. Business advances represented \$161·7 million, personal advances \$35·1 million, advances to non-profit organisations \$4·2 million, and to public authorities other than the Commonwealth and State Governments \$1·1 million. Business advances were mainly for rural industry (\$71·6 million), for retail and wholesale trade (\$34·9 million) and for manufacturing (\$17·0 million). Of the personal advances, loans for the building or purchasing of homes accounted for \$17·0 million.

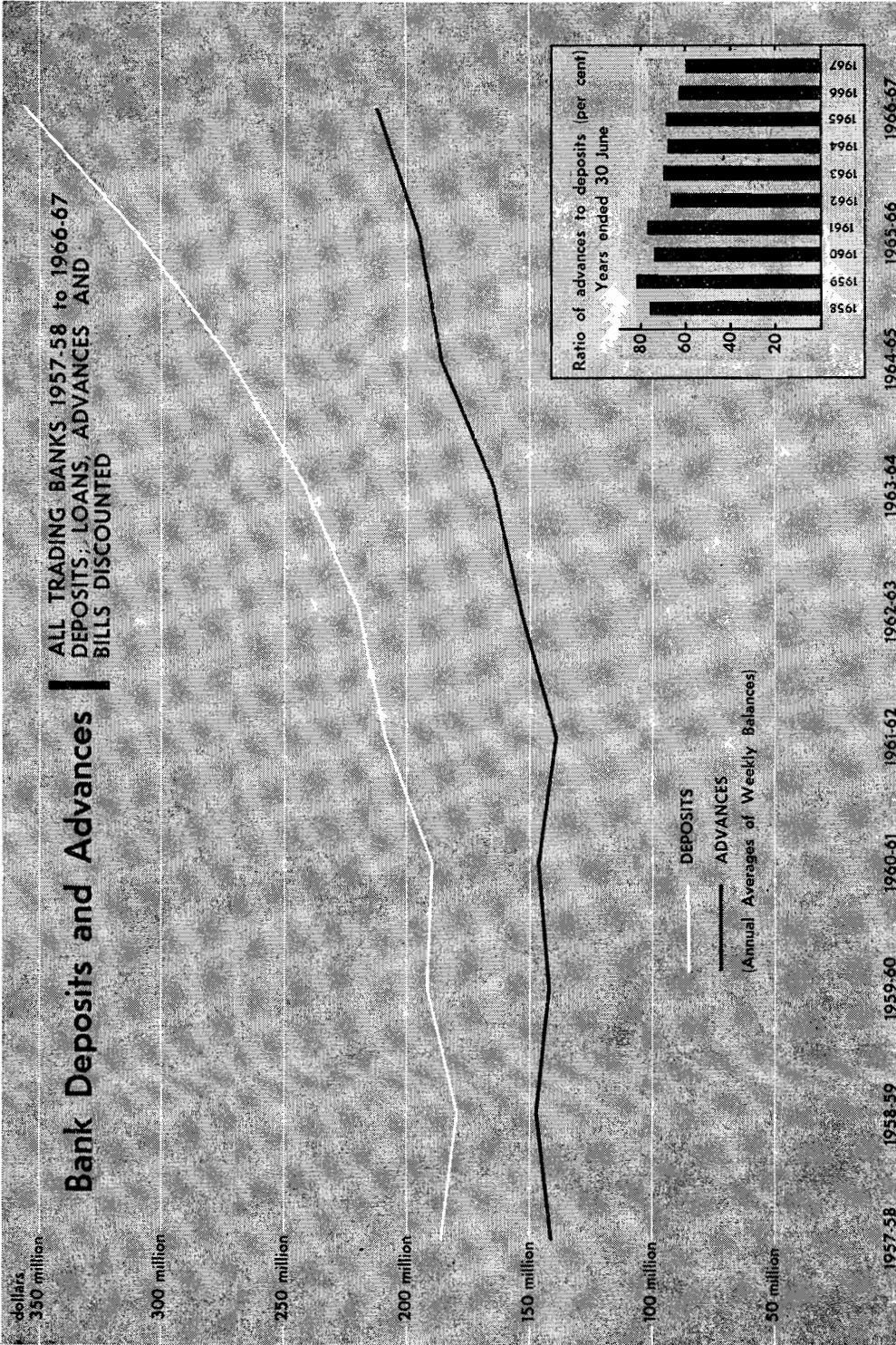
In the following table, which relates to Western Australian business only, the average amount on deposit with each trading bank and the average of its outstanding advances during the month of June 1967 are shown, together with the number of branches and agencies of each bank at 30 June 1967.

TRADING BANKS—BRANCHES, AGENCIES, DEPOSITS AND ADVANCES: JUNE 1967

Bank	Number of branches (a)	Number of agencies (a)	Amounts on deposit (b)			Loans, advances and bills outstanding (b) (c)
			Not bearing interest	Bearing interest	Total	
Commonwealth Trading Bank of Australia	65	29	\$'000 33,226	\$'000 30,355	\$'000 63,581	\$'000 31,489
The Rural and Industries Bank of Western Australia (Rural Department)	52	26	21,875	21,625	43,499	39,591
Private trading banks—						
Australia and New Zealand Bank Limited	43	27	25,113	16,306	41,419	24,956
The Bank of Adelaide	2	2	1,932	663	2,594	1,563
Bank of New South Wales	99	38	60,095	41,779	101,874	60,976
The Commercial Bank of Australia Limited	36	23	13,997	8,280	22,276	17,312
The Commercial Banking Company of Sydney Limited	2	1	1,446	993	2,438	3,737
The English, Scottish and Australian Bank, Limited	25	2	10,517	5,848	16,364	12,427
The National Bank of Australasia Limited	76	36	32,786	26,332	59,119	45,266
Total, Private trading banks	283	129	145,886	100,201	246,084	166,237
TOTAL, ALL TRADING BANKS	400	184	200,987	152,181	353,164	237,317

(a) At 30 June. (b) Average as at the close of business on Wednesdays in June.

(c) Excludes loans to authorised dealers in the short-term money market.



The following table contains particulars of the average weekly debits to customers' accounts in each year from 1962-63 to 1966-67 and in each quarter of those years. The figures represent the total of all cheques drawn by customers of all trading banks and, in addition, the Rural Credits Department of the Reserve Bank of Australia and the Commonwealth Development Bank of Australia. Debits to Commonwealth and State Government accounts at city branches are excluded as they are subject to abnormal influences. The figures are derived by averaging the debits made during weeks ended on Wednesdays during the several periods shown.

TRADING BANKS—AVERAGE WEEKLY DEBITS TO CUSTOMERS' ACCOUNTS (a)

Particulars	Financial year				
	1962-63	1963-64	1964-65	1965-66	1966-67
WEEKLY AVERAGE (\$ million)					
Average for quarter ended—					
September	81.2	87.9	93.3	107.7	123.4
December	88.8	99.9	108.6	124.1	138.8
March	94.7	99.9	110.1	130.3	144.7
June	88.3	98.4	114.4	128.4	147.6
Average for year	88.2	96.5	106.3	122.5	138.6
PER HEAD OF MEAN POPULATION (dollars) (b)					
Average for quarter ended—					
September	105.6	111.1	115.1	130.1	145.0
December	114.7	125.5	133.2	148.7	161.7
March	121.3	124.6	134.3	154.9	167.0
June	112.3	122.0	138.9	151.8	169.0
Average for year	113.5	120.8	130.1	146.3	160.8

(a) Excludes debits to Commonwealth and State Government accounts at city branches; see letterpress immediately preceding table.
 (b) Figures revised in accordance with the final results of the 1966 Census.

On 1 October 1962 the trading banks introduced a system of service charges on current accounts, and abolished the exchange rates previously in operation (see *Official Year Book of Western Australia*, No. 3—1962, page 200).

The charges, comprising three separate elements, are calculated quarterly and debited as one composite item. In addition to a basic maintenance fee of 65c per quarter, there is a ledger activity fee related to the number of transactions each quarter, and a collection fee on cheques deposited in excess of twenty per quarter. Rebates are allowable on ledger activity fees where credit balances are maintained at the level of \$1,000 or more throughout the quarterly period.

Savings Banks

Savings bank facilities in Western Australia are provided by the Commonwealth Savings Bank of Australia, which commenced business in Western Australia in 1913; the Australia and New Zealand Savings Bank Limited, the Bank of New South Wales Savings Bank Limited, the C.B.C. Savings Bank Limited and The Rural and Industries Bank of Western Australia (Savings Bank Division), all of which were established in 1956; the E.S. & A. Savings Bank Limited, established in 1961; and The Bank of Adelaide Savings Bank Limited, The National Bank Savings Bank Limited, and The Commercial Savings Bank of Australia Limited, all of which commenced business in 1962.

Individual depositors may not operate on their savings bank accounts by cheque, but cheque accounts are generally available to non-profit organisations such as friendly, co-operative and charitable societies. Interest is paid on deposits with savings banks

and no charge is made for the keeping of accounts. A school savings bank service is provided and its operations, except for the number of accounts open at the end of each year, are included in the figures shown in the following table.

SAVINGS BANK TRANSACTIONS

Particulars	Financial year				
	1962-63	1963-64	1964-65	1965-66	1966-67
Deposits (a)	\$'000 258,132	306,142	345,734	397,581	467,401
Withdrawals (a)	\$'000 236,432	281,322	331,250	375,075	439,255
Excess of deposits over withdrawals	\$'000 21,700	24,820	14,484	22,506	28,146
Interest added to accounts	\$'000 6,056	6,134	7,404	8,711	9,790
Accounts open at end of year	No. 683,417	736,009	786,340	848,562	905,349
Amount due to depositors at end of year—					
Total	\$'000 208,812	239,766	261,654	292,871	330,807
Average per account	\$ 305.7	325.8	332.9	345.4	365.5
Average per head of population	\$ *264.9	*296.6	*317.0	*345.3	377.5

(a) Includes inter-branch transfers but excludes transfers from and to other States. * Revised.

Bank Interest Rates

The following table shows the rates of interest paid on fixed deposits and the maximum rates charged on overdrafts by the trading banks from 1 July 1962 to 30 June 1967.

TRADING BANKS—RATES OF INTEREST

Date (a) or year	Interest on fixed deposits				
	Thirty days but less than three months (b)	Three months but less than twelve months	Twelve months to eighteen months (c)	Over eighteen months to twenty-four months (d)	Interest on overdrafts (maximum rate)
RATE (per cent per annum)					
Date (a)—					
1962—1 July .....	....	3.75	4.00	....	7.00
1963—1 April .....	....	3.25	3.50	....	6.50
1964—8 April	3.75	3.75	4.00	....	7.00
27 April .....	"	"	"	....	"
29 September	"	"	"	4.25	7.25
1965—10 March	4.25	4.25	4.50	4.50	7.25
1966—17 August	4.00	4.00	4.25	"	"
1967—30 June	"	"	"	"	"
ANNUAL AVERAGE RATE (per cent)					
Year—					
1962-63 .....	....	3.63	3.88	....	6.88
1963-64	3.75	3.36	3.61	....	6.59
1964-65	3.90	3.90	4.15	4.35	7.08
1965-66	4.25	4.25	4.50	4.50	7.25
1966-67	4.03	4.03	4.28	"	"

(a) The dates shown, other than 1 July 1962 and 30 June 1967, are those on which the revised rate (or rates) came into operation. (b) Prior to 8 April 1964 banks were not permitted to accept fixed deposits for less than three months. From 8 April 1964 banks were permitted to accept deposits of more than \$100,000 for periods of thirty days but less than three months. (c) From 17 November 1960 to 9 September 1962 banks did not accept deposits for periods longer than twelve months. From 10 September 1962 to 28 September 1964 banks were permitted to accept deposits for periods up to fifteen months. From 29 September 1964 banks were permitted to accept deposits for periods of from twelve to eighteen months. (d) From 29 September 1964 banks were permitted to accept deposits for periods of more than eighteen months up to twenty-four months.

The following table shows the rates of interest paid on depositors' balances by The Rural and Industries Bank of Western Australia (Savings Bank Division) and by other savings banks during the period 1 July 1962 to 30 June 1967.

SAVINGS BANKS—RATES OF INTEREST ON DEPOSITORS' BALANCES

Date (a) or year	The Rural and Industries Bank of Western Australia (b)			Other savings banks		
	Ordinary accounts (c)	Friendly and other society accounts		Ordinary accounts (c)	Friendly and other society accounts	
	\$1-\$10,000	\$1-6,000	\$6,001 and over	\$1-\$10,000	\$1-6,000	\$6,001 and over
RATE (per cent per annum)						
Date (a)—						
1962—1 July	3·75	3·75	2·00	3·50	3·50	2·00
1963—1 May	3·25	3·25	1·50	3·00	3·00	1·50
1964—1 June	3·50	3·50	1·75	3·25	3·25	1·75
1965—1 April	3·75	3·75	2·00	3·50	3·50	2·00
1967—30 June	"	"	"	"	"	"
ANNUAL AVERAGE RATE (per cent)						
Year—						
1962-63	3·67	3·67	1·92	3·42	3·42	1·92
1963-64	3·27	3·27	1·52	3·02	3·02	1·52
1964-65	3·56	3·56	1·81	3·31	3·31	1·81
1965-66	3·75	3·75	2·00	3·50	3·50	2·00
1966-67	"	"	"	"	"	"

(a) The dates shown, other than 1 July 1962 and 30 June 1967, are those on which the revised rates came into operation.
 (b) Savings Bank Division. (c) Prior to 1 March 1967 no interest was payable on amounts in excess of \$6,000; from 1 March 1967 no interest payable on amounts in excess of \$10,000.

INSURANCE

General Insurance

General insurance is available to the public in Western Australia from a number of companies and, in some fields, from the State Government Insurance Office. There is also a Motor Vehicle Insurance Trust whose activities are confined to motor vehicle third party insurance.

During 1967, there were 148 companies operating in Western Australia. The majority of these were 'tariff' offices, being members of the Fire and Accident Underwriters' Association and issuing the standard policies of the Association at uniform premium rates. The remainder were 'non-tariff' companies effecting insurances at competitive rates and reinsuring direct with Lloyd's or other underwriters.

The State Government Insurance Office covers fire, marine and general insurance risks for State Government instrumentalities and semi-government and local government authorities. It also conducts some classes of insurance business for the general public, the principal transactions being workers' compensation and comprehensive motor vehicle insurance. By authority of amendments to the State Government Insurance Office Act in 1954 and 1958 the Office engages in personal accident insurance in respect of school children and students under a policy which indemnifies the parent or guardian against the cost of medical and surgical treatment and funeral and other expenses.

The following table gives details of revenue and expenditure relating to fire, marine and general insurance during each of the years from 1962-63 to 1966-67. It contains only selected items of statistics and is therefore not suitable for the construction of a 'Profit and Loss' statement or 'Revenue Account'. The amounts shown as 'Premiums' represent the full amount receivable in respect of policies issued or renewed during the year, less returns, rebates and bonuses paid or credited to policy holders during the year. They are not adjusted to provide for premiums unearned at the end of the year and consequently the amounts differ from 'earned premium income' appropriate to the year. The amounts shown as 'Claims' include provision for outstanding claims and represent claims or losses incurred during the year. Salvage and other amounts recoverable have been deducted. The transactions of The Motor Vehicle Insurance Trust are

not included, but are shown in the table on page 271. The figures shown under the heading of 'Contributions to fire brigades' represent payments made to the Western Australian Fire Brigades Board for the operation and maintenance of fire brigades, as required by the Fire Brigades Act.

FIRE, MARINE AND GENERAL INSURANCE (a)
(S'000)

Particulars	Financial year				
	1962-63	1963-64	1964-65	1965-66	1966-67
REVENUE					
Premiums—					
Motor vehicles	7,117	8,182	8,940	10,277	11,852
Fire	4,937	5,187	5,448	6,009	6,343
Workers' compensation	5,975	6,108	6,411	7,136	7,908
Householders' comprehensive	1,393	1,660	1,960	2,286	2,562
Personal accident	1,338	1,239	1,305	1,425	1,820
Hailstone	1,102	890	927	1,479	1,545
Marine	1,146	1,201	1,234	1,418	1,553
Other classes	1,755	1,817	1,999	2,356	2,953
Total premiums	24,761	26,285	28,224	32,385	36,535
Other (interest, dividends, rents, etc.—net)	854	874	1,011	1,059	1,225
Total revenue	25,615	27,159	29,235	33,444	37,760
EXPENDITURE					
Claims—					
Motor vehicles....	5,372	6,527	6,557	7,439	8,883
Fire	1,709	1,221	1,522	1,711	1,922
Workers' compensation	4,518	4,693	5,242	5,516	6,461
Householders' comprehensive	298	382	559	555	606
Personal accident	786	631	563	587	766
Hailstone	780	969	338	970	443
Marine	608	460	372	548	587
Other classes	651	746	955	922	1,329
Total claims	14,723	15,629	16,108	18,247	20,995
Other—					
Management expenses....	5,280	5,444	5,858	6,314	7,286
Commission and agents' charges	2,228	2,320	2,457	2,691	3,071
Taxation.....	736	559	740	988	841
Contributions to fire brigades	666	681	781	920	1,010
Total expenditure	23,633	24,633	25,943	29,160	33,203

(a) Excludes transactions of The Motor Vehicle Insurance Trust (see table on page 271). Operations of the State Government Insurance Office are included.

Life Insurance

Life insurance business throughout Australia is regulated by the *Life Insurance Act 1945-1965* (Commonwealth), which requires companies to be registered by the Insurance Commissioner appointed under the Act and to establish statutory funds in relation to their life insurance transactions. The purpose of the Act, which supersedes State legislation, is to place life insurance business on a uniform basis throughout the Commonwealth and to afford protection to policy holders. Under a previous Commonwealth Act, the *Insurance Act 1932-1966*, the companies were required to deposit money or approved securities with the Treasurer in order to guarantee the claims of insured persons, and this provision is continued by the present Act.

During 1967, there were thirty-five life insurance companies or societies operating in Western Australia. In terms of total sums insured, life insurance policies relate predominantly to ordinary endowment or whole-life insurance and superannuation, although an appreciable volume of industrial business is also undertaken.

The information contained in the following table has been compiled from annual returns submitted to the Insurance Commissioner. These returns do not relate to a uniform accounting period, but rather to the financial years adopted by insurance companies which ended during each calendar year from 1963 to 1967.

LIFE INSURANCE

Year (a)	New policies issued				Policies discontinued or reduced			Policies, etc. existing at end of year			
	Policies	Sum insured	Premiums		Policies	Sum insured	Annual premiums	Policies	Sum insured	Annual premiums	Bonus additions
			Single	Annual							
	No.	\$'000	\$'000	\$'000	No.	\$'000	\$'000	No.	\$'000	\$'000	\$'000
ORDINARY BUSINESS											
1963	28,475	99,400	27	2,422	19,812	35,747	946	284,088	575,588	16,674	55,186
1964	29,783	118,853	42	2,745	20,851	39,138	1,040	293,020	655,303	18,379	64,360
1965	30,259	126,760	65	2,931	17,391	39,450	1,060	305,888	742,613	20,249	74,488
1966	32,098	150,016	76	3,307	18,060	41,583	1,051	319,926	851,047	22,505	87,282
1967	35,590	179,907	93	3,976	17,302	46,042	1,179	338,214	984,912	25,302	102,195
INDUSTRIAL BUSINESS											
1963	7,723	6,161	....	248	16,061	4,932	231	183,623	47,983	2,090	2,620
1964	8,375	7,195	....	286	14,270	4,590	214	177,728	50,588	2,162	3,041
1965	8,413	7,637	....	308	13,519	4,660	211	172,622	53,565	2,258	3,572
1966	10,110	9,532	....	392	14,339	5,181	234	168,393	57,916	2,417	4,139
1967	11,156	11,201	....	456	10,840	5,158	224	168,709	63,960	2,649	4,961
SUPERANNUATION BUSINESS											
1963	4,780	24,074	55	789	4,814	6,459	238	33,698	103,573	3,492	6,830
1964	5,012	25,593	69	844	3,605	9,919	316	35,105	119,247	4,021	8,346
1965	4,742	30,663	72	1,025	3,888	10,871	393	35,959	139,039	4,652	9,997
1966	5,573	36,377	273	1,306	5,224	21,344	514	36,308	154,072	5,444	11,702
1967	6,149	39,500	256	1,286	3,684	13,871	477	38,773	179,701	6,252	14,543
ORDINARY, INDUSTRIAL AND SUPERANNUATION BUSINESS											
1963	40,978	129,635	81	3,460	40,687	47,137	1,415	501,409	727,144	22,257	64,637
1964	43,170	151,641	111	3,875	38,726	53,647	1,570	505,853	825,138	24,561	75,747
1965	43,414	165,060	137	4,263	34,798	54,981	1,664	514,469	935,217	27,160	88,057
1966	47,781	195,926	349	5,005	37,623	68,108	1,799	524,627	1,063,035	30,366	103,123
1967	52,895	230,609	350	5,718	31,826	65,071	1,881	545,696	1,228,573	34,203	121,699

(a) See letterpress immediately preceding table.

Motor Vehicle Third Party Insurance

Third party insurance in connection with motor vehicle accidents became compulsory on 1 July 1944 under the provisions of the Motor Vehicle (Third Party Insurance) Act of 1943. The Motor Vehicle Insurance Trust was established by an amendment to the Act in 1948 and comprises the general manager of the State Government Insurance Office, three members nominated by the Fire and Accident Underwriters' Association of Western Australia and one nominee of those approved insuring organisations, which are not members of the Association.

The Trust administers a Motor Vehicle Insurance Fund in which approved insurers participate. Premiums received from motor vehicle third party insurance and revenue from other sources constitute annual 'pools' and, after payment of claims and other expenses appropriate to each pool, the resulting profit or loss is shared by the participating insurers, which include the State Government Insurance Office. These shares cannot be finally determined until the last claim is paid and it is usually several years before a

pool has satisfied all the claims attributable to it. For this reason, the figures given in the following table are subject to progressive revision as the business of each pool approaches finality.

THE MOTOR VEHICLE INSURANCE TRUST
(\$'000)

Revenue and expenditure	Pool (a) for the year—				
	1962-63	1963-64	1964-65	1965-66	1966-67
Revenue—					
Net premiums	2,558	3,740	4,850	5,180	6,797
Interest received	214	372	439	308	139
Total revenue	2,772	4,112	5,289	5,488	6,936
Expenditure—					
Claims paid	3,507	4,260	4,448	4,753	(b) 4,292
Commission	16	21	30	31	33
Management expenses.....	92	96	99	100	126
Taxation.....	4	4	5	5	12
Total expenditure	3,619	4,381	4,582	4,891	(b) 4,463

(a) See accompanying letterpress *Motor Vehicle Third Party Insurance*. Figures are revised to 30 June 1967. (b) Includes estimate for claims outstanding but excludes estimate for claims not notified of \$2,209,861.

Health Insurance Organisations

Voluntary health insurance is offered by a number of organisations which provide one or more types of benefit covering such items as hospital and medical fees, funeral expenses and sick pay to or on behalf of contributing members and their dependants. They include societies registered under the *Friendly Societies Act, 1894-1964* and other organisations registered under the *National Health Act 1953-1968* (Commonwealth).

Benefits are available in a wide range to meet the cost, either wholly or in part, of such services as treatment by a general or specialist medical practitioner (including surgical operations and obstetrical attention), X-ray, cardiographic and pathological examinations, physiotherapy, dental treatment, hospital care, home nursing and ambulance transport. In many cases, the Commonwealth Government pays a benefit additional to that received from the organisation. Reference to these additional benefits is made in Chapter V—*Social Condition*. Members of friendly societies may contribute also for the supply of medicines and some societies maintain endowment assurance funds and supplementary death benefit funds.

The following tables give details, for the years 1962-63 to 1966-67, of the membership and the financial activities of friendly societies registered under the Friendly Societies Act. 'Benefit' members are those who contribute to the Sick and Funeral Fund of a society and 'honorary' members are principally those who pay only for medical and hospital benefits.

FRIENDLY SOCIETIES—NUMBER, MEMBERS AND SICKNESS BENEFITS

Particulars	Financial year				
	1962-63	1963-64	1964-65	1965-66	1966-67
Registered societies	12	11	11	11	11
Branches	257	255	253	253	249
Members at end of year—					
Benefit members	17,488	17,120	16,744	16,316	15,964
Honorary members	25,008	29,207	31,943	33,857	35,064
Sickness benefits—					
Number of members paid	2,924	2,716	2,703	2,550	2,451
Number of weeks of sick pay	55,273	57,238	56,364	57,370	54,808

FRIENDLY SOCIETIES—REVENUE AND EXPENDITURE
(**\$'000**)

Particulars	Financial year				
	1962-63	1963-64	1964-65	1965-66	1966-67
Revenue—					
Fees, contributions and levies	1,352	1,430	1,552	1,637	1,915
Interest and rent	113	121	129	136	148
Other	47	110	155	56	211
Total revenue	1,511	1,661	1,835	1,829	2,274
Expenditure—					
Sick pay....	46	47	46	45	42
Medical attendance and medicine	1,148	1,213	1,304	1,428	1,632
Death benefits	37	37	46	42	43
Administration	131	136	137	137	162
Other	92	118	116	156	124
Total expenditure	1,453	1,551	1,649	1,807	2,002
Balance of funds at end of year	3,092	3,203	3,389	3,411	3,682

REGISTERED BUILDING SOCIETIES

Building societies in Western Australia are registered under the provisions of the *Building Societies Act, 1920-1962* primarily for the purpose of raising funds to assist members by granting loans, secured on mortgage, to build or acquire homes. They also provide a means of investment for shareholder members, trustee funds and other depositors. The funds of the societies may be in the form of payment for fully-paid shares, subscriptions for contributing shares, money placed on deposit, or negotiated loans. Another important source of revenue became available to the societies in 1956-57 when, under the *Housing Agreement Act 1956* (Commonwealth), it was provided that moneys should be allocated to approved institutions from Commonwealth funds advanced to the States in terms of the Commonwealth and States Housing Agreement. A requirement of the Act was that these institutions should receive not less than 30 per cent of total advances made to the State during each of the financial years 1958-59 to 1960-61, and this provision has been continued by later Acts. The present legislation, the *Housing Agreement Act 1966*, provides for its extension to the year ending 30 June 1971.

REGISTERED BUILDING SOCIETIES (a)

Particulars	Financial year				
	1962-63	1963-64	1964-65	1965-66	1966-67
Societies on register at 30 June	38	70	106	144	192
Shareholders	28,828	30,624	33,694	36,897	38,273
Borrowers	8,486	9,757	11,171	12,280	13,708
	\$'000	\$'000	\$'000	\$'000	\$'000
Loans granted	7,270	10,430	13,091	12,611	14,031
Working expenses (b)	801	997	1,261	1,501	1,824
Liabilities—					
Investing members' funds	11,069	12,790	15,572	19,063	22,231
Borrowing members' funds	414	600	913	1,289	1,674
Deposits	5,100	6,916	8,300	9,343	10,944
Loans due to—Government	10,178	11,977	14,561	16,386	19,231
Other	2,929	5,055	7,855	10,029	12,779
Other liabilities (c)	169	193	389	508	723
Total liabilities	29,859	37,531	47,590	56,618	67,582
Assets—					
Advances on mortgages (c)	28,630	36,083	45,084	53,472	62,689
Other assets	1,229	1,448	2,505	3,146	4,893
Total assets	29,859	37,531	47,590	56,618	67,582

(a) Figures revised since previous issue. (b) Includes administration expenses and, from and including 1964-65, interest on borrowed funds but not interest on investing members' funds, borrowing members' funds, or deposits. (c) Excludes loans in process and advances approved but not yet paid.

The Building Societies Act provides for the constitution of a Building Societies Advisory Committee of five members, comprising the Registrar of Building Societies as chairman, the President of the State branch of the Commonwealth Institute of Valuers, two persons who are qualified and experienced in building society management and practice, and an officer of the State Public Service nominated by the Minister.

The functions of the Committee, as set out in the Act, are to make recommendations and submit proposals to the Minister with respect to regulations and model rules to be made under the Act ; any action to be taken for promoting, encouraging and assisting in, the formation of societies ; improving the methods of operation of societies ; charges which societies may make on and require to be paid by their members, other than share subscriptions and repayment of advances ; the financing of societies in their operations and the protecting of the finances of societies ; promoting the building of dwelling-houses by co-operative effort ; determining and specifying the minimum standards of construction of dwelling-houses and other buildings to be accepted before advances can be made ; and such other matters as the Minister refers to the Committee from time to time, or as may be prescribed.

INSTALMENT CREDIT FOR RETAIL SALES

The statistics in the following tables cover all types of instalment credit schemes which relate primarily to the financing of retail sales of goods in which repayment is made by regular predetermined instalments. Types of schemes covered include hire purchase, time payment, budget account and personal loans which relate primarily to the financing of retail sales of goods. In these statistics the term 'retail sales' relates not only to retail sales by retail establishments coming within the scope of the Censuses of Retail Establishments conducted periodically by the Commonwealth Statistician, Canberra (see Chapter IX, Part 2), but includes also other sales of goods to final purchasers (e.g. plant and machinery).

In the next two tables, two major classifications of instalment credit statistics are adopted: type of credit and type of business.

The term 'retail businesses' in the latter category relates to retailers who provide their own finance, and also to subsidiary finance businesses set up by retailers (or by groups engaged mainly in retail trading), primarily for the purpose of financing their retail sales. All other businesses engaged in instalment credit financing of retail sales, irrespective of whether their main activity is finance, constitute 'non-retail finance businesses'.

More detailed information regarding classifications used in the following tables may be found in the annual bulletin *Insurance and Other Private Finance* and in monthly and quarterly statements relating to instalment credit for retail sales issued by the Commonwealth Statistician, Canberra.

Details of the balances outstanding at 30 June 1963 to 1967, according to type of credit and type of business, are given in the following table.

INSTALMENT CREDIT FOR RETAIL SALES—BALANCES OUTSTANDING (a)
(\$ million)

At 30 June—	Type of credit		Type of business		Total
	Hire purchase	Other instalment credit	Retail (b)	Non-retail finance	
1963	86.8	17.6	36.4	68.0	104.4
1964	91.5	17.3	30.4	78.4	108.9
1965	93.2	16.7	27.5	82.4	109.9
1966	98.7	16.8	25.9	89.6	115.5
1967	101.1	25.7	25.5	101.3	126.8

(a) Includes hiring charges, interest and insurance.

(b) Includes subsidiary finance businesses set up by retailers primarily for financing their retail sales.

The following table shows for broad commodity groups the amount financed according to type of credit and type of business during the period 1962-63 to 1966-67.

INSTALMENT CREDIT FOR RETAIL SALES—AMOUNT FINANCED (a)
(\$ million)

Year	Type of credit		Type of business		Total
	Hire purchase	Other instalment credit	Retail (b)	Non-retail finance	
MOTOR VEHICLES, TRACTORS, ETC.					
1962-63	40.0	3.7	4.1	39.6	43.7
1963-64	44.4	5.0	4.1	45.3	49.4
1964-65	42.2	5.2	4.2	43.1	47.4
1965-66	45.9	5.6	4.9	46.6	51.5
1966-67	48.7	11.6	5.0	55.2	60.3
PLANT AND MACHINERY					
1962-63	6.2	0.2	0.6	5.8	6.4
1963-64	5.9	0.2	0.3	5.7	6.1
1964-65	7.8	0.1	0.5	7.4	7.9
1965-66	10.5	0.8	0.9	10.4	11.3
1966-67	11.4	2.8	1.8	12.4	14.2
HOUSEHOLD AND PERSONAL GOODS					
1962-63	12.4	10.2	17.6	4.9	22.6
1963-64	10.4	9.0	14.7	4.7	19.4
1964-65	10.3	9.8	15.3	4.8	20.1
1965-66	10.7	9.6	15.3	5.0	20.3
1966-67	11.4	11.6	16.9	6.1	23.0
TOTAL					
1962-63	58.6	14.0	22.3	50.3	72.6
1963-64	60.8	14.1	19.1	55.8	74.9
1964-65	60.3	15.1	20.0	55.3	75.3
1965-66	67.1	15.9	21.0	62.0	83.1
1966-67	71.5	25.9	23.7	73.7	97.4

(a) Excludes hiring charges, interest and insurance.

(b) Includes subsidiary finance businesses set up by retailers primarily for financing their retail sales.

BANKRUPTCY

Under the provisions of the *Bankruptcy Act* 1966-1968 (Commonwealth), which is administered by the Attorney-General, the State of Western Australia is a proclaimed Bankruptcy District and the Supreme Court of Western Australia has federal jurisdiction in bankruptcy matters. There is a Registrar in Bankruptcy whose duties include the holding of public sittings for the examination of bankrupts, the examination of witnesses, the issuing of bankruptcy notices and creditors' petitions, and such other duties as are specified in the Act or delegated to him by the Court. Another bankruptcy officer is the Official Receiver, who acts under the general authority and direction of the Court and whose duties relate to the conduct of the debtor and to the realisation and administration of his estate.

An order for the sequestration of an estate may result from a petition by either the debtor or the creditors. In cases where it appears certain that the assets of a deceased estate will be insufficient to meet the debts, the executor or a creditor may petition to have the estate administered in bankruptcy.

Compositions, deeds of assignment and deeds of arrangement are provided for in Part X of the Act. A debtor may call a meeting of his creditors and either compound with them to pay a certain sum in the \$ as full settlement of his debts or enter into a deed

of arrangement allowing him a specified time in which to pay. On the other hand, his creditors may require him to execute a deed of assignment, by which control of his affairs passes to a trustee registered under the Act, or to file a petition in bankruptcy.

The following table relates to bankruptcy proceedings during each of the years from 1962-63 to 1966-67.

BANKRUPTCY PROCEEDINGS

Particulars	Financial year				
	1962-63	1963-64	1964-65	1965-66	1966-67
Sequestration orders (a)—					
On creditors' petitions	14	15	11	10	12
On debtors' petitions (b)	157	171	225	187	183
Assets	157	116	175	187	303
Liabilities	542	646	892	755	898
Compositions and assignments without sequestration—					
Number	70	55	72	80	82
Assets	1,988	400	423	2,283	850
Liabilities	1,840	541	719	2,476	632

(a) Includes orders for administration of deceased debtors' estates. (b) Includes petitions by legal personal representatives of deceased debtors.

CHAPTER VII

LAND TENURE AND SETTLEMENT, WATER SUPPLY AND SEWERAGE

Part 1—Land Tenure and Settlement

An outline of the origin and development of the land tenure system in Western Australia from the early years of settlement is given in Chapter VII of the *Official Year Book of Western Australia*, Nos. 1 and 2 (New Series).

The growth of land settlement in relation to particular agricultural and pastoral activities is dealt with in the relevant sections of Chapter VIII and in the *Statistical Summary from 1829* appearing after Chapter X.

LEGISLATION AND ADMINISTRATION

By the Land Act of 1898, earlier legislation relating to the sale, occupation and management of Crown lands was consolidated and amended. Under a series of Agricultural Lands Purchase Acts which were passed between 1896 and 1904 and consolidated by the *Agricultural Lands Purchase Act, 1909*, provision was made for the repurchase by the Crown of land suitable for closer settlement. The principal criteria applied in the purchase of such land were suitability for wheat or mixed farming and proximity to transport, especially the railways.

The operation of subsequent legislation has not greatly changed the pattern of land development which was created by the *Land Act, 1898* and the *Agricultural Lands Purchase Act, 1909*. *The Land Act, 1933-1968* is now the basic statute controlling the leasing and disposal of Crown land. Closer settlement legislation relates predominantly to schemes for the benefit of returned war-service personnel. Crown land is also leased under the *Mining Act, 1904-1968*, the *Petroleum Act, 1967* and the *Forests Act, 1918-1964*, but no alienations are made under these Acts. In most freehold or leasehold titles of a residential, agricultural or pastoral nature the mineral rights, petroleum rights and, in many instances, the timber rights are reserved to the Crown.

The Department of Lands and Surveys is responsible for the leasing and alienation of Crown land, except where mining and forestry tenures are involved, and is under the control of the Minister for Lands. In certain instances, advisory or partly-executive boards have been created to assist in administration. These include the Land Board, which deals with general applications for land, and the Pastoral Appraisal Board.

Permits and leases for mining purposes are issued by the Department of Mines and those for forestry and timber milling by the Forests Department.

METHODS OF LAND ALIENATION

The principal methods of alienation provided for in the *Land Act, 1933-1968* are conditional purchase, public auction, private tender, selection under Part VIII which supersedes the *Agricultural Lands Purchase Act*, endowment (including free Crown grants) and reservation for public purposes. In addition to these normal methods of alienation there is provision in the Land Act for the release of land under special circumstances, where particular developmental projects are envisaged. In such cases any agreement must be ratified by the State Parliament.

Conditional Purchase

Titles secured by this method originally take the form of conditional purchase leases, on the satisfactory conclusion of which Crown grants may be obtained. The Act provides that a person shall not be competent to acquire, either as lessee or transferee, an area of land exceeding in the aggregate 5,000 acres; but on the recommendation of the Minister and with the approval of the Governor, it shall be competent for a person to acquire an area of land in one or more parcels exceeding 5,000 acres, but not in any event exceeding 10,000 acres, in any case where the Minister is satisfied that a holding requires an area greater than 5,000 acres in order to be of a standard deemed by the Minister an economic farm unit. The Governor may reduce the maximum area that may be acquired in prescribed localities. The minimum purchase price of land acquired by conditional purchase is 20 cents per acre and the purchaser must pay the costs of survey as well as the value of any improvement. He must progressively clear, cultivate and sow to pasture or crop, areas of land which must aggregate 50 per cent of the total area of the land at the end of the eleventh year. In addition, the purchaser is required to fence in at least the cleared and cultivated land during the first five years and the whole of the land within ten years.

The maximum period allowed for completion of purchase under an ordinary conditional purchase lease ranges from twenty-five to thirty years, with a possible extension of ten years in certain cases. There is, however, provision for conditional purchase by means of accelerated payments under which a 10 per cent deposit is lodged and the balance of the purchase price paid in four quarterly instalments. The improvement conditions for accelerated-payment leases require that the land shall be fenced within three years of the commencement of the lease and that improvements, equal in value to the purchase money, shall be effected within seven years. Unlike the ordinary conditional purchase lease, which cannot be converted to a Crown grant until the expiry of at least five years from the date of commencement, an accelerated-payments type of lease can be converted to a Crown grant at any time after the conditions have been met. Residential conditions, requiring that the lessee or a near relative shall reside on the property within two years from commencement of the lease and make it his habitual residence during at least six months of each year for the following three years, apply to ordinary conditional purchase leases but are not obligatory under accelerated-payment leases. Restrictions on transfers are imposed in each case.

Sale by Public Auction

The general conditions governing the sale to the public by auction of town or suburban land are set out in Part IV of the Land Act. Lands may be offered for sale by order of the Minister at such times and places as he may think fit, and notice of forthcoming sales must be published in the *Government Gazette* and in a newspaper. Ten per cent of the purchase money must be paid at the time of the sale and the balance in four equal quarterly instalments. The purchaser may be required to erect a residence or business premises within the specified period, or to fence the land on the surveyed boundaries within two years after the sale. Town or suburban land acquired at auction by instalment purchase is regarded as being held on licence until general requirements such as fencing and other prescribed improvements have been met, after which a grant in fee simple may be issued. In some instances special additional conditions may be imposed. In certain circumstances the Governor may dispense with the requirements as to sale of town and suburban lands by public auction and may approve of any such lands being offered for sale in fee simple or for leasing.

Sale by Private Tender

Sales by private tender, which are also called negotiated cash sales, are comparatively rare and usually relate to unwanted War Service Land Settlement farms and to areas set apart as special settlement lands.

Endowment of land and reservation for public purposes

Few disposals of Crown land by way of endowment or free grant are now made. However, it is within the power of the Governor to dispose of, in any manner which serves the public interest, lands which are vested in the Crown. Crown land is frequently reserved by order of the Governor for a variety of public purposes, and where alienation is ultimately required for certain of such purposes the necessary land is granted in fee simple in trust for the purpose of the reserve. Grounds for reservation include: the general requirements of the Government (e.g. public works and buildings; conservation of water, timber and indigenous flora and fauna; housing; public health and social welfare); the benefit of the Aboriginal inhabitants; local government needs for such purposes as the provision of town halls and other buildings, public utilities, social amenities, sports grounds and cemeteries; sites for churches, hospitals and other institutions; sites for clubs and club premises; mining and quarrying purposes; public parks; and the provision of camping and watering places for travellers and stock. Reserves may be of class 'A', which by proclamation of the Governor are reservations that must remain dedicated to the purpose declared in their proclamation until by Act of Parliament it is otherwise enacted, or classes 'B' and 'C', which are terminable by the Governor on notice in the *Government Gazette of Western Australia*. In the case of class 'B', however, the Land Act provides that in the event of cancellation, a special report by the Minister shall be presented to Parliament setting forth the reasons for such cancellation and the purpose to which it is intended to devote the land. Common uses of class 'A' reserves are for public recreation or amusement and for major public buildings. All reserves under Part III of the Act that are not proclaimed as class 'A' are classified as either 'B' or 'C'.

The Land Act provides that, when any reserve is not immediately required for the purpose for which it was made, the Governor may grant a lease for a period not exceeding ten years at such rents and subject to such conditions as he may think fit. Land reserved for parks or recreation grounds may be leased for the depasturing of stock even though the land is being used for the purpose for which it is reserved.

Other methods of alienation comprise mainly reservations of land for housing projects. Individual occupiers may acquire freehold title subject to certain conditions. Otherwise the land remains under Crown lease.

State Forests and Timber Reserves

In addition to the foregoing types of alienation, special provision is made in the *Forests Act, 1918-1964*, for the Governor, by Order in Council, to dedicate Crown land as a State Forest or to reserve Crown land as a Timber Reserve. While the reservation of a Timber Reserve may be revoked in whole or in part by the Governor in Council, the dedication of a State Forest may not be revoked except with the consent of both Houses of Parliament. The use of such Forests and Reserves comes within the administration of the Conservator of Forests.

METHODS OF LEASING

Brief reference has already been made to the work of the Department of Lands and Surveys, the Department of Mines and the Forests Department in granting leases of Crown lands in Western Australia. The activities of each Department in this field are now described in greater detail.

Department of Lands and Surveys

Approximately 98 per cent of the Crown land held under lease is covered by tenures granted by the Department of Lands and Surveys under the Land Act, and consists mainly of pastoral leases, special leases, leases of reserves and leases of residential lots. In addition, areas of perpetually-leased farming land have been made available to ex-servicemen under the War Service Land Settlement Act.

Pastoral Leases. The *Land Act, 1933-1968* provides that the maximum area held under pastoral lease by one person, or by two or more persons jointly, or by any association of persons incorporated shall not exceed one million acres, and that no person shall become beneficially interested in leases of pastoral land to an extent whereby the aggregate area of pastoral land in which such person is beneficially interested would exceed one million acres. Where an area of pastoral land is worked in association with another area as one separate and distinct station, the maximum area which may be so worked is one million acres. The minimum requirement for the grant of a pastoral lease is that the land shall, in the opinion of the Pastoral Appraisal Board, be capable when fully developed of carrying not less than 6,000 sheep or not less than 1,200 head of cattle.

Pastoral leases are granted for a term expiring on 30 June 2015, and the annual rent payable is determined by the Minister for Lands acting on the advice of the Pastoral Appraisal Board. Rents are subject to reassessment at statutory intervals. A lessee may, at any time not less than five years nor more than six years after the date on which a reassessment of rent became effective, apply to the Minister to have the rent reviewed by the Board. Provision is made for total or partial relief from payment of rent in respect of any year during which, by drought, cyclone or flood, a lessee suffers serious loss of stock, or wool production is adversely affected.

The holder of a pastoral lease is required to effect improvements of a specified nature and in accordance with a plan approved by the Minister on the advice of the Board. The amount spent on improvements each year must be at least two and a half times the annual rent, and expenditure at this rate must continue until the improvements proposed in the plan have been carried out. A lease is liable to forfeiture if the land is not stocked or kept stocked with such number of sheep or cattle, or both sheep and cattle, as the Board considers appropriate having regard to circumstances such as seasonal conditions affecting the land and the period since the commencement of the lease. Other conditions attaching to pastoral leases provide safeguards against the deterioration of land due to excessive grazing and to the unauthorised ring-barking of trees.

Special Leases. Section 116 of the Land Act specifies a variety of industrial and other purposes for which the Governor may grant special leases of Crown land. The yearly rental must be not less than \$4 and the period of the lease must not exceed twenty-one years. It is further provided that, in all cases where the intended period of leasing exceeds ten years, prior notice must be inserted in the *Government Gazette of Western Australia*. Section 116 is modified in certain cases by provisions contained in special Acts to enable the granting of leases for varying terms and conditions for specific projects.

Leases of Reserves. As stated earlier in this Chapter in the section *Methods of Land Alienation* the Governor may grant a lease of any reserved land which is not immediately required for the purpose intended at the time of reservation, but the period of the lease may not exceed ten years. By a further provision of the Land Act, no lease for a term exceeding one year shall be granted unless applications are called by notice in the *Government Gazette*. With the consent of the Governor, such land may be sub-leased. When land is reserved for parks or for recreation or amusement, if the land is not placed under the control or management of any person the Governor may, even though the land is being used for the purpose for which it is reserved, grant a lease or licence for one year for the purpose of depasturing stock. The Governor may insert in the lease or licence such conditions as he may think fit to ensure that the land is available for the purpose for which it is reserved and he may renew any lease or licence for a further period of one year.

Leases of Residential Lots. The Governor may lease any town or suburban lands on such terms as he may think fit, under section 117 of the Land Act. In earlier years, leases of town and suburban lands were offered at public auction and, in most cases, such lessees may apply to purchase the fee simple of the land. Leases granted under section 117 cannot be converted to fee simple.

Coal-mining Leases. Individual leases for coal mining have a maximum area of 320 acres. The term of any coal-mining lease shall not exceed twenty-one years, but shall have a right of renewal for a further twenty-one years. Such leases must be efficiently worked during the first twelve months by at least one man, during the next twelve months by at least two men and during each succeeding year of the lease by at least three men, for every 60 acres or part thereof contained in the lease. The yearly rent of coal-mining leases is 5 cents per acre and a royalty of 2·5 cents per ton is payable on all coal raised during the first ten years of the lease, rising to 5 cents per ton during the remainder of the term. The *Mining Act, 1904-1968* provides for certain royalty rebates on newly-discovered coal deposits, while the Mining Regulations contain special provisions regarding development of the deposits in the Collie district, the only area where coal is being mined in the State.

Other Mining Tenements

Mineral Claims. An area not exceeding 300 acres may be applied for as a mineral claim, but the length must not exceed twice the breadth. The rent for a mineral claim is calculated at the rate of 25 cents per annum per acre. Working conditions require that not less than three men shall be continuously employed for every 100 acres or fraction thereof.

Dredging Claims. Application may be made for dredging claims for gold or minerals in lakes, swamps, marshes, or rivers and the land adjacent thereto, or on the foreshore of, and land under, the ocean. The maximum area of a dredging claim shall not exceed 300 acres. Except in the case of river claims, where there is no restriction on width, the minimum width at right angles to the bank or shore edge shall not be less than 15 chains. A river claim shall not exceed 6 miles in length. Working conditions require that not less than three men shall be continuously employed on the claim and, in addition, machinery of not less value than \$2,000 shall be continuously employed.

Temporary Reserves. To encourage mining, provision is made for the creation of Temporary Reserves of Crown land by the Minister, and an Authority to occupy such reserve for the purpose of searching for gold or other minerals may be granted. In the case of gold, these Temporary Reserves may not exceed 300 acres except for deep alluvial, when there is no restriction as to the area. Temporary Reserves for any other mineral are not restricted as to area. In the event of any mineral being found by the occupier of a Temporary Reserve, he is required to acquire normal mining tenements before he may commence productive mining.

Miners' Homestead Leases. A miner who is not less than 18 years of age and is resident on a goldfield or mineral field, or any incorporated company, may apply for a homestead lease of Crown land within the field. In appropriate circumstances a miner may hold more than one such lease, but the aggregate area may not exceed 20 acres within 2 miles of the nearest boundary of a townsite or suburban area, or 500 acres elsewhere. However, these maximum areas may be exceeded by the acquisition by transfer of land comprised in a Miners' Homestead Lease which has been in existence for a period exceeding ten years. During the first twenty years of the lease an annual rent of 20 cents per acre is charged where the total area does not exceed 20 acres and for larger areas the annual rental is 5 cents per acre. After twenty years the rent is 10 cents per annum if demanded. Basic improvements must be made by the lessee within the first six months and the land must be fenced on its boundaries within three years after survey of the lease. Improvements to the value of \$1 per acre must be made within the first five years following survey.

Tenures under Special Acts. Because of the amount of finance involved in large-scale development of bauxite and iron-ore deposits the Government has made special agreements with various companies for the working of such deposits. The agreements have been ratified by Acts of Parliament which confer mineral rights but also require the companies

to carry out large-scale development and pay royalties to the Government. Reference to these agreements will be found on pages 19, 22, 24 and 31 of the *Western Australian Year Book*, No. 6—1967, on page 99 of No. 7—1968 and on page 111 of this issue.

Tenures under provisions of the Petroleum Act, 1967. Exclusive petroleum search rights over an area of not less than 1,000 square miles may be granted in the form of a Permit to Explore which is valid for two years with further annual renewals at the discretion of the Minister for Mines. A fee of \$200 is payable on application for a Permit and where it is granted the successful applicant is required to lodge with the Under Secretary for Mines a bond of \$2,000. It is further provided that a geologist must be engaged, that drilling be confined to 'scout' drilling and have the Minister's approval, and that the Minister be supplied at regular intervals with full information concerning operations.

Any holder of a Permit to Explore may apply for a Licence to Prospect within a defined portion of the area covered by the Permit. A Licence to Prospect cannot cover more than 200 nor less than 8 square miles and the licensee must put up a bond of not less than \$2,000. The licence is valid for two years and the Minister may grant three successive renewals for further periods of one year each. For an annual fee, based on the rate of 50 cents per square mile during the first year of the licence (maximum fee, \$25) and on \$1 per square mile in subsequent years (maximum annual fee, \$50), the licensee has the exclusive right to prospect for petroleum within the specified area. Drilling arrangements require the approval of the Minister and operating information must be supplied to him at regular intervals.

A holder of a Licence to Prospect may, upon discovering petroleum within his area, select as a Petroleum Lease or Leases so much of his licence area as he requires if the licence was granted on or before 1 January 1955 or select not more than half the land if his licence was granted after that date. The balance of the area contained in the Licence to Prospect reverts to the Crown and may be disposed of upon such terms and conditions as the Governor may determine, subject to the holder of the Licence to Prospect being granted first right of acquisition upon those terms and conditions. A bond of \$2,000 must be lodged with the Under Secretary for Mines when the lease is granted.

The area of a Petroleum Lease must not be greater than 100 square miles nor, unless approved by the Minister, less than 4 square miles. Initially, the term is for twenty-one years and there is an option of renewal for any further period during which petroleum in payable quantities is produced. A rental of \$20 per annum is charged for every square mile or portion of a square mile comprising the lease. The Act provides for the fixing of the rate of petroleum royalty when a lease is granted.

Tenures under provisions of the Petroleum (Submerged Lands) Act, 1967. This Act, which came into operation on 1 April 1968, governs the exploration for and exploitation of the petroleum resources of submerged lands adjacent to the Western Australian coast comprising the continental shelf and the sea-bed and subsoil beneath territorial waters and is administered by the Minister for Mines in conjunction with the appropriate Commonwealth authority. The principal tenures available under the Act are Permits and Licences. A Permit grants to the holder petroleum exploration rights over the permit area; and a Licence, rights to produce petroleum from the licence area. Similar legislation was also passed by the Governments of the Commonwealth and other Australian States in 1967.

Miscellaneous mining tenures. The leases and licences detailed above are those which are fundamental to mining development but there are several additional tenures which are issued in order to assist the processes of mineral extraction and treatment. These incidental tenures include rights to operate tramways, to conserve and convey water, and to store machinery.

Forests Department

While not designated as leases, certain of the tenures issued under the *Forests Act, 1918-1964*, such as Sawmilling Permits and Mill Site Permits, are similar in effect.

Sawmilling Permits. A Sawmilling Permit entitles the holder to sole cutting rights in respect to certain classes of timber within a defined area and for a specified period. The cutting programme to be followed by the permit holder must be of such a nature that the forest resources of the area are used to the best advantage and that provision is made for forest regeneration. In consequence, cutting within the permit area is controlled by the Forests Department under a system of defined 'coupes', each of which is cut over and closed in turn. Each sawmilling permit holder is required to pay royalty on the quantity of timber delivered to the mill, and to supply the Forests Department with details of the logs taken and the timber cut therefrom.

Sawmilling permits are of major importance because of the capital outlay involved and the area is usually selected so as to give a cutting life of about thirty years. However, the usual practice is to grant the permits for a term of one year, subject to annual renewals. The royalty payable is determined by the sale of cutting rights by auction or by tender, the minimum royalty having first been established by the Forests Department.

Sawmill Site Permits. It is obligatory upon all holders of Sawmilling Permits to erect an efficient sawmill within a short period after the granting of the permit. The sawmill may be erected outside the sawmilling permit area. If, however, a mill is to be established on Crown land, a Sawmill Site Permit must first be obtained. An area not exceeding 50 acres may be leased to the sawmilling permit holder by the Conservator of Forests for this purpose and the annual rental is \$6 for every 10 acres or part thereof. The holder of a Sawmill Site Permit is responsible for the buildings erected and must, if required, submit plans of all such buildings to the Conservator of Forests for his approval.

Other leases, licences and permits. A number of other leases, licences and permits are issued by the Forests Department, one of which, the Forest Produce Licence, authorises the licensee to collect various types of forest products other than millable timber. Important examples of this form of licence are those granted on the goldfields and in the wheat belt for the cutting of mining and farm timber and firewood and there are special regulations controlling the collection of sandalwood. Provided forestry interests are not prejudiced, the Department also issues Forest Leases, which confer grazing, agricultural or similar rights over forest areas for any term not exceeding twenty years.

Permits are granted for apiary sites of an area not exceeding 3 acres. They are issued to persons who are actively engaged in bee keeping and who have at least twenty-five hives of bees in the State. A permit may not be issued for an apiary site on Crown land if it is within 2 miles of a site already granted to another apiarist, and not more than four permits may be held for every fifty hives of bees owned.

LAND CLASSIFICATION

Large-scale as well as detailed soil survey measures have been developed progressively in Western Australia since the early days of settlement. Soil mapping of Crown Lands in Western Australia has always been carried out as a function of the Department of Lands and Surveys. In the early years of land settlement the staff surveyors, when marking blocks, submitted classifications and commented generally on the probable yield and carrying capacity of the land, as a guide to pricing.

Modern survey techniques enables much use to be made of photogrammetric methods in the mapping and presentation of the soil survey, particularly in definition of vegetation and topographical detail such as rivers, creeks, swamps, hills, valleys, features such as rock outcrops and sand drifts, and the general contours of the land. Much topographical detail is available from the State mapping activities and this information is always used in conjunction with the field work of the soil survey.

The soils are graded into eight categories, to facilitate pricing procedure, due regard being given to the agricultural potential as determined by analysis and experimentation by the Department of Agriculture. This enables release of land in such a manner that each unit is adequate if developed on economic methods. At the same time, the soil

maps assist in the overall planning for provision and extension of services such as roads, water and power supplies, townsites and all the services essential to regional development. Pastoral potential appraisements are presented with more emphasis on the grazing potential of natural vegetation in order to assess estimated carrying capacities, rather than detailed soil types.

In addition to the soil and pastoral mapping surveys which are carried out under the direction of the Surveyor General, similar methods are used by other Government Authorities and private organisations, for forestry assessment, classification and control, and for geological mapping.

It has been estimated by the Surveyor General that, of the State's total area of 975,920 square miles, about 11 per cent is represented by the agricultural areas, 52 per cent by the pastoral areas and the remaining 37 per cent by practically unoccupied areas of the interior. Soil mapping investigations have enabled a broad assessment of the total area and a detailed assessment of the bulk of the agricultural and pastoral areas.

OCCUPATION OF LAND

The following table shows, for a selection of years during the period from 1900 to 1967, the areas of land absolutely alienated or in process of alienation and of Crown land held under certain types of lease or licence. For the years 1900, 1910 and 1920 the basis of classification according to Department has been made to conform to current practice in the issue of leases and licences. For example, tenures relating to forests, which were originally issued by the Department of Lands and Surveys and later by the Department of Mines, have been shown for those years under the heading of Forests Department. For 1930 and later years the figures are as recorded by the Departments concerned. The types of tenure included under the several departmental headings are indicated in the footnotes to the table.

LAND ALIENATED AND LAND HELD UNDER LEASE (Acres)

Date	Area absolutely alienated	Area in process of alienation	Area of leases or licences in force on Crown land and issued (a) by—			
			Department of Lands and Surveys		Department of Mines (c)	Forests Department (d)
			Pastoral leases	Other leases (b)		
At 30 June—						
1900 (e)	3,462,490	3,156,798	86,429,037	10,654	84,470	851,820
1910	4,449,326	12,880,195	165,463,185	501,315	99,732	1,143,572
1920	8,763,051	14,259,769	253,436,312	2,454,204	97,387	1,622,068
1930	14,506,064	21,533,054	241,504,687	2,397,790	84,381	1,402,898
1940	18,244,428	14,192,666	204,950,557	2,008,124	93,709	2,327,371
1950	21,263,085	11,514,531	219,200,060	3,289,017	97,868	3,418,217
1960	27,343,902	12,758,807	(f) 216,908,871	6,623,272	93,000	4,024,720
1963	28,721,958	13,884,749	237,203,687	6,771,962	74,669	4,196,090
1964	29,101,406	14,542,063	235,062,418	7,246,690	80,575	4,077,057
1965	29,757,989	14,829,752	234,677,404	7,146,560	80,529	4,150,031
1966	30,487,407	14,928,135	235,113,241	6,548,670	76,407	4,300,123
1967	31,583,401	15,199,692	237,696,865	7,018,151	99,437	3,997,282

(a) See letterpress preceding table. (b) Comprises special leases, leases of reserves, leases of residential lots and perpetual leases. (c) Comprises gold-mining leases, mineral leases and miners' homestead leases. (d) Predominantly sawmilling permits. Includes permits for cutting wandoo for tannin extraction but excludes permits and licences for cutting timber and firewood in Goldfields areas. (e) At 31 December. (f) Apparent decrease in area due mainly to revision in the records of the Department of Lands and Surveys.

Perpetual Leases are authorised under the War Service Land Settlement legislation, which provides that ex-servicemen who have been allotted farms under this joint Commonwealth-State scheme and who meet the requirements of the appropriate agreement may enjoy perpetual leases. The lessee, on payment of such purchase price for the fee simple as is fixed by the Minister, may obtain the freehold of the property after the expiration of ten years from the commencement of the term of the perpetual lease or after such shorter period as the Commonwealth and the State have determined or may determine where special circumstances exist.

Department of Mines

Under the provisions of the *Mining Act, 1904-1968*, various special tenures, of which gold-mining leases, mineral leases and coal-mining leases are the most important, are granted by the Governor in connection with the mining of gold, coal and other minerals. The Act contains provisions relating to the payment of fees, rents and royalties. The Governor may exempt any person or class of persons from the payment of royalties.

Oil search permits and licences are granted by the Minister for Mines, and petroleum leases by the Governor under the provisions of the *Petroleum Act, 1967* and the *Petroleum (Submerged Lands) Act, 1967*, with authority to charge fees, rents and royalties.

Gold-mining Leases. As well as conveying a right to mine for gold to any depth, a gold-mining lease permits the construction of all necessary buildings and plant within the area which it defines. Where, in the opinion of the Minister, land is likely to contain alluvial gold, it is normally exempted from lease. However, a lease may be granted if the Minister is satisfied that the land, having already been worked for alluvial gold, has been abandoned or that there is sufficient reason for waiving the exemption. In such cases the lease may range in area up to 48 acres. In all other instances the maximum area is 24 acres. Leases must, where practicable, be rectangles with a length not exceeding twice the width.

The term of any gold-mining lease shall not exceed twenty-one years, but shall have a right of renewal for a further twenty-one years, and the conditions provide that for the first year it must be manned by at least two men and for the remainder of its term by at least two men, or one man for every 6 acres, whichever is the greater. Subject to certain adjustments of these labour conditions, a person may hold two or more leases as an amalgamated group, provided that the group does not total more than 96 acres and that the length along the line of reef or lode does not exceed 66 chains. The Minister has discretion, in certain circumstances, to permit the amalgamation of leases which would result in an aggregate area exceeding 96 acres but the length of reef or lode still may not exceed 66 chains. A rent of 50 cents per acre is charged during the first year and \$2 per acre during the following years. The grant of a gold-mining lease conveys an exclusive right to mine for gold or other minerals within the bounds of the lease, but excludes rights in respect to petroleum.

Mineral Leases. Mineral leases authorise the holders to mine for a specified mineral or combination of minerals to any depth within the confines of the lease and convey the same construction rights as a gold-mining lease. The term of any mineral lease shall not exceed twenty-one years, but shall have a right of renewal for a further twenty-one years. Except under special conditions, including the payment of royalty, as set out in the Act, land held under a mineral lease may not be mined for gold. Land which is proved to the satisfaction of the Minister to consist of payable alluvial ground is normally exempted from lease. If, however, a tract of land has already been worked as alluvial ground and has been abandoned, or the Minister is satisfied that there is sufficient reason for waiving the exemption, leases may be granted for areas not exceeding, individually, 96 acres. In all other cases mineral leases may not exceed 300 acres and, where practicable, must be rectangles of a length not exceeding twice the width. The labour conditions provide that a mineral lease must be manned by at least two men for the first twelve months and thereafter by at least one man for every 6 acres or fraction thereof, with a minimum of two men. An annual rent of 50 cents per acre is charged. Leases may, by application to the Minister, be amalgamated but the total area may not exceed 600 acres.

Land which is shown as 'absolutely alienated' consists mainly of farming areas, acquired originally as Conditional Purchase Leases and subsequently alienated under Crown grant. While held under lease prior to alienation they account for most of the land shown as 'in process of alienation'. These two sets of figures taken together consequently give a broad indication of the increased use of land for agricultural purposes during the period under review. Similarly, variations in the area occupied as sheep and cattle stations may be gauged by reference to the area of pastoral leases issued by the Department of Lands and Surveys.

The passing of the Homesteads Act in 1893 and of a comprehensive Land Act in 1898 provided the basis for a rapid increase in the settlement of agricultural land. Under the Homesteads Act, any man over the age of 18 years who did not already own an area of 100 acres or more in this State could apply for a free homestead farm of 160 acres, on condition that he resided on his land during at least six months of each of the first five years and carried out prescribed improvements. With a lower minimum age of 16 years, a similar provision is contained in the *Land Act, 1933-1968*, and this provision, operating in conjunction with the conditional purchase lease system, has also been a factor in the increase in land settlement, particularly in the wheat-growing areas.

About 1905 the Department of Lands and Surveys, by implementing a system of survey and subdivision before selection, partially checked the indiscriminate selection of land by inexperienced farmers. A further stabilising influence on agricultural development was the introduction in 1909 of a system of grading Crown lands into classes, First, Second and Third according to suitability for farming.

The movement of population from the goldfields to the wheat belt contributed to the increase in the area of land in process of alienation from 3,156,798 acres in 1900 to 12,880,195 in 1910. The ultimate alienation of about one-third of this land by Crown grant is reflected in the greatly increased figures for 'absolutely alienated' land in 1920. Settlement of the wheat belt developed rapidly during and after the period 1910 to 1920, in spite of serious droughts which occurred in 1911 and 1914. Although the increased totals at 30 June 1930 were principally due to this development, they resulted in part from the acquisition during the previous ten years of farmland, mainly for dairying, in the south-west of the State under the Group Settlement Scheme. These holdings were individually much smaller than those in the wheat-growing districts, because of the type of farming and the heavy clearing costs, but the numbers involved made the total area taken up under the Scheme of some significance.

Pastoral leases, which comprise the greatest proportion of Crown land held under lease or licence, increased threefold between 1900 and 1920 and continue to cover approximately one-third of the whole State. The aggregate area of gold-mining leases, mineral leases and miners' homestead leases, appearing in the table under the heading of Department of Mines, shows comparatively little variation since 1900. However, in recent years very large areas have been included in tenures issued under the provisions of the *Petroleum Act, 1967* and in temporary reserves under the *Mining Act, 1904-1968*. At 30 June 1967 there were current, under the Petroleum Act, permits to explore covering 651,798 square miles and licences to prospect covering 13,624 square miles. The area relating to permits appearing under the heading of Forests Department shows a general increase from less than one million acres in 1900 to almost four million acres in 1967.

From 1930 the demand for land for agricultural purposes declined considerably, the principal reason being the lower farm commodity prices which prevailed for several years prior to the second World War. After 1945, however, the demand for land again increased, stimulated by the sharp rise in export prices, notably of wheat and wool, and later by the War Service Land Settlement Scheme. The area conditionally alienated in any one year reached a post-war peak of 1,707,894 acres in 1953. During the next decade the area fluctuated between 705,874 acres in 1956 and 1,234,516 acres in 1962, and in 1967 it was 1,132,755 acres.

The following table gives details of areas of land for which applications were approved, during each of the years 1963 to 1967, by the Department of Lands and Surveys for conditional alienation or allocation under lease or licence. The figures shown for any year do not necessarily represent land allotted for the first time, as they may include land previously held under any of the several forms of land tenure.

CROWN LANDS—AREA OF ALLOCATIONS
APPROVED BY DEPARTMENT OF LANDS AND SURVEYS (a)
(Acres)

Particulars	1963	1964	1965	1966	1967
Conditional alienation—					
Conditional purchases	1,183,247	887,007	1,077,764	916,263	1,087,583
Agricultural land purchases	246	2,262	....	....	611
Town and suburban lots	672	1,340	290	400	792
Miscellaneous (b)	3,528	20,276	260	44,487	43,769
Total	1,187,693	910,885	1,078,314	961,150	1,132,755
Leases and licences—					
Pastoral leases and licences	3,859,374	831,631	2,434,099	3,593,254	4,232,887
Special leases	1,101,293	105,074	87,320	179,972	143,857
Miscellaneous leases (c)	110,432	180,665	48,279	452,730	56,041
Total	5,071,099	1,117,370	2,569,698	4,225,956	4,432,785

(a) See letterpress immediately preceding table. (b) Comprises free homestead farms and reserves. (c) Comprises perpetual leases, leases of reserves and leases of town and suburban lots.

GOVERNMENT LAND SETTLEMENT SCHEMES

Although, generally, the method of land alienation and settlement in the agricultural areas of Western Australia has been by independent applications by individual settlers for conditional purchase leases, there has also been a series of government land settlement schemes. The more important of these are the Soldiers' Settlement Scheme following the 1914-18 war, the Group Settlement Scheme introduced in 1921, the War Service Land Settlement Scheme which was initiated in 1945 and other lesser schemes for the settlement of civilians. An outline of each of these schemes appears in Chapter VII of the *Western Australian Year Book*, No. 7—1968 and earlier issues.

PUBLIC PARKS AND RESERVES

Reference has been made earlier in this Chapter in the section *Methods of Land Alienation* to land set aside by the Government for public purposes. Some of this land is reserved for public recreation and amusement, national and other public parks, or flora and fauna sanctuaries and the reserves are controlled by statutory bodies, the more important of which are dealt with in this section. Further reference to reserves will be found in the section *Conservation of the Flora* in Part 3 of Chapter II.

The *National Parks Board of Western Australia* controlled sixteen National Parks and a number of other reserves at 30 June 1968, totalling in all about 821,220 acres in area. National Parks vested in the Board at that date comprised Kalbarri (358,000 acres) situated near the mouth of the Murchison River; Stirling Range (284,540 acres) north of Albany; Cape Le Grand (39,500 acres) east of Esperance on the south coast; Cape Range (33,171 acres) near Exmouth; Walpole-Nornalup (32,229 acres) on the south coast west of Denmark; Nambung, including Pinnacles area (30,705 acres) near Cervantes; Geikie Gorge (7,750 acres) in the north near Fitzroy Crossing; Yalgorup (7,684 acres) south of Mandurah; Porongurup (5,531 acres) near Mount Barker; Walyunga (4,000 acres) in the foothills some 20 miles north of Perth; John Forrest (3,648 acres) near Glen Forrest in the Darling Range; Neerabup (2,785 acres) north of Wanneroo; Serpentine (1,571 acres); Kalamunda (919 acres); Greenmount (127 acres); and Lesmurdie Falls (81 acres). At the same date, other reserves vested in the Board included Yanchep Park and Caves Reserves (6,394 acres) near the coast about 30 miles north of Perth; Yanchep Flora Reserves (439 acres); Yanchep Beach Reserve (44 acres); Nornalup Park Lands Reserve (919 acres);

Hamelin Bay Reserve (366 acres) on the west coast near Cape Leeuwin; Nowergup Lake Fauna Sanctuary (288 acres); Walpole Flora Reserve (228 acres); Albany Boronia Reserve (112 acres); Matilda Bay Reserve (51 acres) on the Swan River near Perth; Araluen-Canning Dam Reserve (50 acres); Penguin Island Reserve (31 acres); and East Perth Cemetery Reserve (12 acres), a disused burial ground containing the remains of early pioneers. Flora and fauna are protected and firearms prohibited in all National Parks and Reserves controlled by the Board. Picnic and recreational facilities are provided where necessary in the parks and reserves, while camping and caravan facilities have been established in a few of them.

The *Emu Point (Albany) Reserve Board* controls a reserve containing an area of approximately 1,120 acres at Emu Point near Albany, which has been developed for recreation, camping and residential purposes. Two camping and caravan parks and a modern motel provide accommodation. A small boat harbour has been dredged and pen facilities to accommodate sixty boats constructed. An additional dredged area, without constructed pens, is provided so that large professional fishing boats might use ground moorings.

The *King's Park Board* administers an area of almost 1,000 acres close to the centre of Perth. Part of this area was dedicated in 1872 'for the purpose of a public park and recreation ground' and was enlarged in 1890. Beautification commenced in 1896 under the Presidency of Sir John Forrest, and the name was changed in 1901 from Perth Park to The King's Park in honour of the accession of King Edward VII. In addition to its original function as park and recreation ground, The King's Park has over the years gradually developed two other important functions, as a National Shrine and as a Botanical Reserve. In the former case it houses the State's most important monuments and commemorative features of a military and historical nature. A memorial to the South African war was built in 1901, and the State War Memorial to the fallen of both world wars was erected on a commanding position on Mount Eliza in 1929 and extended in 1952. 'Honour Avenues' of trees dedicated to individual fallen servicemen were planted in 1919 and later, and another avenue commemorates the State Centenary of 1929. There are numerous smaller memorials erected by individual regiments or other military units, and a number of monuments to important historical personages.

The concept of the botanical reserve grew from the fact that four-fifths of the Park's area remained undeveloped under a natural bushland which contained many native wildflowers. Increasing urbanisation and the elimination of natural sites in and close to Perth made the retention of this bushland area a matter of scientific and aesthetic value. This function was strengthened from 1962 onwards by the establishment in the Park of a botanic garden and arboretum of 66 acres for the cultivation and display of Western Australian native plants.

Recent developments have not neglected the Park's original aesthetic and recreational functions. Facilities exist for playing tennis, bowls and hockey. A fully-equipped modern restaurant was erected in 1956, close to which are tourist attractions including a floral clock, a wishing well and a giant Karri log. There are two public barbecue sites and many miles of pedestrian paths and tracks. The original 50 acres of lawns and shrubberies have been materially extended by the Botanic Garden area. Four new lawns have been added, one of which encircles a landscaped water garden with four pools, two cascades and a waterfall, one pool featuring an illuminated fountain dedicated to the pioneer women of the State. In addition to this, a new picnic lawn has been established around an artificial lake at the western end of the park and linked to older-developed areas by a mile-long vista dominated by a steel viewing tower of unusual design.

The *Zoological Gardens Board* administers the Zoological Gardens at South Perth, which have an area of 45 acres. The Gardens were established in October 1898 for the collection and display of mammals, birds, reptiles and fish from all parts of the world, but specialising in Australian, and particularly Western Australian, fauna. Past planning has included the planting of many species of trees and palms which, with spacious lawns and an oval, make the Gardens particularly attractive for picnics and recreation. During the financial year ended 30 June 1968, 362,053 people paid for admission, which was an increase of 27 per cent on the previous financial year.

The *Rottnest Island Board* administers as a tourist and holiday resort a reserve comprising almost the whole of Rottnest Island, which is situated about 10 miles west of Fremantle.

Caves Reserves. Extensive limestone caves have been discovered at several places in the south-west part of the State. Some of them, between Cape Naturaliste and Cape Leeuwin and at Yanchep, have been developed for public inspection and certain areas of the surrounding land have been reserved, notably at Yanchep, Yallingup, Margaret River and Augusta.

Local Government Reserves. Many local authorities hold land for recreational purposes, the areas having been either vested in them by the Crown, acquired by way of purchase or received under private bequest. The reserves are frequently developed as public parks or to provide facilities for sports or for camping.

The *National Fitness Council* controls reserves, principally for youth activities, at Point Peron on the coast south of Fremantle, at Sorrento (under development) to the north, and at Bickley in the Darling Range.

THE LOOP

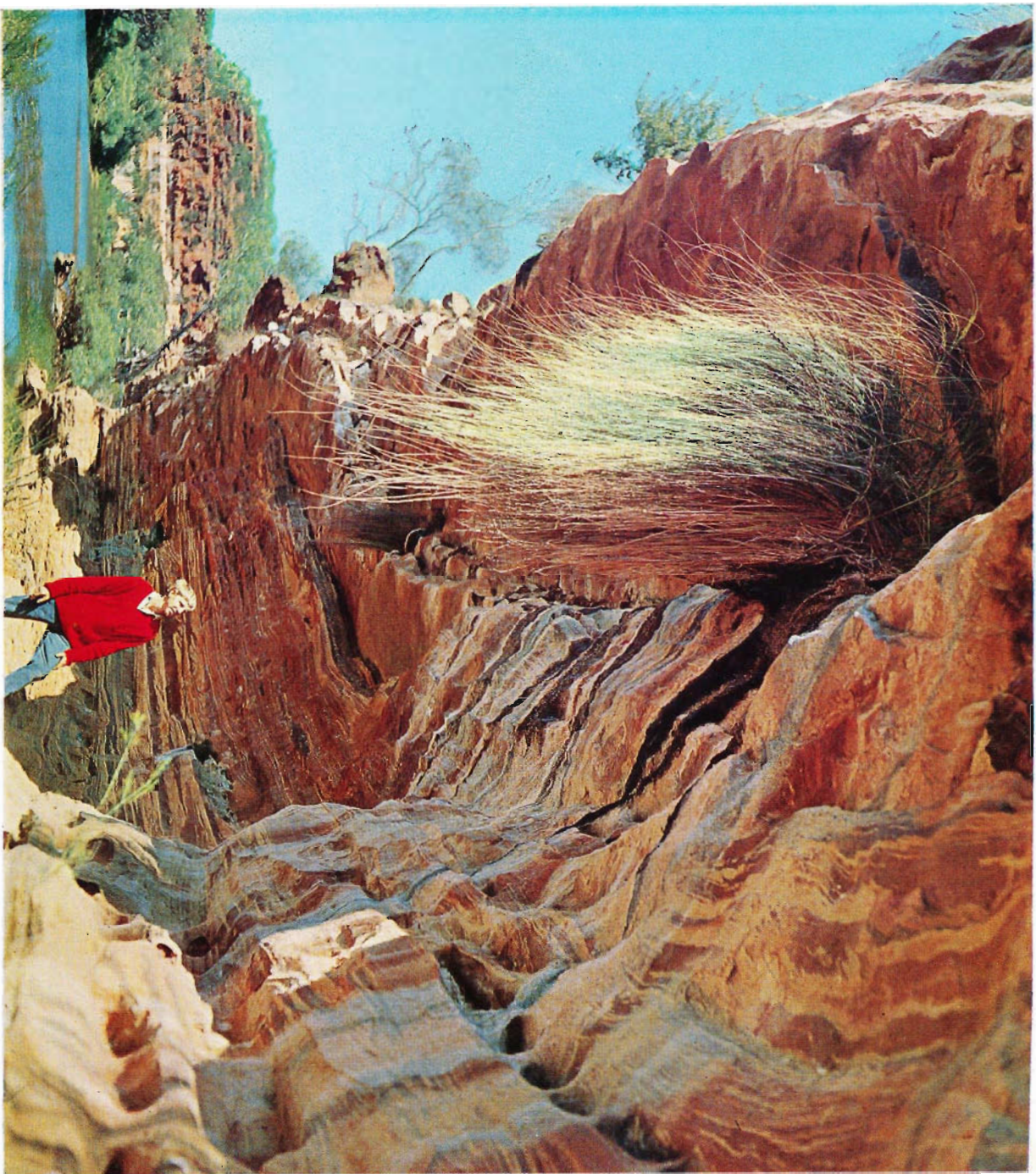
Situated on the Murchison River some 400 miles north of Perth, The Loop is a feature of Kalbarri National Park.



Block by courtesy
of The Swan Brewery
Company Limited

ROSS GRAHAM LOOKOUT

Kalbarri National Park, in which Ross Graham Lookout is situated, covers an area of 358,000 acres and is the largest of the parks vested in the National Parks Board of Western Australia. Nearby to Ross Graham Lookout is another spectacular lookout on the Murchison River—Hawk's Head.





WAROONA DAM

Waroona Dam, which was officially opened on 11 November 1966, is a rolled earthfill dam 5 miles from the Waroona townsite and has a storage capacity of 3,290 million gallons. It is the eighth largest dam in the State and augments supplies from the Drakes Brook and Samson Brook Dams for the Waroona Irrigation District.

CHURCHMAN BROOK RESERVOIR

Completed in 1928, Churchman Brook Reservoir in the Darling Range is one of the sources of the metropolitan water supply. It is an earth wall type reservoir with a storage capacity of 480 million gallons. The height of the wall is 85 feet and the length of the wall at the crest is 750 feet. Modifications to the spillway in the foreground were completed in 1966-67.



Chapter VII—continued

Part 2—Water Supply and Sewerage

The principal water supply and sewerage systems of Western Australia are under the control of two State authorities, the Metropolitan Water Supply, Sewerage, and Drainage Board and the Department of Public Works and Water Supply.

The Metropolitan Water Supply, Sewerage, and Drainage Board is constituted under the provisions of the *Metropolitan Water Supply, Sewerage, and Drainage Act, 1909-1967*. It came into being on 1 July 1964 and replaced the former Metropolitan Water Supply, Sewerage and Drainage Department as the authority responsible, subject to the Minister, for the general administration of the Act. The Board consists of seven members appointed by the Governor. One member is appointed Chairman on the nomination of the Governor and the remaining members comprise the General Manager of the Board; a qualified engineer; the Under-Treasurer or an officer of the Treasury nominated by him; and three representatives of ratepayers of municipal districts within the Metropolitan Water, Sewerage and Drainage Area as described in the Act. This area of approximately 1,300 square miles constitutes the territory under the Board's administration. It embraces Perth and the metropolitan area southward to Safety Bay and Serpentine, northward to Sorrento and Herne Hill and eastward to Greenmount, Kalamunda, Bickley and Carmel, and incorporates approximately 700 square miles of the water catchment areas of the Canning and Serpentine Rivers and streams in the Darling Range.

The Department of Public Works and Water Supply controls the Goldfields and Agricultural Water Supply and the Great Southern Towns Water Supply as well as 107 local water supplies. It also provides water for irrigation purposes in the three South-West Irrigation Districts (Waroona, Harvey and Collie River), the Camballin Irrigation District and the Ord Irrigation District. In addition a small pilot scheme supplying twenty-six growers in the Carnarvon Non-Artesian Area is being operated.

Five independent town schemes are controlled by local Water Boards in country areas under the *Water Boards Act, 1904-1964* and some local authorities supply water under the provisions of the *Local Government Act, 1960-1968*. Private companies engaged in mining in the North-West of the State provide their own water supply for mining operations, power supply and domestic use. Individual water supplies serve railways, timber mill towns, isolated mines, pastoral properties, stock routes and agricultural areas, mainly from dams, tanks, wells and bores.

The principal water storages in Western Australia are shown in the next table. Supplies for the metropolitan area and environs are drawn almost entirely from Serpentine Reservoir and Serpentine Pipehead Reservoir, Canning Reservoir, Wungong Brook Diversion Weir, Churchman Brook Reservoir and Victoria Reservoir. Mundaring Weir, which is the source for the Goldfields and Agricultural Water Supply, is linked to Kalgoorlie by pipeline and serves the more populous parts of the Eastern Goldfields as well as certain towns and farming areas north and south of the main pipeline. As occasion arises Mundaring Weir supplies to or draws from the Metropolitan Water Supply. Stirling Dam, with a supplementary catchment at Harvey Weir, serves part of the irrigation area of the South-West. Drakes Brook Dam, Samson Brook Dam, Logue Brook Dam and Waroona Dam, which was completed in 1966, are also used for this purpose. Wellington Dam, on the Collie River, has been enlarged to meet not only the needs of the southern parts of the irrigation area but also of towns included in the Great Southern Towns Water Supply.

The storage capacity of the several dams and reservoirs at 30 June 1967 was as shown below.

DAMS AND RESERVOIRS—STORAGE CAPACITY (a)
(Million gallons)

Dam or reservoir	Storage capacity	Dam or reservoir	Storage capacity
Canning Reservoir	20,550	Serpentine Pipehead Reservoir	850
Churchman Brook Reservoir	480	Serpentine Reservoir	39,000
Drakes Brook Dam	504	17-Mile Dam (e)	(b) 1,209
Fitzroy Dam	(b) 1,025	Stirling Dam	12,552
Harvey Weir	(c) 1,765	Victoria Reservoir	189
Logue Brook Dam	5,358	Waroona Dam	3,290
Mundaring Weir	16,966	Wellington Dam	40,790
Ord River Diversion Dam (d)	21,467	Wungong Brook Diversion Weir	(f)
Samson Brook Dam	2,021		

(a) At 30 June 1967. (b) Reassessed capacity. (c) Excludes flashboard storage. (d) Bandicoot Bar Dam.
(e) On Uralla Creek, an anabranch of the Fitzroy River. (f) Diversion weir only.

METROPOLITAN WATER SUPPLY

The sources of the metropolitan water supply are Serpentine Reservoir and Serpentine Pipehead Reservoir, Canning Reservoir, Wungong Brook Diversion Weir, Churchman Brook Reservoir and Victoria Reservoir. The supply from these sources is supplemented as necessary from a pipeline link with Mundaring Weir and from a number of artesian bores. The amount of bore water used, however, is now low in proportion to total metropolitan consumption, being rarely more than 10 per cent during a severe summer and usually considerably less.

METROPOLITAN WATER SUPPLY—QUANTITIES OF WATER DRAWN (a)
(Million gallons)

Source	1962-63	1963-64	1964-65	1965-66	1966-67
Canning Reservoir	5,933	4,641	7,200	7,462	8,071
Churchman Brook Reservoir	646	1,069	759	661	635
Mundaring Weir	54	194	238	226	282
Serpentine Reservoir (b)	7,045	11,055	10,194	11,736	13,773
Victoria Reservoir	428	132	596	271	(c)
Wungong Brook Diversion Weir	2,056	1,937	708	822	1,772
Metropolitan bores	1,429	599	1,093	804	1,579
Total	17,591	19,627	20,788	21,982	26,112

(a) Including supplies to railways and shipping. (b) Includes water drawn from Serpentine Pipehead Reservoir.
(c) Not in use during 1967.

Victoria Reservoir, which was completed in 1891 with a capacity of 189 million gallons, was the first of the existing water conservation projects to be completed in the Darling Range. In 1921 a 23-million gallon reservoir, which is no longer used for water supply, was constructed at Bickley Brook to replace a pipehead dam, and in 1928 one with a capacity of 480 million gallons was completed at Churchman Brook. During the same period pipehead dams were built across the upper course of the Canning River and its tributary, Wungong Brook, preliminary to the construction of Canning Reservoir, which was begun in 1933 and completed in 1940. Canning Reservoir has a storage capacity of 20,550 million gallons retained by a concrete wall 218 feet high and 1,534 feet long at the crest. Serpentine Pipehead Reservoir was completed in 1957 and Serpentine Reservoir, commenced in 1957, was completed in 1961. Serpentine Reservoir is constructed of rolled earth fill and the embankment rises 171 feet above the stream bed, the length at the crest being 1,390 feet. Its capacity, which is slightly less than that of Wellington Dam on the Collie River, is 39,000 million gallons.

Water from the storages in the Darling Range is conveyed to the metropolitan area by large trunk mains and then distributed by feeder, distribution and reticulation mains, either directly from the trunk mains or from large service reservoirs at Mount Yokine,

Mount Eliza, Bold Park, Mount Hawthorn, Richmond, Melville, Buckland Hill, Hamilton Hill, Thompson Lake and Greenmount and from summit tanks and water towers situated at high points throughout the area supplied. To meet the peak demand during the summer months, supplies from these sources are supplemented from a system of artesian bores which can provide a daily maximum of 15 million gallons. On 30 June 1967, the number of consumer services was 164,782. The previous table shows the quantities of water which were drawn from the various sources during each of the five years ended 30 June 1963 to 1967.

COUNTRY WATER SUPPLIES

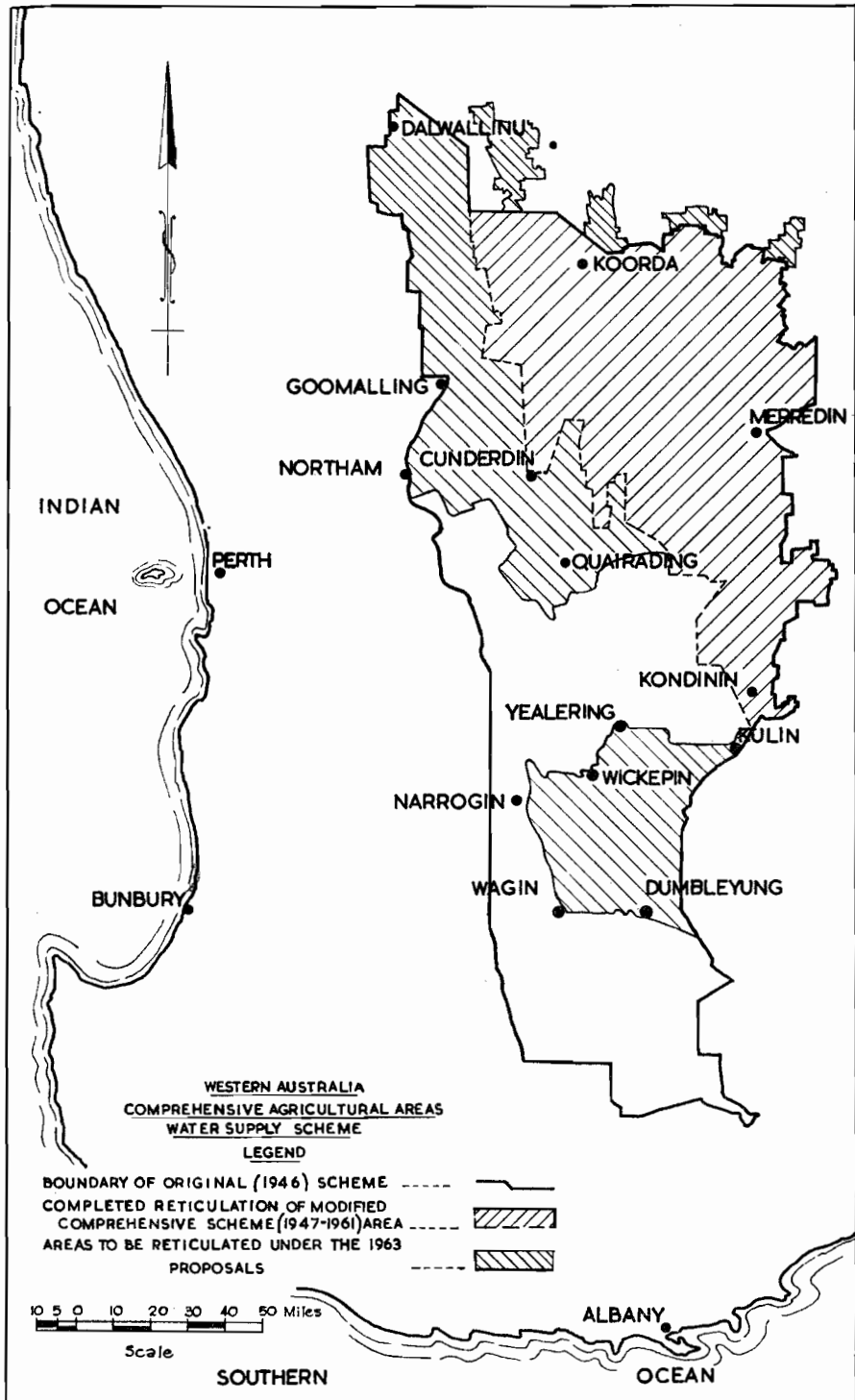
Supplies controlled by the Department of Public Works and Water Supply

Since 1947 enlargement and extension of the Goldfields and Agricultural Water Supply and the development of the Great Southern Towns Water Supply have been carried out mainly in accordance with a project known as the Modified Comprehensive Scheme. A proposal for a comprehensive water supply scheme was first submitted by the State Government to the Commonwealth Government in January 1946 when applying for financial assistance in its construction. The initial plan was intended to supply water to towns and farms in an area of 11.6 million acres in mixed farming (cereal and sheep) districts of Western Australia, as well as to increase the supply to the Eastern Goldfields. A committee appointed by the Commonwealth Government to consider the State's submission reported that certain areas within the scheme had a higher priority than others. As a result, the project was greatly reduced in scope and a modified scheme, to embrace 4.1 million acres, was agreed to by both Governments and adopted in October 1947. The extent of the scheme as originally proposed, and as modified, is shown on the map on page 292. A description of the boundary of the modified scheme is contained in a schedule to the *Agricultural Areas, Great Southern Towns, and Goldfields Water Supply Act, 1947* (State), which gave parliamentary approval of the undertaking. Commonwealth financial aid was provided by means of the *Western Australia Grant (Water Supply) Act 1948* (Commonwealth) and later amendments, which authorised reimbursement to the State of one-half of its expenditure on the scheme, up to a maximum grant of \$10 million.

The modified scheme was completed in 1961, the total expenditure amounting to \$20.6 million. A request made by the State Government in 1960 for a grant equal to half the cost of extending the scheme virtually to the boundary as first proposed in 1946 was rejected by the Commonwealth Government. Following this rejection the State Government embarked on a necessarily limited programme financed from its own loan moneys, the policy being to restrict extensions to supply certain towns within the original area and farm lands adjacent to pipelines. A further request was made by the State Government in 1963 for a grant of \$10.5 million payable over a seven-year period and representing one-half of the estimated cost of proposed extensions which would increase by 3.7 million acres the area served by the scheme. The Commonwealth agreed to provide assistance in the form of an interest-bearing loan up to a maximum of \$10.5 million, advances to be made during a period of eight years commencing with the financial year 1965-66. Legislative authority for the loan is given by the *Western Australia (South-west Region Water Supplies) Agreement Act 1965* (Commonwealth). The map on page 292 shows the additional areas to be reticulated under the 1963 proposals.

Goldfields and Agricultural Water Supply

The original purpose of this undertaking, which was formerly known as the Goldfields Water Supply was to supply water for the Coolgardie and the Kalgoorlie-Boulder areas. To provide conservation, the Helena River was dammed near Mundaring, and on completion of the reservoir in 1902 it had a capacity of 4,655 million gallons. The increasing demand for water in the area served made it necessary to augment supplies. This was achieved by raising the wall 32 feet to a height of 132 feet and when the work was completed in 1951 the enlarged capacity of the reservoir was 15,154 million gallons.



The capacity has since been further increased to 16,966 million gallons by the erection of adjustable steel crest gates 4 feet in height. The main pipeline between Mundaring and Kalgoorlie is 346 miles long. It is for the most part 30 inch diameter steel but has 60 miles of 42 inch and 36 inch pipe in the western portion. The pipeline is equipped with ten pump stations. The maximum pumping capacity from Mundaring Weir is 18.5 million gallons per day. The total capacity of all receiving, regulating, standby and service tanks (including three standby reservoirs at Kalgoorlie with a combined capacity of 60 million gallons) is 154 million gallons.

At 30 June 1967 the Goldfields and Agricultural Water Supply was serving 116 towns and water was being reticulated to farms in an area of 4.8 million acres. The number of services, length of water mains and consumption for the years 1962-63 to 1966-67 are given in the following table.

GOLDFIELDS AND AGRICULTURAL WATER SUPPLY

Year	Number of services (a)	Mileage of water mains (a)	Consumption (a) (million gallons)						
			Domestic	Commercial	Industrial (including railways)	Mining	Farms and market gardens	Other	Total
1962-63	24,963	3,782	970	120	238	511	569	270	2,678
1963-64 (b)	24,114	3,919	1,048	123	222	551	627	158	2,727
1964-65	24,208	3,940	1,012	124	204	575	619	263	2,798
1965-66	25,094	3,992	930	114	246	538	517	257	2,602
1966-67	25,554	4,029	1,026	138	285	569	694	262	2,974

(a) Figures include amounts consumed from local supplies at Waddouring-Barbalin-Knungajin, Bruce Rock, Narembeen and Kondinin. (b) In 1963-64 portion of the 'Hills District' previously supplied by the Goldfields and Agricultural Water Supply was transferred to the Metropolitan Water Supply.

Extensions to country towns and agricultural areas have been made from several points along the main pipeline. Norseman is connected by an extension southward from Coolgardie. A branch from this main supplies the nickel mining town of Kambalda. From a point west of Merredin water is taken northward to supplement local schemes at Waddouring-Barbalin-Knungajin. Other extensions north and south of the main pipeline provide water for a number of towns and surrounding districts, including Toodyay, Goomalling, York, Beverley and Bullfinch. A pipeline southward from Merredin to serve Bruce Rock, Narembeen, Kondinin and surrounding districts and Kulin and surrounding districts is linked to an extension south-west from Doodlakine and taken westward to supply Corrigin. A main south from Cunderdin serves Quairading and the intermediate farmlands. Areas north-west of Burracoppin are served by an extension northward from a point east of Merredin, and districts north of Kellerberrin by a pipeline connecting Kellerberrin to the Waddouring-Barbalin-Knungajin system already mentioned. Water is taken northward from Cunderdin through Minnivale to a point near Kokardine. Extensions westward, eastward and northward from this pipeline serve a number of towns and localities, including Dowerin, Wyalkatchem, Yelbeni, Koorda, Ballidu, Dalwallinu and Wongan Hills, and surrounding farm lands. An extension northward from the main pipeline serves Koolyanobbing, where iron ore is mined.

Great Southern Towns Water Supply

The Great Southern Towns Water Supply serves towns on the Great Southern Railway from Brookton to Katanning, as well as a number of other towns. Water is drawn from Wellington Dam which also supplies the Collie River Irrigation District. Work on the raising of the wall of the Dam was completed in 1960 and, with a capacity of 40,790 million gallons, it is now the largest in the State. Water is taken through Narrogin to Wickepin by means of a main pipeline 106 miles long. In addition to the pumping installation at the dam site, there are stations at a point 28 miles east of the dam and at Narrogin. From Narrogin, pipelines extend 40 miles northward to Brookton and 59 miles southward to Katanning. A branch westward from Katanning serves the town of

Kojonup and a second branch extends south-eastward through Broomehill to Gnowangerup. An extension southward from Wickopin to Dumbleyung was completed in August 1968. A pipeline 11 miles long supplies water to a power station constructed for the State Electricity Commission at Muja, south-eastward from Collie.

At 30 June 1967 the Great Southern Towns Water Supply was serving twenty-four towns. Details of the number of services, length of water mains and consumption for the years 1962-63 to 1966-67 are given in the following table.

GREAT SOUTHERN TOWNS WATER SUPPLY

Year	Number of services	Mileage of water mains	Consumption (million gallons)					Total
			Domestic	Com-mercial	Industrial (including railways)	Farms and market gardens	Other (a)	
1962-63	7,124	362	288	58	81	20	75	522
1963-64	7,328	365	337	67	71	22	68	565
1964-65	7,752	419	333	36	66	22	60	518
1965-66	7,958	450	286	35	207	24	59	611
1966-67	8,161	452	341	41	354	33	69	840

(a) Excludes Mining, for which no services were provided by the Department of Public Works and Water Supply.

Supplies to other Country Towns

One hundred and seven towns and localities are supplied with water from stream flow, dams, tanks, wells and bores. One hundred and six of these schemes are administered under the provisions of the *Country Areas Water Supply Act, 1947-1964* and one under the *Rights in Water and Irrigation Act, 1914-1964*. The following table gives, for these local schemes, the number of services, length of water mains and consumption for the years 1962-63 to 1966-67.

DEPARTMENT OF PUBLIC WORKS AND WATER SUPPLY: LOCAL SCHEMES

Year	Number of services	Mileage of water mains	Consumption (million gallons)					Total	
			Domestic	Com-mercial	Industrial (including railways)	Mining and shipping	Farms and market gardens		Other
1962-63	18,828	512	816	128	122	16	50	142	1,273
1963-64	19,593	621	946	121	164	17	54	197	1,501
1964-65	21,322	679	886	206	198	18	55	208	1,571
1965-66	22,389	796	918	234	237	18	28	254	1,689
1966-67	23,745	833	1,173	281	262	20	34	292	2,059

(a) Increase due principally to inclusion of mains for which records were not previously available.

The Department of Public Works and Water Supply is also responsible for the provision and maintenance of tanks and wells as a source of cartage water for a number of small communities in gold-mining and agricultural areas.

Other Country Water Supplies

As well as the schemes controlled by the Department of Public Works and Water Supply, there are five local Water Boards operating under the *Water Boards Act, 1904-1964* which also draw supplies from stream flow, dams, tanks, wells and bores. In addition, some local authorities exercise powers under the *Local Government Act, 1960-1968* to supply water within their boundaries. There are still, however, a large number of individual farms and pastoral stations which are not connected to public schemes and are therefore obliged to provide their own supplies. The Forests Department and sawmilling companies operate schemes to supply water to their mill towns. In a number of ports and mining towns in the North-West of the State, mining companies are responsible for the provision of their own water supplies, and while the principal source of supply is underground reserves, desalination of sea water is also being used.

Railways of the Commonwealth and State Governments make independent provision for supplies of water for their own purposes, although considerable additional quantities are consumed by the railways from other sources, such as those controlled by the Department of Public Works and Water Supply and the Metropolitan Water Supply, Sewerage, and Drainage Board.

UNDERGROUND WATER

Considerable use is made of underground water by individual farmers, pastoralists, market gardeners, etc. and it is estimated that over 50,000 bores are in use in the State. The quality of the water varies from place to place and much of it is too saline for irrigation or even stock. However, artesian aquifers are tapped to supply or augment the town supplies of Perth, Bunbury, Busselton, Eaton and Denham, and non-pressure water is used in the public supplies of fifty-one other towns.

Substantial advances in the knowledge of aquifers and quality of water in the main sedimentary basins have been made as a result of extensive geological surveys by oil exploration companies and exploratory drilling by the Department of Mines.

The Department of Public Works and Water Supply and the Metropolitan Water Supply, Sewerage, and Drainage Board are responsible for all developmental works. The Geological Survey, a branch of the Department of Mines, is responsible for all exploratory works, as well as for investigating and assessing the State's groundwater resources, advising local government authorities, private industry and individuals on groundwater problems, and supervising departmental drilling.

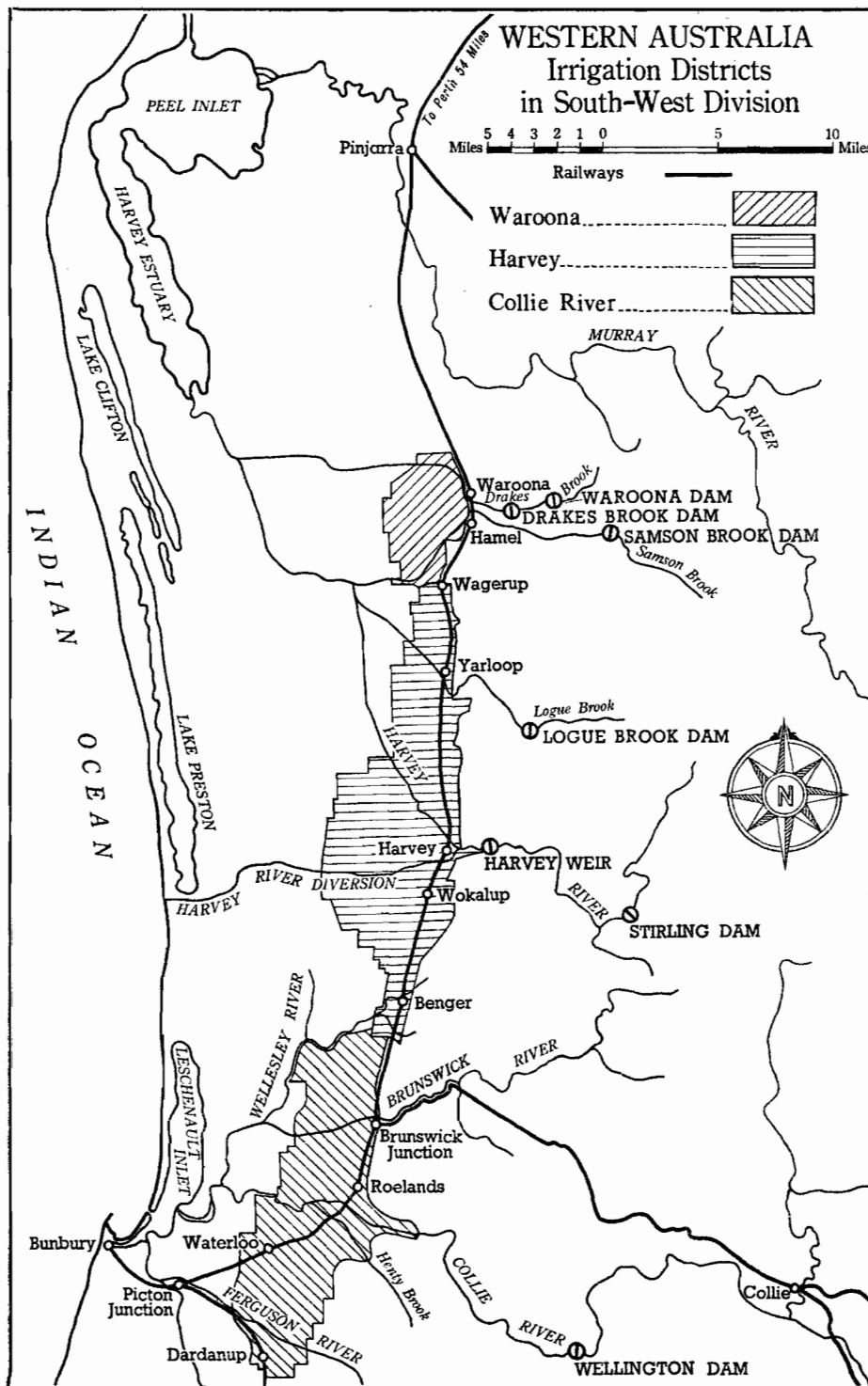
SOUTH-WEST IRRIGATION SCHEMES

Irrigation schemes have been established by the State Government on the coastal plain south of Perth in the Waroona, Harvey and Collie River Irrigation Districts between Waroona and Dardanup, the water being channelled from dams in the adjacent Darling Range.

Specialist advice on irrigation farming methods is available through the Department of Agriculture and the properties are watered on a rotational plan, according to the 'Zone', or section of the District, within which the farms are situated. Three free waterings are given each season on all rated land. All other waterings are charged for and special waterings, out of rotation, are available at a higher fee.

The Harvey Irrigation District, opened in 1916, was the first large-scale project. Harvey Weir, with a capacity of 520 million gallons on completion, was constructed as the source of water supply and the service initially provided was for 3,000 acres of land for citrus growing.

The success of dairying and stock raising and to a lesser extent vegetable growing, which have replaced citrus culture, has led to gradual but substantial extensions of the South-West irrigation area. The damming of Drakes Brook in 1931 and Samson Brook in 1941 provided a storage capacity of 2,281 million gallons which, by alterations to Samson Brook Dam in 1960, has been increased to 2,525 million gallons and is used for the irrigation of 3,060 rated acres in the Waroona Irrigation District. Construction of a third storage to serve the Waroona District was begun in 1963. Known as Waroona Dam, it has been built on Drakes Brook about three miles up-stream from the existing Drakes Brook Dam. Its capacity is 3,290 million gallons and storage, which commenced in June, 1966 was available for the 1966-67 irrigation season. In 1931 the capacity of Harvey Weir was enlarged to 2,275 million gallons (including flashboard storage) and in 1948 Stirling Dam, with an original capacity of 12,060 million gallons (increased to 12,552 million gallons by alterations in 1958) was completed further up-stream on the Harvey River. These works enabled the Harvey Irrigation District to be extended northward to link with the Waroona District. Logue Brook Dam, with a capacity of 5,358 million gallons, was completed in 1963 and provides additional supplies for the Harvey Irrigation District, the rated area of which is now 13,610 acres.



Concurrently with developments in the Harvey and Waroona Irrigation Districts, action was taken to conserve water for the Collie River Irrigation District and Wellington Dam on the Collie River was completed in 1933. In view of its importance, not only to irrigation projects but also to the Great Southern Towns Water Supply, the wall of this reservoir has been raised and when work was completed in 1960 its capacity of 8,000 million gallons had been increased to 40,790 million gallons. It serves an area of 10,870 rated acres in the Collie River Irrigation District, which extends from Brunswick Junction to Dardanup.

Details of irrigation in each district in the years 1965-66 and 1966-67 are given in the following table.

IRRIGATION: SOUTH-WEST SCHEMES

Particulars	Irrigation district						Total	
	Waroona		Harvey		Collie River		1965-66	1966-67
	1965-66	1966-67	1965-66	1966-67	1965-66	1966-67		
Area watered—								
Pasture acres	3,371	3,672	13,274	13,750	12,095	12,690	28,740	30,112
Fodder crops "	210	241	221	220	609	689	1,040	1,150
Potatoes "	9	6	84	33	333	301	426	340
Other vegetables "	279	260	51	64	34	28	364	352
Orchards .... .. "	....	....	178	176	45	46	223	222
Total "	3,869	4,179	13,808	14,243	13,116	13,754	30,793	32,176
Acre waterings (a) "	20,804	25,182	86,214	99,068	76,192	85,514	183,210	209,764
Average number of waterings (b) "	5.4	6.0	6.2	7.0	5.8	6.2	5.9	6.4
Total water gauged at entry to district million gal	3,032	3,348	12,719	14,077	12,518	13,753	28,269	31,178
Dam capacity (c) "	5,815	5,815	19,675	19,675	40,790	40,790	66,280	66,280
Length of channels miles	46	46	154	154	125	126	325	326

(a) Area watered multiplied by number of waterings. Figures shown represent the sum of acre waterings for individual holdings in each district. (b) Total acre waterings divided by total area watered. (c) Excludes flashboard storage.

NORTHERN IRRIGATION SCHEMES

Although not yet comparable in size with the South-West undertakings, the irrigation areas at Carnarvon and on the Ord and Fitzroy Rivers in the northern portion of the State are of increasing significance.

Carnarvon. During the past thirty years a centre of tropical agriculture has been developed at Carnarvon, near the mouth of the Gascoyne River. At first a number of tropical fruits were grown but, until recent years, production consisted mainly of bananas. A considerable quantity of early beans is now grown for the metropolitan market and for export interstate, and production of tomatoes and a variety of other vegetables has also increased in importance.

Agricultural development has been made possible only by irrigation, as the rainfall is extremely variable and averages little more than 9 inches per annum. Each holding has its own irrigation plant and, wherever possible, the pumping unit is installed on a bank of the Gascoyne River. Usually the river bed is exposed, as surface flow does not occur regularly each year. Concrete-lined wells have been sunk into the river sands and the water obtained is pumped either to storage tanks or direct to the plantation feeder channels, from which it is distributed among the plants by furrows. Because of the limitations of supply from the river sands, the State Government has instituted controls over the quantity of water pumped by growers, has commenced to develop up-river sources and is delivering supplementary water by pipeline to twenty-six plantations on the south bank of the river at the eastern extremity of the Carnarvon Irrigation District. A tropical research station is maintained at Carnarvon by the Department of Agriculture. To the early activities of this research station may be credited much of the success of the Carnarvon plantations, notably in the field of plant selection and pest control, and experimental work is being continued.

Ord River. The Ord River in the Kimberley Division traverses a tropical area which receives monsoonal rains of irregular incidence and quantity, varying from an annual mean of 20 inches in the south to 30 inches in the north. Investigations at the Kimberley Research Station, established in 1945 and operated by the Department of Agriculture in conjunction with the Commonwealth Scientific and Industrial Research Organization, have shown that the climate and soil conditions are favourable for the cultivation of sugar-cane, rice, cotton, safflower and various oil seeds. As a result of these investigations the State Government, with Commonwealth financial assistance, has embarked on a project to provide water supplies for irrigation in the area.

The Ord Irrigation Project provides for the development of 178,000 acres of land agriculturally and topographically suitable for irrigation. The project comprises four stages, the first being the construction of a diversion dam to supply water for an area of 30,000 acres. The other stages are the building of a main storage dam with a capacity of 4.6 million acre-feet (equivalent to more than 1,256,000 million gallons), the progressive development of the whole 178,000 acres, and the construction of a hydro-electric power station.

The diversion dam, situated at Bandicoot Bar about 65 miles by road south-east of Wyndham and 30 miles downstream from the site of the proposed main dam, was officially opened on 20 July 1963. The capacity of the diversion dam is 21,467 million gallons and irrigation from the dam commenced in April 1963.

Apart from an area of 2,400 acres formerly used as a pilot farm but now being developed privately, thirty farms are included in the first stage of the project. The farms each have an area of approximately 660 acres and cotton is the principal crop, although small areas of grain sorghum have been grown. Wheat is still in the experimental stage.

The diversion dam was recognised by the Commonwealth Government in August 1959 as an approved project within the meaning of the *Western Australia Grant (Northern Development) Act 1958-1959* (Commonwealth). This legislation provides for payment by the Commonwealth to the State Government of a non-repayable grant of \$10 million for development of the part of the State north of 20°S. latitude. Of this grant \$8.2 million was spent on the diversion dam. In February 1963 a further approach was made to the Commonwealth requesting an amount of \$3.3 million for the completion of channels and drains required to develop the whole of the 30,000 acres included in the first stage of the project. The request was approved in August 1963 and moneys made available by way of grant in terms of the *Western Australia (Northern Development) Agreement Act 1963*. The total expenditure on the Project to 30 June 1968 was \$17.5 million, of which \$5.42 million was expenditure by the State Government and \$12.08 million the amount of Commonwealth aid.

In November 1967, the Commonwealth Government approved the plan for the second phase of the Ord River Irrigation Scheme and agreed to provide financial assistance to the State for the works involved. Agreement as to the terms and conditions for financing the second phase of the scheme was announced in March 1968. In terms of the *Western Australia Agreement (Ord River Irrigation) Act 1968* the Commonwealth agreed to provide financial assistance to the State in an amount equivalent to expenditure on the works, up to a maximum of \$48.18 million. The assistance will take the form of a non-repayable grant for the construction of the main Ord dam (estimated to cost \$20.93 million) and an interest-bearing loan for the associated irrigation and drainage facilities (estimated to cost \$27.25 million).

Construction of the main dam is scheduled to begin in the first half of 1969 and completion is planned for June 1972.

Fitzroy River. On the Liveringa flood plain, grain and fodder sorghums are being produced at Camballin, 65 miles south-east of Derby. Irrigation water from the Fitzroy River is diverted, by means of a weir with a capacity of 1,025 million gallons constructed across the river, through Uralla Creek, an anabranch, for 17 miles to another dam with a storage of 1,029 million gallons constructed on Uralla Creek.

During 1966-67, water used in the irrigation of crops amounted to 4,974 acre-feet. Later it will be necessary to construct a storage dam on the upper reaches of the Fitzroy River for the large-scale developments envisaged for this area.

Details of irrigation in the Ord and Camballin Irrigation Districts for the years 1965-66 and 1966-67 are given in the following table.

IRRIGATION: ORD AND CABBALLIN DISTRICTS

Particulars	Irrigation district				Total	
	Ord		Camballin		1965-66	1966-67
	1965-66	1966-67	1965-66	1966-67		
Area watered	11,652	13,419	2,624	530	14,276	13,949
Acre waterings (a)	90,932	103,641	(b)	(b)	(c)	(c)
Average number of waterings (d)	7.8	7.7	(b)	(b)	(c)	(c)
Total water gauged at entry to district	16,113	14,829	2,282	1,352	18,395	16,181
Dam capacity	21,467	21,467	(e) *2,560	(e) 2,560	(e)*24,027	(e) 24,027
Length of channels	53	62	16	16	69	78

(a) Area watered multiplied by number of waterings. Figures shown represent the sum of acre waterings for individual holdings in each district. (b) Not applicable as irrigation is continuous. (c) See footnote (b). (d) Total acre waterings divided by total area watered. (e) Includes 326 million gallons of natural storage. * Revised.

Dunham River. In addition to the government irrigation undertakings mentioned above, a private scheme is now in course of development in the Dunham River valley south of its confluence with the Ord River. An agreement between the Government of Western Australia and Goddard of Australia Pty. Ltd., subsequently ratified by the *Irrigation (Dunham River) Act, 1968*, authorises the company to construct a dam on Arthur Creek, a tributary of the Dunham River, to irrigate the pilot area. The company, in terms of the agreement, is required to subdivide the pilot area into not more than ten holdings each containing an area of approximately 1,000 acres, of which some 600 acres will be irrigated.

If the company demonstrates to the Government that it is both practical and economically sound to develop the pilot area for agricultural purposes by way of closer settlement in holdings of about 1,000 acres, the company will be authorised to proceed with phase 2 of the plan—the construction of a dam on the Dunham River and a suitable water distribution system. The additional area involved in the second phase of the scheme amounts to approximately 34,000 acres.

WATER RESOURCES INVESTIGATION AND MEASUREMENT

Work on the investigation and measurement of the water resources of Western Australia, both surface and underground, has been accelerated in recent years partly due to the activities of the Australian Water Resources Council, which was established by joint action of the Commonwealth and State Governments in 1962. The Council comprises Commonwealth and State Ministers primarily responsible for water resources, with the Commonwealth Minister for National Development as Chairman.

The primary objective of the Council is the provision of a comprehensive assessment on a continuing basis of Australia's water resources, and the extension of measurement and research so as to provide a sound basis for the planning of future development.

In terms of its main objective, the Council in 1964 recommended, and the Commonwealth and State Governments agreed, that there should be an accelerated programme of establishment of stream gauging stations and investigation of underground water. Financial assistance to the States was rendered by the Commonwealth under the *States Grants (Water Resources) Act 1964*, subject to certain qualifying expenditure by each State, and during the three-year period ended 30 June 1967, non-repayable grants totalling \$581,342 were received by Western Australia.

Under the *States Grants (Water Resources Measurement) Act 1967*, financial assistance to the States is continued for a further three years until 30 June 1970. The maximum amount of grant payable to Western Australia over this period, subject to the State complying with specified qualifying conditions, totals \$844,650. In addition to grants received in respect of 1967-68 for measurement of discharge of rivers (\$178,700) and investigation and measurement of underground water resources (\$81,150), expenditure financed by the State amounted to \$185,599 and \$409,039, respectively.

Surface Water

To enable rivers and streams to be utilised efficiently, the quantity and quality of water flowing in many rivers and streams throughout Western Australia are being measured. These vary from comparatively small streams, to relatively large rivers such as the Ord River in the Kimberley.

The number of stream gauging stations in operation has increased steadily and on 30 June 1968 was 149.

The major part of this work is carried out by the Department of Public Works and Water Supply, but the Metropolitan Water Supply, Sewerage and Drainage Board and the Department of Agriculture also operate gauging stations. At 30 June 1968, the number of stations operated by these authorities was 135, 13 and 1, respectively.

The distribution of the gauging stations in the various drainage divisions is as follows:

South-West Coast Division	....	....	....	....	....	....	....	104
(Esperance to the Hill River)								
Indian Ocean Division	....	....	....	....	....	....	....	19
(Arrowsmith River to the De Grey River)								
Timor Sea Division	....	....	....	....	....	....	....	26
(Broome to the Ord River)								
Total	....	....	....	....	....	....	....	149

Underground Water

To locate and measure the quantity and quality of underground water available to supply the ever-growing needs of town water supplies, industries, farmers, pastoralists, etc. a considerable amount of investigation, including drilling, is in progress in Western Australia. The work is being carried out by the Department of Mines, the Department of Public Works and Water Supply, and the Metropolitan Water Supply, Sewerage, and Drainage Board, with the Department of Mines assuming the major responsibility for hydro-geological work.

Underground water exploration projects in course during 1967-68 included a major investigation of the Coorow-Watheroo area, where it is hoped to locate large quantities of underground water which may be pumped inland to serve towns and farms in agricultural areas, and an investigation of the large calcrete aquifer on Millstream Station which may prove a suitable source for a regional water supply for industry, etc. in the southern Pilbara. Investigations to locate underground water to provide or augment the water supplies of Perth, Albany, Wanneroo, Quinns, Carnamah, Horrocks Beach, Kalbarri, Carnarvon and Port Hedland, were also carried out during 1967-68.

SEWERAGE SCHEMES

Metropolitan Sewerage

There are three major sewerage systems and one minor system administered by the Metropolitan Water Supply, Sewerage, and Drainage Board within the metropolitan area.

Sewage from the major systems either gravitates or is pumped through the pipe systems to treatment works at Subiaco, Swanbourne and Woodman Point. After treatment the effluent is discharged into the Indian Ocean, some distance from the coast under a substantial depth of water.

A small composite system serves Armadale. Sewage from the area is treated at the Westfield Treatment Plant, the treated effluent being disposed of in sandy soil at the plant site.

The following table shows the number of services, population served and the length of sewer mains under the control of the Metropolitan Water Supply, Sewerage, and Drainage Board at 30 June for each of the years 1963 to 1967.

METROPOLITAN SEWERAGE SYSTEMS

At 30 June—		Services	Population served	Length of sewers
		number	persons	miles
1963	....	68,223	240,700	751
1964	....	68,958	241,740	769
1965	....	69,553	242,340	777
1966	....	70,283	243,500	816
1967	....	71,188	260,000	848

Country Towns Sewerage

A number of towns outside the metropolitan area have sewerage schemes which were constructed pursuant to the *Country Towns Sewerage Act, 1948-1967*. In addition, a further six schemes have been provided by local government authorities or as private development in mining areas by certain mining companies.

Some expansion in local authority construction can be anticipated because of a recent subsidy proposal of the State designed to assist local government authorities in developing this service.

The following table shows the number of towns seweraged, the area seweraged and the number of services controlled by the Department of Public Works and Water Supply at 30 June for each of the years 1963 to 1967.

COUNTRY SEWERAGE SYSTEMS

At 30 June—		Number of towns seweraged	Area seweraged	Length of sewers	Services
		number	acres	miles	number
1963	....	13	2,755	(a)	4,228
1964	....	16	3,150	(a)	4,704
1965	....	18	3,456	133	5,251
1966	....	19	3,956	151	5,774
1967	....	20	4,317	162	6,417

(a) Not available.

CHAPTER VIII—PRODUCTION

Secondary industry in Western Australia has become increasingly important and now almost equals primary industry in terms of net value of production. This relationship, however, could be materially affected by the development of recent major discoveries of minerals, including oil, and may change substantially in the next few years. Primary production, and in particular the agricultural, pastoral and mining sectors, may therefore still be regarded as having the greater influence on the economy of the State.

Farming has been carried on from the earliest years of settlement but its development was originally restricted by inadequate transport, shortage of labour and a limited local consumption. These difficulties were partly overcome by the introduction of convict labour during the period from 1850 to 1868, but the Colony was still dependent on the importation of many items of foodstuffs when the position was aggravated by a great influx of people attracted by the discovery of gold in the Kimberley in 1885 and by the spectacular finds in the 1890s at Coolgardie and Kalgoorlie and at other places on the eastern goldfields. Between 1890 and 1905 the population increased from 48,502 to 250,138 and, despite an increase in the area under crop from 69,700 acres to 364,700 acres during these years, agricultural production remained insufficient to meet local demands.

A decline in gold mining which began after 1903 caused a growing interest in farming as an alternative pursuit and by 1911 the area under crop had increased to more than one million acres, of which 612,000 were sown to wheat for grain. Since that time, although there have been some fluctuations in agricultural activity, the area under crop has risen to over eight and a half million acres of which more than six million acres are sown to wheat for grain.

Circumstances similar to those applying to agriculture stimulated the growth of the pastoral industry and large cattle and sheep stations were established on land leased from the Crown, mainly in the northern and north-western areas and in parts of the eastern goldfields. The number of cattle in the State increased from 131,000 to 825,000 and of sheep from 2,525,000 to 5,159,000 between 1890 and 1910, when nearly three-fifths of the sheep were in the pastoral areas and little more than two-fifths in the agricultural areas as defined on pages 330-1. With the development of mixed wheat and sheep farming the total number of sheep has risen and in 1967 was 27.4 million, but only about 14 per cent are now in the pastoral areas. Of the total of 1,357,042 cattle in the State in 1967 nearly 40 per cent were in the Kimberley Division where cattle are raised almost exclusively for meat production.

The contribution of mining to the Western Australian economy is substantial and in 1966 iron ore replaced gold as the principal mineral in terms of value of production. Other important minerals produced included mineral beach sands, coal, manganese, asbestos, tin and bauxite. Production of minerals is expected to increase still further as deposits of petroleum, nickel, iron ore and bauxite are developed.

Dairying with an average annual milk production over the last five years of about 59 million gallons, has become a significant factor in primary industry and in 1966-67 the output of butter was 14,393,838 lb and of cheese 3,806,781 lb.

The demand for jarrah and karri hardwoods has long been a feature of the State's economy. Indiscriminate cutting in earlier years and disregard of the need for preservation and regeneration threatened the survival of the timber industry. However, governmental controls over forestry operations and a policy of reforestation introduced in 1918 have proved to be effective and the industry is now established on a firm basis, timber forming an important component of primary production.

The overseas demand for crayfish, which developed in post-war years, gave great impetus to the fishing industry and the total value of the take of fish has increased from \$739,000 in 1947 to \$14,212,000 in 1966-67. Interest in whaling was evident in the first years of colonisation, exports of oil and whalebone being recorded in the earliest of the colonial Blue Books. Whaling activity since then has fluctuated widely and at times ceased altogether. The latest large-scale revival of the industry began in 1949 when a station at Point Cloates on the north-west coast was reopened after a lapse of more than twenty years. Since the 1963 season, activity has declined considerably following the imposition by the International Whaling Commission of a total ban on the taking of humpback whales. The only station now operating is at Frenchman Bay near Albany where sperm whaling is conducted.

Secondary industry has expanded substantially in recent years and may be expected to expand even more rapidly in future. A major oil refinery, a steel rolling mill, an alumina refinery, a factory for the manufacture of titanium oxide from ilmenite, an iron ore pelletising plant and a blast furnace have been established since 1955. These are among a growing number of factories which rely mainly on the interstate and overseas export of their products and this new trend indicates that dependence primarily on local demand is becoming less serious as an obstacle to development than it has been in the past.

The following table shows net values of production of the various primary industries and of secondary industry during the five years 1962-63 to 1966-67. An effective comparison of their relative importance is provided by the five-yearly averages quoted, as they tend to lessen the effect on the statistics of unusual seasonal or other conditions occurring in individual years.

NET VALUE OF RECORDED PRODUCTION

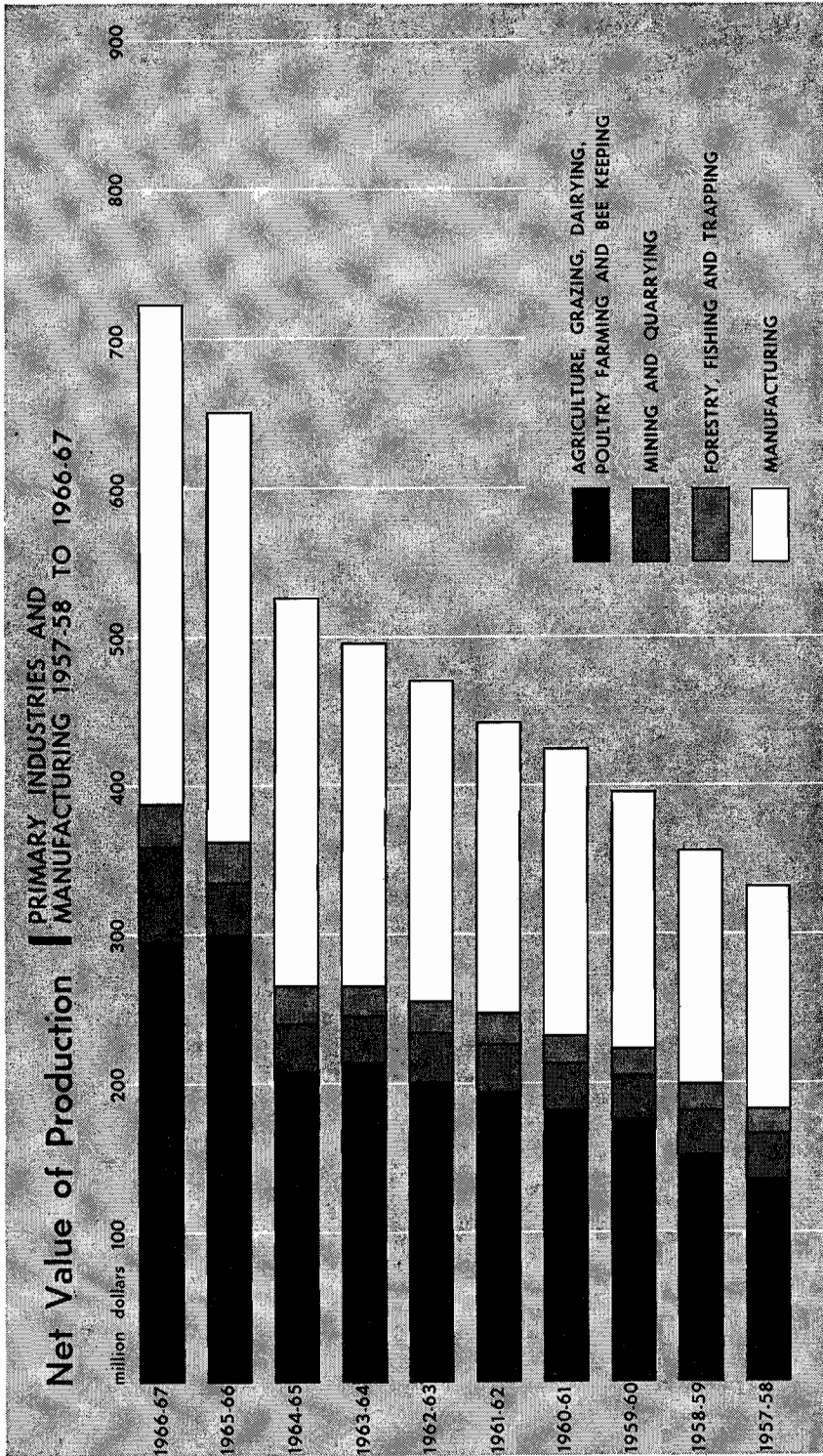
Industry	1962-63	1963-64	1964-65	1965-66	1966-67	Average of five years
VALUE (\$'000)						
Agriculture	108,506	79,619	92,800	*154,494	153,717	117,827
Pastoral	82,579	123,545	101,069	*129,773	126,049	112,603
Dairying	9,014	10,520	12,601	13,031	11,060	11,245
Poultry farming	1,787	1,345	1,589	3,253	3,801	2,355
Bee keeping	532	849	519	643	442	597
Trapping	293	434	678	*662	758	565
Forestry	10,163	10,735	11,334	11,965	12,473	11,334
Fishing and whaling	10,703	8,926	13,973	14,478	14,975	12,611
Mining and quarrying	32,244	30,697	32,163	35,192	63,097	38,679
Total, Primary	255,821	266,670	266,726	363,490	386,372	307,816
Manufacturing	216,422	230,511	260,637	288,803	335,788	266,432
Total, Primary and Manufacturing	472,243	497,181	527,363	652,293	722,160	574,248

PROPORTION OF TOTAL (PER CENT)

Agriculture	22.98	16.01	17.60	23.68	21.29	20.52
Pastoral	17.49	24.85	19.16	19.89	17.45	19.61
Dairying	1.91	2.12	2.39	2.00	1.53	1.96
Poultry farming	0.38	0.27	0.30	0.50	0.53	0.41
Bee keeping	0.11	0.17	0.10	0.10	0.06	0.10
Trapping	0.06	0.09	0.13	0.10	0.10	0.10
Forestry	2.15	2.16	2.15	1.83	1.73	1.97
Fishing and whaling	2.27	1.80	2.65	2.22	2.07	2.20
Mining and quarrying	6.83	6.17	6.10	5.40	8.74	6.74
Total, Primary	54.17	53.64	50.58	55.72	53.50	53.60
Manufacturing	45.83	46.36	49.42	44.28	46.50	46.40
Total, Primary and Manufacturing	100.00	100.00	100.00	100.00	100.00	100.00

* Revised.

The *Net Value* quoted in the above table represents the return to the producer, after deducting from the gross value the cost of all goods consumed in the process of production and costs of marketing the product. It is the sum available for payment of wages, interest, rent, depreciation, other overhead costs and for the producer's own income.



WESTERN AUSTRALIA

AREAS OF CURRENT DEVELOPMENT

(PREPARED BY THE WESTERN AUSTRALIAN DEPARTMENT OF INDUSTRIAL DEVELOPMENT)

BAUXITE—Amax Bauxite Corporation have an agreement which may lead to a \$100,000,000 Alumina industry near the Admiralty Gulf area.

CULTURED PEARLS of finest quality are produced at Kuri Bay Cygnet Bay and Exmouth Gulf.

IRON ORE—from Yampi Sound feeds the blast furnaces in Eastern Australia and Kwinana.

SOLAR SALT—Large-scale export industries are being established at Port Hedland and Dampier.

OIL AND GAS—Australia's largest commercial oil field is in production at Barrow Island.

V.L.F. STATION—A major and very modern U.S. Navy V.L.F. communications centre has been built at North West Cape.

PRAWNING industries have been established at Carnarvon and Exmouth Gulf.

POTASH and other evaporates north of Carnarvon. Pilot plant under construction.

CARNARVON SPACE TRACKING STATION an Australian-American joint project provides facilities for NASA.

SOLARSALT is being supplied to Japan from Shark Bay.

IRON ORE from Koolanooka is being exported through Geraldton.

CRAYFISH worth \$18,600,000 per annum are exported mainly to the U.S.A. This represents Australia's biggest single fishery.

OIL AND GAS strikes have been made between Perth and Geraldton.

KWINANA—developing rapidly as a major centre of heavy industry—plants completed or under construction include oil, alumina and nickel refining, iron and steel, cement, paper, fertilizer, major power station.

BAUXITE from the Darling Range feeds the alumina refinery at Kwinana.

ILMENITE deposits—a growing export and feed for a titanium dioxide plant at Bunbury.

TIMBER—Karrri and jarrah forests in the south-west provide quality hardwoods for building, construction and export.

WOOD CHIPS—Large scale export industry is planned to supply Japanese paper mills.

TIDAL POWER—There is vast potential to generate power from tides that rise and fall 30 ft and more.

BEEF ROADS—To increase Kimberley beef output millions of dollars are being spent on roads for large-scale transport of cattle to meatworks at Wyndham, Broome and Derby.

SEARCH FOR MINERALS—International and Australian companies are undertaking an intensive survey of the mineral potential of the Kimberley. Progress is promising.

IRON ORE—Large deposits of high-grade ore occur in the Pilbara. Exports to Japan are under way from Dampier and Port Hedland. European orders have been placed.

MANGANESE—An important manganese export industry is developing in the Pilbara region.

COPPER—Important new discoveries have been made in the Warburton Range and the Kimberley region.

WHEAT—Production for 1967-68 totalled 106,975,000 bushels. Export reached 86,850,787 bushels, valued at \$21,764,000.

WOOL—Of the 298,855,000 lb wool production for 1967-68, 277,375,040 lb was exported. Total sheep number in the State at March 31 1968, stood at 30,160,877.

NICKEL—Deposits have been discovered in the Blackstone Range.

IRON ORE from Koolyanobbing will feed a \$100,000,000 iron and steel industry at Kwinana industrial area.

NICKEL—Big deposits of high-grade nickel are being developed at Kambalda. Western Mining concentrates are exported to Canada and Japan, and are also shipped to the Eastern States. Kambalda will also supply the nickel refinery to be constructed at Kwinana.

GOLD mined in Western Australia represents seventy per cent of Australia's production.

SALT—Exports of salt through Esperance from deposits at Lake Lefroy are planned to begin in 1969. By 1971 they will amount to 500,000 tons annually, possibly increasing later.

LAND DEVELOPMENT is at the rate of 1,000,000 acres of new land being opened up for agriculture each year. Research and new techniques have increased productivity.

THE ORD RIVER PROJECT, the first large-scale irrigation project in the north, is producing good yields of high-quality cotton and sorghum. Other cash crops are emerging. A further \$48,000,000 is being spent on expansion of the project. Benefits to the cattle industry will also be considerable.

IRON ORE SUMMARY
Western Australia's iron ore deposits, estimated at 15,000 million tons, rank among the largest in the world. They are mainly located in the North-West region. Already eight major companies have signed agreements with the State Government for the development of these resources.

Contracts approaching 337 million tons of ore and pelletised ore have been written with British, Japanese and European steel interests. These will be worth more than \$2,600 million over the next 15 years.

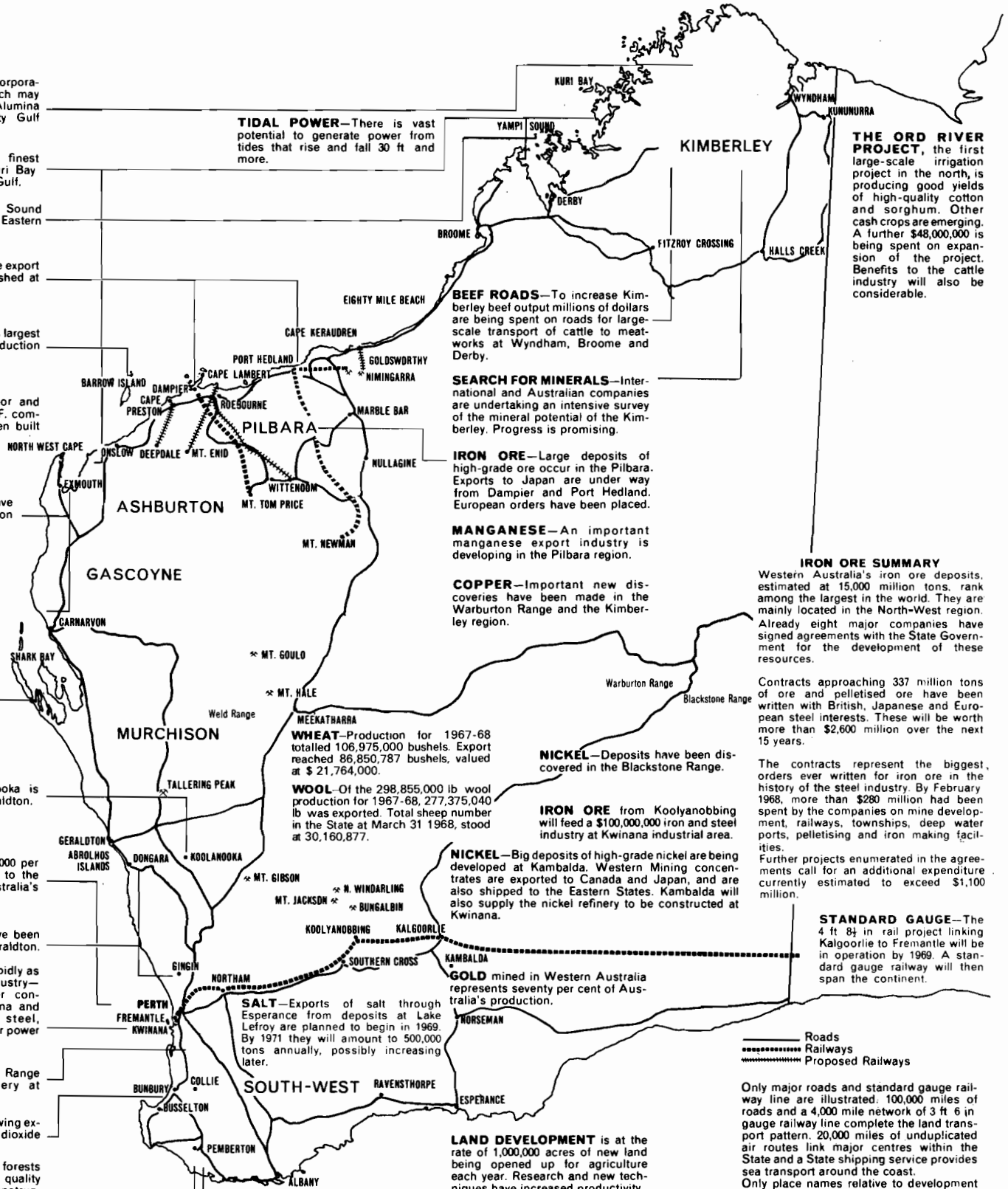
The contracts represent the biggest orders ever written for iron ore in the history of the steel industry. By February 1968, more than \$280 million had been spent by the companies on mine development, railways, townships, deep water ports, pelletising and iron making facilities. Further projects enumerated in the agreements call for an additional expenditure currently estimated to exceed \$1,100 million.

STANDARD GAUGE—The 4 ft 8½ in rail project linking Kalgoorlie to Fremantle will be in operation by 1969. A standard gauge railway will then span the continent.

Roads
Railways
Proposed Railways

Only major roads and standard gauge railway line are illustrated. 100,000 miles of roads and a 4,000 mile network of 3 ft 6 in gauge railway line complete the land transport pattern. 20,000 miles of unduplicated air routes link major centres within the State and a State shipping service provides sea transport around the coast. Only place names relative to development are included on this map.

30 100 200 300 400 500
SCALE IN MILES



GEOGRAPHICAL DISTRIBUTION OF INDUSTRY

The following brief survey of production in the Statistical Divisions of the State should be read in conjunction with the map appearing at the back of the Year Book. Reference should also be made to the *Note on Statistical Divisions* preceding the Index.

The Perth Division (2,072 square miles), with an estimated population of 579,500 (30 June 1967) or almost two-thirds of the State total, is the principal centre of manufacturing activity. Its industrial establishments, which are engaged in most classes of secondary industry, employ 52,567 or over four-fifths of the factory workers of the State. They also contribute over four-fifths of the total net value of factory production. Many of the larger industrial establishments located in the Perth Division are concentrated in the Kwinana area where development has been encouraged by the dredging of a deep water channel and the construction of harbour facilities to meet the requirements of large-scale projects.

Farm activity for the Division is confined mainly to the production of citrus, pome and stone fruits, eggs, poultry, vegetables and whole milk. Production is principally for consumption within the metropolitan area but small quantities are exported. In addition, most of the State's viticultural industry is carried on in this region. Table grapes, currants, raisins and sultanas are produced for the local market and for export, and wine-making grapes are grown for use in local wineries. A well-established fishing industry operates from the port of Fremantle, the main catch being crayfish.

The South-West Division (11,030 square miles) is the main dairying area of the State and produces a large proportion of the total output of whole milk and of butter, cheese and condensery products. Pig raising is carried on both separately and as an ancillary activity to dairying. The rearing of cattle for meat production is now of major importance. Apples, pears, stone fruits, potatoes and other vegetables are grown extensively. Timber is one of the main products, being milled over a wide area, and coal, ilmenite, bauxite and tin are the principal minerals produced. Commercial fishing is centred on Mandurah, Bunbury and Busselton. The factories of the Division, which employ 4,814 workers, include sawmills, butter, cheese and milk-processing plants, meat works, a superphosphate works, a large chemical factory producing titanium oxide pigments and two major electricity generating stations.

The Southern Agricultural, Central Agricultural and Northern Agricultural Divisions, which together cover 86,216 square miles, comprise the principal cereal-growing districts and produce the bulk of the State's wheat, oats and barley crops. The development of clover ley farming over a wide area has led to a remarkable increase in the number of sheep carried on farms in these Divisions and the total, 20·6 million, comprises three-quarters of the State's sheep population. There has been a corresponding rise in wool production which now represents over 75 per cent of the State's clip. The raising of cattle, principally for meat production, has also increased in importance and the number kept for all purposes is now 239,789 or more than 17 per cent of the State total. Tomatoes and other vegetables are grown in the area around Geraldton and citrus fruits in the Chittering area. Dairying, apple and pear growing and potato growing are important in the districts around Denmark, Albany and Mount Barker while large quantities of peas for processing are produced around Mount Barker and Gnowangerup. Whaling and fishing are carried on from Albany, on the south coast, and the important crayfishing industry on the lower west coast is based on the Abrolhos Islands, Geraldton, Dongara, Jurien Bay, Cervantes and Lancelin Island. Lead has been mined near Northampton for many years and the mining of iron ore, which is being shipped to Japan from Geraldton, commenced at Koolanooka in 1966. Factories, which include flour-mills, superphosphate works, butter factories, sawmills, a woollen mill, a charcoal iron and wood-distillation plant, a fish cannery and a meat works, provide employment for 4,742 workers.

The North-West Division (75,731 square miles) has 1·25 million sheep, representing over 4 per cent of the State total, and 23·9 thousand cattle. Tropical agriculture has been developed on the Gascoyne River at Carnarvon where bananas and beans and other

vegetables are grown. An important prawn-fishing industry has been established in the Division, the principal areas being Carnarvon, Exmouth Gulf and Point Samson. Commercial fishermen operate also from Shark Bay.

The Kimberley Division (162,363 square miles), with over half a million cattle, or more than 39 per cent of the State total, and meat works at Wyndham, Derby and Broome, is an important source of beef for export from Western Australia to overseas markets. Broome is also the centre of pearl-shell fishing. Culture pearls are being successfully produced at Kuri Bay in Brecknock Harbour, Cygnet Bay in King Sound and at Exmouth Gulf. Iron ore is mined at Cockatoo and Koolan Islands in Yampi Sound. Reference is made on pages 298-9 to agricultural developments at Kununurra on the Ord River and Camballin on the Fitzroy River.

The Eastern Goldfields, Central and Pilbara Divisions covering a total area of 638,508 square miles contain the principal gold and mineral fields of the State and almost all the gold produced in Western Australia comes from this area. Iron ore, which is used for the production of pig-iron at Wundowie in the Darling Range, east of Perth, has been mined since 1950 at Koolyanobbing, east of Bullfinch in the Yilgarn district. Deposits in this area are being mined on a large scale for the supply of ore to the blast furnace at Kwinana and for export. Other large-scale deposits of iron ore in the Pilbara Division are being mined for export or are under development for production. Further reference to these operations will be found on pages 363-4. A plant producing iron ore pellets from iron ore fines commenced operations at Dampier in 1968. Other minerals and ores produced elsewhere in these Divisions include nickel, beryl, felspar, gypsum, pyrites and ores of copper, manganese, silver, tin and tanto-columbite. Although mining is the main industry, these Divisions contribute also to pastoral output, the area containing almost 14 per cent of the sheep and almost 8 per cent of the cattle in the State. Cereals are grown in the south-western portion of the Eastern Goldfields Division, which produced over 7·8 million bushels of wheat, oats and barley in 1966-67.

Part 1—Primary Production

LAND UTILISATION ON RURAL HOLDINGS

In 1966-67 there were 23,181 rural holdings in the State, comprising 274·8 million acres of land or 44 per cent of the total area of Western Australia.

The total area of rural holdings consisted of 31·9 million acres of cleared land and 242·9 million acres uncleared. Of the cleared land, 8·6 million acres were used for crop, 13·0 million acres were under established pastures, 1·3 million acres were newly cleared during the season and 2·0 million acres were in fallow. The balance of the cleared area, 7·0 million acres, comprised land which was used for grazing or was resting during the season. The uncleared land is mainly pastoral leases held by sheep and cattle stations.

Land development in the post-war period has been stimulated by generally favourable prices for agricultural and pastoral commodities. Special concessions to primary producers under the provisions of the taxation legislation have also contributed to the increased capital investment in primary industry. This development, which has been undertaken principally by established farmers and by the War Service Land Settlement Board, has been aided by the introduction of modern mechanical methods of land clearing. As a result, the area of cleared land on rural holdings has more than doubled, from 14·6 million acres in 1946-47 to 31·9 million acres in 1966-67. In the same period land used for crops has increased from 3·5 million acres to 8·6 million acres and the area under established pastures from 2·1 million to 13·0 million acres. The area in fallow, which was 2·1 million acres in 1946-47, has not varied greatly over the period and in 1966-67 it was 2·0 million acres.

LAND UTILISATION

Season	Cleared land						Rural holdings	
	Used for crop (a)	Under established pasture	Newly cleared, prepared for next season	In fallow	Used for grazing or resting	Total	Number	Area
	acres	acres	acres	acres	acres	acres		acres
1962-63	7,326,848	8,679,375	999,438	1,999,302	8,267,951	27,272,914	22,554	262,659,722
1963-64	6,705,632	9,509,620	1,133,475	1,712,050	9,201,732	28,262,509	22,770	266,555,916
1964-65	7,289,406	10,426,891	1,120,042	1,756,989	8,952,149	29,545,477	22,856	268,553,428
1965-66	8,448,751	11,382,183	1,193,730	1,942,225	7,931,159	30,898,048	22,853	270,054,451
1966-67	8,557,718	13,017,791	1,300,400	2,022,914	6,969,929	31,868,752	23,181	274,764,562

(a) Excludes meadow hay.

LAND UTILISATION IN EACH STATISTICAL DIVISION: 1966-67

Statistical Division	Cleared land						Rural holdings	
	Used for crop (a)	Under established pasture	Newly cleared, prepared for next season	In fallow	Used for grazing or resting	Total	Number	Area
	acres	acres	acres	acres	acres	acres		acres
Perth	29,502	187,495	8,347	8,226	40,315	273,885	4,016	443,735
South-West	68,238	1,336,077	61,124	14,340	119,245	1,599,024	4,416	2,550,660
Southern Agricultural	1,277,386	3,899,903	309,181	417,860	1,035,994	6,940,324	4,630	9,991,470
Central Agricultural	4,048,645	4,092,898	328,720	704,546	2,819,150	11,993,959	5,120	15,350,052
Northern Agricultural	2,572,890	2,832,867	334,001	600,159	2,403,500	8,743,417	3,343	15,682,591
Eastern Goldfields	544,568	665,928	254,311	274,491	493,587	2,232,885	1,048	45,696,332
Central	1,098	800	3,041	350	3,969	9,258	158	63,802,439
North-West	1,702	117	52	289	1,163	3,323	259	42,482,596
Pilbara	2				25	27	58	23,889,036
Kimberley	13,687	1,706	1,623	2,653	52,981	72,650	133	54,875,651
Total	8,557,718	13,017,791	1,300,400	2,022,914	6,969,929	31,868,752	23,181	274,764,562

(a) Excludes meadow hay.

EMPLOYMENT AND POPULATION

The permanent male work force on rural holdings in the State has decreased during the past ten years. This has been due partly to the rapid development of power farming, which is indicated by the rise in the number of farm tractors from 23,963 in 1958 to 33,997 in 1967. The result has been that, in spite of greatly increased production, there has been a decline in the permanent male work force which has decreased from 30,553 in 1958 to 29,555 in 1967. Permanent male workers in 1967 consisted of 20,215 owners, lessees, tenants and share-farmers, 1,289 farmers' relatives who were not receiving wages and 8,051 paid employees. Full information is not available regarding temporary, casual or seasonal employment and details are excluded from the following table. Female employment is also excluded because of the difficulty in separating domestic from farm activities.

MALE EMPLOYMENT, POPULATION AND TRACTORS ON RURAL HOLDINGS

At 31 March—	Males working permanently full-time on holdings				Population of rural holdings			Farm tractors
	Owners, lessees, tenants and share-farmers	Relatives not receiving wages	Employees, including paid relatives	Total	Males	Females	Persons	
1963	20,537	1,285	8,758	30,580	49,256	40,375	89,631	29,218
1964	20,548	1,317	8,607	30,472	50,093	41,295	91,388	30,879
1965	20,569	1,232	8,502	30,303	50,353	41,917	92,270	32,028
1966	20,530	1,173	8,506	30,209	50,126	41,581	91,707	*32,312
1967	20,215	1,289	8,051	29,555	50,000	41,596	91,596	33,997

* Revised.

CLASSIFICATION OF RURAL HOLDINGS

Some of the information from the 1965-66 Agricultural and Pastoral Census was classified by size of principal characteristics (area of holdings, area of established pasture, area of selected crops and numbers of livestock). In addition all holdings were classified according to type of activity. Tables showing this information together with definitions and an outline of methods used have been published by the Commonwealth Bureau of Census and Statistics, Canberra in a series of bulletins, *Classification of Rural Holdings by Size and Type of Activity, 1965-66*.

Selected size classification tables for Western Australia are published elsewhere in this Chapter and the type of activity classifications for the State are shown below and on pages 309-10.

HOLDINGS CLASSIFIED ACCORDING TO TYPE OF ACTIVITY
NUMBER AND AREA USED FOR VARIOUS PURPOSES—SEASON 1965-66

Type of activity	Number of holdings	Total area of holdings	Area used for—				
			Fruit	Crops (excluding fruit)	Fallow	Established pasture	Balance of holding
		acres	acres	acres	acres	acres	acres
Sheep—Cereal grain	6,845	24,673,659	62	5,895,532	1,100,363	6,381,591	11,296,111
Sheep	3,314	159,193,968	2,161	306,015	88,436	2,958,599	155,838,757
Cereal grain	1,940	7,390,845	....	2,033,972	575,235	319,704	4,461,934
Cattle (meat production)	1,224	68,879,492	562	19,842	11,653	559,429	68,288,006
Cattle (milk production)	1,420	659,672	493	9,876	2,219	390,919	256,165
Vineyards	229	15,245	5,431	232	553	2,878	6,151
Fruit (other than vine)	885	154,379	15,430	1,625	1,282	64,417	71,625
Vegetables—Potatoes	307	81,840	882	6,062	843	34,722	39,331
Other and mixed	721	22,791	611	6,226	1,417	2,841	11,696
Poultry	407	17,891	449	1,128	334	3,402	12,578
Pigs	160	41,187	80	3,312	774	10,242	26,779
Other	172	158,071	125	15,319	8,984	40,208	93,435
Multi-purpose	539	815,131	3,266	98,268	14,505	355,760	343,332
Total, classified holdings	18,163	262,104,171	29,552	8,397,409	1,806,598	11,124,712	240,745,900
Unclassified holdings—							
Sub-commercial	3,366	6,071,797	4,966	14,093	26,736	150,985	5,875,017
Unused, special, etc.	1,324	1,878,483	412	3,399	108,891	106,486	1,659,295
Total, all rural holdings	22,853	270,054,451	34,930	8,414,901	1,942,225	11,382,183	248,280,212

HOLDINGS WITH PIG HERDS, CLASSIFIED ACCORDING TO TYPE OF ACTIVITY
AND SIZE OF HERD—SEASON 1965-66

Type of activity	Size of pig herd (numbers)									Total
	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-99	100 and over	
Sheep—Cereal grain	136	165	195	152	265	210	128	298	82	1,631
Sheep	59	34	36	26	42	34	23	44	6	304
Cereal grain	29	33	30	24	78	48	29	80	35	386
Cattle (meat production)	17	8	7	8	15	6	2	6	3	72
Cattle (milk production)	53	55	54	43	62	52	32	74	15	440
Vineyards	1	....	....	....	....	....	....	....	....	1
Fruit (other than vine)	20	7	3	2	3	2	1	3	1	42
Vegetables—Potatoes	13	1	5	3	4	1	....	1	1	29
Other and mixed	10	2	....	....	1	1	1	....	....	15
Poultry	7	6	....	1	4	3	1	2	3	27
Pigs	....	....	....	....	2	6	8	66	78	160
Other	2	....	....	....	....	....	....	....	....	2
Multi-purpose	18	13	7	8	29	21	16	43	30	185
Total, classified holdings	365	324	337	267	505	384	241	617	254	3,294
Unclassified holdings—										
Sub-commercial	82	48	34	31	28	16	4	....	....	243
Unused, special, etc.	....	....	....	....	....	....	....	....	....	....
Total, all rural holdings	447	372	371	298	533	400	245	617	254	3,537

In the first table on page 308, the number and area of rural holdings used for various purposes are shown. Of the 22,853 rural holdings of all types in the State, sheep and cereal grain was the principal activity of 6,845 or 30 per cent of the total. The greatest area was occupied by holdings with sheep as the principal activity, which accounted for 59 per cent of the total area of all holdings, followed by cattle for meat production with 26 per cent.

The second table on page 308 shows, for holdings with pig herds, the size of the herd for each type of activity. Pig raising was associated principally with the activity sheep and cereal grain, with cattle for milk production next in importance.

Of the 9,267 holdings growing wheat for grain, 6,560 or over 71 per cent were combined with sheep as the principal activity, as shown in the following table. Cereal grain was the next most important activity associated with the growing of wheat for grain, accounting for 1,913 or over 71 per cent of the remaining 2,707 holdings.

HOLDINGS GROWING WHEAT FOR GRAIN, CLASSIFIED ACCORDING TO TYPE OF ACTIVITY AND AREA—SEASON 1965-66

Type of activity	Area of wheat for grain (acres)									Total
	1-99	100-199	200-299	300-399	400-499	500-699	700-999	1,000-1,999	2,000 and over	
Sheep—Cereal grain	403	607	624	709	702	1,224	1,043	1,041	207	6,560
Sheep	371	66	26	10	1	1	1	1	1	475
Cereal grain	40	109	151	163	151	257	357	528	157	1,913
Cattle (meat production)	8	5	1	2	1	1	1	1	1	16
Cattle (milk production)	2	1	1	1	1	1	1	1	1	2
Vineyards	1	1	1	1	1	1	1	1	1	1
Fruit (other than vine)	1	1	1	1	1	1	1	1	1	1
Vegetables—Potatoes	2	2	2	2	2	2	2	2	2	2
Other and mixed	2	2	2	2	2	2	2	2	2	2
Poultry	10	3	1	1	1	1	1	1	1	15
Pigs	4	1	2	3	1	1	1	1	1	10
Other	56	31	31	17	12	7	13	9	1	176
Multi-purpose	899	825	834	905	867	1,488	1,414	1,579	364	9,175
Total, classified holdings	90	2	1	1	1	1	1	1	1	92
Unclassified holdings— Sub-commercial	90	2	1	1	1	1	1	1	1	92
Unused, special, etc.	989	827	834	905	867	1,488	1,414	1,579	364	9,267
Total, all rural holdings	989	827	834	905	867	1,488	1,414	1,579	364	9,267

In the following table, holdings with sheep flocks have been classified according to the size of flock for each type of activity.

HOLDINGS WITH SHEEP FLOCKS, CLASSIFIED ACCORDING TO TYPE OF ACTIVITY AND SIZE OF FLOCK—SEASON 1965-66

Type of activity	Size of sheep flock (numbers)									Total
	1-299	300-499	500-699	700-999	1,000-1,399	1,400-1,999	2,000-2,999	3,000-4,999	5,000 and over	
Sheep—Cereal grain	69	227	426	974	1,385	1,578	1,292	633	193	6,777
Sheep	34	192	231	318	381	502	692	436	492	3,278
Cereal grain	189	176	179	221	168	84	32	9	4	1,062
Cattle (meat production)	246	63	50	39	32	21	10	8	1	470
Cattle (milk production)	266	24	6	2	2	1	1	1	1	301
Vineyards	17	34	17	17	6	3	1	2	1	176
Fruit (other than vine)	96	34	17	17	6	3	1	2	1	176
Vegetables—Potatoes	33	5	6	5	1	1	1	1	1	51
Other and mixed	8	2	1	1	1	1	1	1	1	10
Poultry	31	2	1	1	1	1	1	1	1	35
Pigs	49	2	4	4	1	1	1	1	1	60
Other	10	5	6	7	6	5	2	2	1	43
Multi-purpose	84	62	75	66	62	60	40	21	7	477
Total, classified holdings	1,132	794	1,000	1,654	2,044	2,255	2,069	1,112	697	12,757
Unclassified holdings— Sub-commercial	720	34	1	1	1	1	1	1	1	754
Unused, special, etc.	720	34	1	1	1	1	1	1	1	754
Total, all rural holdings	1,852	828	1,000	1,654	2,044	2,255	2,069	1,112	697	13,511

Holdings running cattle for milk production are classified in the following table according to size of herd for each type of activity.

HOLDINGS WITH CATTLE (MILK PRODUCTION) HERDS (a)
ACCORDING TO TYPE OF ACTIVITY AND SIZE OF HERD—SEASON 1965-66

Type of activity	Size of cattle herd (milk production) (numbers)									Total
	1-4	5-9	10-19	20-39	40-59	60-79	80-99	100-149	150 and over	
Sheep—Cereal grain	581	43	15	1	2	2	.....	.....	.....	644
Sheep	214	16	11	20	24	10	.....	.....	.....	304
Cereal grain	77	4	3	.....	.....	.....	.....	.....	.....	85
Cattle (meat production)	94	10	7	20	22	29	19	33	14	248
Cattle (milk production)	5	2	15	77	191	342	229	317	242	1,420
Vineyards	2	.....	.....	.....	.....	.....	.....	.....	.....	2
Fruit (other than vine)	32	7	6	29	22	11	1	5	.....	113
Vegetables—Potatoes	10	5	7	28	19	15	11	9	.....	104
Other and mixed	7	2	2	1	3	.....	.....	.....	.....	15
Poultry	15	1	5	.....	1	.....	.....	.....	.....	22
Pigs	8	.....	.....	.....	.....	.....	.....	.....	.....	8
Other	1	.....	1	.....	.....	1	.....	1	.....	4
Multi-purpose	43	4	6	23	29	32	23	20	7	187
Total, classified holdings	1,089	94	78	199	313	442	287	390	264	3,156
Unclassified holdings—										
Sub-commercial	168	48	58	138	107	7	.....	.....	.....	526
Unused, special, etc.	3	.....	.....	.....	.....	.....	.....	.....	.....	3
Total, all rural holdings	1,260	142	136	337	420	449	287	390	264	3,685

(a) Excludes holdings with no cattle for milk production other than house cows.

Of the 8,304 holdings running cattle for meat production, 3,936 were associated with either sheep or sheep and cereal grain as the principal activity.

HOLDINGS WITH CATTLE (MEAT PRODUCTION) HERDS
ACCORDING TO TYPE OF ACTIVITY AND SIZE OF HERD—SEASON 1965-66

Type of activity	Size of cattle herd (meat production) (numbers)									Total
	1-9	10-19	20-29	30-49	50-99	100-199	200-299	300-999	1,000 and over	
Sheep—Cereal grain	1,053	367	230	255	224	79	21	10	1	2,240
Sheep	368	184	163	285	402	190	49	43	12	1,696
Cereal grain	127	32	10	11	15	3	2	1	.....	201
Cattle (meat production) .....	.....	.....	10	103	378	347	132	161	93	1,224
Cattle (milk production)	229	184	119	131	120	50	9	11	.....	853
Vineyards	13	4	2	5	1	1	.....	.....	.....	26
Fruit (other than vine)	78	42	30	51	42	16	5	1	.....	265
Vegetables—Potatoes	29	31	14	30	37	23	5	1	.....	170
Other than mixed	15	7	3	10	5	.....	.....	.....	.....	40
Poultry	35	13	3	5	2	.....	.....	.....	.....	58
Pigs	22	12	10	6	5	1	.....	.....	.....	56
Other	11	1	3	1	.....	.....	.....	.....	.....	16
Multi-purpose	46	48	47	64	117	74	27	14	1	438
Total, classified holdings	2,026	925	644	957	1,348	784	250	242	107	7,283
Unclassified holdings—										
Sub-commercial	491	249	147	119	.....	6	4	5	.....	1,021
Unused, special, etc. ....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total, all rural holdings	2,517	1,174	791	1,076	1,348	790	254	247	107	8,304

MACHINERY

Mechanisation continues to be a feature of farming in Western Australia and the following table shows the principal items of machinery on rural holdings at 31 March in each of the years from 1963 to 1967. The most significant change in machinery on rural holdings has occurred in relation to tractors. Not only have the numbers of tractors continued to increase but the trend is towards tractors of larger horsepower. Between 31 March 1963 and 31 March 1966 the number of wheeled tractors with a maximum belt horsepower of over 56 hp rose from 2,255 to 4,905, an increase of well over 100 per cent.

MACHINERY ON RURAL HOLDINGS

Type	At 31 March—				
	1963	1964	1965	1966	1967
Cultivating Machines—					
Mouldboard ploughs—					
Trailing type	(a)	3,359	(a)	(a)	2,755
Tractor-mounted type	(a)	2,192	(a)	(a)	1,787
Disc implements (including disc ploughs, disc cultivators and disc harrows)—					
Trailing type	(a)	17,207	(a)	(a)	17,911
Tractor-mounted type	(a)	6,054	(a)	(a)	3,848
Tine implements—					
Chisel ploughs, scarifiers, cultivators, rippers—					
Trailing type	(a)	9,710	(a)	(a)	11,789
Tractor-mounted type	(a)	4,676	(a)	(a)	4,184
Tine harrows—Number of sections—					
Trailing type	(a)	35,232	(a)	(a)	41,340
Tractor-mounted type	(a)	5,657	(a)	(a)	3,308
Rotary hoes—					
Self-contained power unit	1,880	1,515	1,579	1,647	1,823
Tractor-mounted and trailing types	1,247	1,249	1,406	1,539	1,513
Seeding and Fertilising Machines—					
Grain drills—					
Combine type	12,804	13,198	13,496	13,593	13,628
Other types	4,015	4,473	4,894	4,752	4,192
Fertiliser distributors and broadcasters	9,096	8,873	8,941	9,159	9,540
Maize and cotton planters	(a)	(a)	74	71	69
Harvesting Machines—					
Grain and seed harvesters (including headers)	11,374	11,069	11,185	11,398	11,072
Mowers—					
Power-drive	6,566	6,908	7,382	7,343	7,581
Ground-drive	(a)	(a)	752	(a)	(a)
Hay rakes—					
Side-delivery	(a)	(a)	4,683	(a)	(a)
Dump	(a)	(a)	961	(a)	(a)
Buck	(a)	(a)	368	(a)	(a)
Pick-up balers (including roto-balers)	2,994	3,216	3,432	3,461	3,624
Forage harvesters	434	534	530	494	547
Potato diggers	(a)	(a)	383	(a)	(a)
Tractors—					
Wheeled	25,612	(a)	(a)	28,706	(a)
Crawler	3,606	(a)	(a)	3,606	(a)
Total	29,218	30,879	32,028	32,312	33,997
Miscellaneous Machines—					
Hammer mills (including roughage mills)	(a)	(a)	1,639	(a)	(a)
Milking machine units	10,514	10,157	10,055	9,780	9,664
Shearing machine stands	19,868	20,293	21,517	22,486	23,431

(a) Not available.

VALUE OF PRODUCTION

For primary production the *gross value* is based on the wholesale price realised 'at the principal market'. Where primary products are consumed at the place of production or where they become raw material for secondary industry within the State, these points of consumption are taken as the 'principal market'. *Net value* represents the return to the producer after the cost of all goods consumed in the process of production and the costs of marketing the product have been deducted from the gross value. It is consequently the sum available for payment of wages, interest, rent, depreciation, other overhead costs and for the producer's own income.

The following table shows the net values of production of the various primary industries in 1966-67. The '*local value*' which is quoted is the value at the source of production and is obtained by deducting marketing costs from the gross value. Marketing costs comprise freight, cost of containers, commission, and other charges incurred in marketing. Gross values provide a reliable measure of the value of production of any particular item or industry but net value of primary production should be used when comparing or combining values for primary industries with those for secondary industry.

PRIMARY INDUSTRIES—VALUE OF PRODUCTION: 1966-67

Industry	GROSS VALUE (based on principal market prices)	Marketing costs	LOCAL VALUE (as at source of production)	Cost of goods consumed in process of production	NET VALUE
	\$	\$	\$	\$	\$
Agriculture	218,205,553	29,805,073	188,400,480	34,682,999	153,717,481
Pastoral	159,856,830	11,973,131	147,883,699	21,834,823	126,048,876
Dairying	21,833,022	1,184,726	20,648,296	9,588,738	11,059,558
Poultry farming	10,705,455	421,034	10,284,421	6,483,459	3,800,962
Bee keeping	483,606	41,666	441,940	(a)	441,940
Trapping	986,286	227,855	758,431	(a)	758,431
Forestry	13,299,922	827,161	12,472,761	(a)	12,472,761
Fishing and whaling	16,524,818	56,022	16,468,796	1,494,000	14,974,796
Mining and quarrying	89,512,274	10,594,376	78,917,898	15,820,480	63,097,418
Total, Primary	531,407,766	55,131,044	476,276,722	89,904,499	386,372,223

(a) Not available.

Gross values of the principal items are shown in the next table for each of the years 1962-63 to 1966-67.

PRIMARY PRODUCTION—GROSS VALUES OF PRINCIPAL ITEMS
(\$'000)

Industry and commodity	1962-63	1963-64	1964-65	1965-66	1966-67
Agriculture—					
Wheat	*107,024	74,389	88,557	153,050	153,157
Oats	13,951	13,093	9,888	18,403	15,800
Barley	6,075	4,375	3,940	7,297	7,476
Hay (all kinds)	9,294	8,707	9,287	8,457	8,985
Pasture seed (a)	1,458	3,108	2,677	4,247	4,180
Cotton	(b)	108	1,065	1,872	2,393
Vegetables	8,461	8,986	11,059	11,314	12,712
Fruit, orchard (c)	9,583	7,984	10,323	8,834	11,216
Vine fruits	938	1,343	1,395	*1,173	1,025
Nursery products (d)	791	777	805	925	894
Pastoral—					
Wool (shorn and dead) (e)	78,866	115,422	92,668	114,419	120,742
Livestock slaughtered (f)	28,730	33,878	34,720	44,110	41,577
Dairying—					
Whole milk (g)	13,967	14,333	15,819	16,220	15,087
Livestock slaughtered (h)	6,064	5,949	6,752	6,674	6,755
Poultry farming—					
Eggs (i)	3,522	3,719	3,884	4,735	4,784
Poultry slaughtered	2,164	*2,662	3,139	3,666	4,922
Bee keeping (j)	564	*894	562	701	484
Trapping	376	632	775	836	986
Forestry	10,877	11,462	12,093	12,731	13,300
Fishing—					
Crayfish	7,906	6,889	11,192	11,388	11,344
Prawns	219	459	592	1,053	1,778
Scale fish	1,204	1,375	1,300	1,256	1,013
Pearls and pearl-shell (k)	320	226	183	259	292
Mining and quarrying—					
Gold (l)	28,136	26,458	23,466	22,285	23,243
Asbestos	3,386	2,406	2,212	2,032	2,434
Coal	3,962	3,970	4,679	4,410	4,562
Ilmenite concentrates	1,587	1,854	2,812	4,332	4,802
Iron ore	2,869	2,691	2,771	4,662	33,772
Manganese ore	1,790	864	1,416	2,106	4,091
Pyritic ore and concentrates	848	974	1,109	1,048	1,070
Quarry products	*4,619	5,183	*6,550	*7,883	8,881
Tin concentrate	669	816	1,241	1,559	2,072
Zircon concentrates	80	261	435	687	899

(a) Comprises clover, medics, lupins, rye grass and other pasture seeds. (b) Not available for publication. (c) Includes fellmongered wool and berry fruits. (d) Value of seedlings, cut flowers, bulbs, trees, etc. produced. (e) The value of fellmongered wool and wool exported on skins is included in the value of livestock slaughtered which has been computed from prices of livestock 'on hoof' and therefore includes a value for wool on skins. (f) Comprises cattle, sheep and lambs. (g) Includes Commonwealth Government subsidy. (h) Comprises calves and pigs. (i) Excludes value of non-commercial production. (j) Excludes value of production of bee keepers with less than five hives. (k) Excludes culture pearls. (l) Includes net subsidy payments by the Commonwealth Government and amounts distributed by the Gold Producers' Association Ltd. from premiums on sales of Western Australian gold. * Revised.

SUMMARY OF AUSTRALIAN STATISTICS

The following table contains a selection of the principal statistics of primary production in each of the Australian States for 1966-67.

PRINCIPAL STATISTICS OF PRIMARY PRODUCTION—AUSTRALIA: 1966-67

Particulars	Unit	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Australia (a)
Rural holdings—								
Number .....	.....	76,251	68,466	43,858	28,957	23,181	10,641	251,858
Area	'000 acres	171,652	38,653	379,977	161,510	274,765	6,507	1,203,431
Principal crops—								
Wheat for grain—								
Area	'000 acres	7,135	3,138	1,227	2,960	6,347	13	20,823
Production	'000 bush	202,501	70,896	35,730	53,816	103,195	385	466,610
Oats for grain—								
Area	'000 acres	1,363	1,079	66	509	1,204	36	4,258
Production	'000 bush	41,003	31,248	1,467	10,276	22,117	948	107,106
Barley for grain—								
Area	'000 acres	385	228	384	1,107	373	21	2,498
Production	'000 bush	11,796	5,421	13,194	23,698	6,707	771	61,588
Hay—all types—								
Area	'000 acres	823	1,558	129	482	295	203	3,496
Production	'000 tons	1,481	2,982	314	729	417	437	6,371
Pasture seed	'000 lb	10,612	6,594	3,370	7,638	24,712	1,086	54,268
Cotton—								
Area	'000 acres	30	.....	(b) 11	.....	12	.....	53
Production	'000 lb	79,159	.....	(c) 11,800	.....	29,400	.....	120,360
Onions—								
Area	acre	1,256	3,295	3,495	1,631	413	120	(d) 10,210
Production	ton	10,809	22,375	27,033	17,933	5,417	898	(d) 84,465
Potatoes—								
Area	acre	23,594	37,167	16,227	5,948	6,100	10,278	(d) 99,328
Production	ton	126,183	225,186	93,738	60,271	64,169	73,300	(d) 642,967
Other vegetables—								
Area	acre	41,379	55,244	45,305	9,847	9,260	22,720	184,084
Apples—								
Area	acre	18,945	22,154	13,710	5,937	15,654	18,540	94,973
Production	'000 bush	3,329	4,357	1,496	1,544	6,301	6,301	19,418
Oranges—								
Area	acre	28,102	7,133	3,515	17,382	4,811	.....	60,982
Production	'000 bush	5,258	1,144	773	3,034	466	.....	10,677
Other fruit—								
Area	acre	49,435	44,232	32,833	20,838	5,993	3,803	157,233
Vineyards—								
Area	acre	21,257	49,164	3,304	57,080	7,945	.....	138,750
Grapes for table	ton	8,201	11,354	4,193	1,027	2,088	.....	26,863
Wine made	'000 gal	7,893	3,368	37	29,638	705	.....	41,642
Currants	ton	643	3,588	.....	3,773	1,353	.....	9,357
Sultanas and raisins	ton	14,108	69,628	.....	13,544	67	.....	97,347
Livestock numbers, 31 March 1967—								
Sheep and lambs	'000	63,848	31,239	19,305	17,864	27,370	4,321	164,237
Cattle	'000	4,146	3,528	6,919	687	1,357	522	18,270
Pigs	'000	514	351	468	222	161	86	1,804
Livestock slaughtered for human consumption—								
Sheep	'000	4,438·5	7,286·2	1,764·4	1,979·3	1,676·0	552·2	17,742·0
Lambs	'000	5,550·7	5,874·0	389·9	1,378·4	904·4	606·9	14,753·6
Cattle	'000	1,008·1	1,088·8	1,331·3	188·0	283·5	119·7	4,095·2
Calves	'000	447·0	617·1	345·2	76·8	17·2	50·8	1,555·0
Pigs	'000	849·4	697·6	666·1	316·2	213·7	148·9	2,902·9
Wool production	'000 lb	622,745	378,457	203,664	239,202	272,575	43,153	1,763,142
Whole milk production—								
All purposes	'000 gal	322,995	790,941	238,134	98,727	55,611	91,418	1,599,018
Fisheries production—								
Fish—live weight	'000 lb	30,636	16,048	10,146	20,327	15,960	4,826	98,544
Crustaceans—								
gross weight	'000 lb	4,446	1,734	6,544	6,259	22,950	4,290	46,228
Gold : mine production (e)	fine oz	10,093	10,996	95,777	1	573,755	37,485	800,927
Iron ore (e)	'000 tons	.....	.....	.....	4,561	12,161	.....	17,036
Gross value of production—								
Agriculture	\$'000	551,059	324,556	318,954	184,090	218,206	44,925	1,642,747
Pastoral	'000	454,016	376,196	276,402	169,226	159,857	37,540	1,486,066
Dairying	'000	153,045	197,844	74,568	40,303	21,833	26,766	515,020
Poultry farming	'000	71,907	56,568	19,091	10,560	10,705	5,083	174,451
Bee keeping	'000	1,297	1,090	369	686	484	53	3,992
Trapping	'000	5,300	4,244	1,647	754	986	515	13,525
Forestry	'000	31,632	33,319	17,199	7,644	13,300	16,627	120,405
Fishing and whaling	'000	10,473	4,980	6,650	6,175	16,525	3,653	48,537
Mining and quarrying (f)	'000	263,751	53,105	138,483	41,954	78,918	34,561	625,129

(a) Includes Northern Territory and Australian Capital Territory except where indicated; see footnote (d). (b) Soon 1965-66. (c) Harvested from crop sown in 1965-66. (d) Incomplete. Excludes Northern Territory and/or Australian Capital Territory. (e) Year, 1967. (f) Local Value. For definition, see letterpress at the foot of page 311.

SEASONAL CALENDAR

The following calendar is intended to show the main periods when principal agricultural and pastoral activities are carried out in Western Australia. Operations are generally confined to the periods shown but are subject to variation according to such factors as geographical location within the State, the variety of seed sown (or trees and vines planted) and exceptional seasonal conditions.

SEASONAL CALENDAR

Item	Period	
	Sowing or planting	Harvesting
Pastures—		
Clovers	April to June	December to April
Medics	April to June	December to April
Grain—		
Wheat	May to June	November to January
Oats	April to June	December to December
Barley	April to June	November to December
Rice—		
Wet season crop	November to December	May to June
Dry season crop	May	October
Rye	April to June	November to December
Hay—		
Wheaten	May to June	October to November
Oaten	May to August	October to November
Cotton	November to February	May to October
Linseed	May to June	December to January
Vegetables—		
Beans, Runner—		
Carnarvon area	March to September	May to November
Perth Division	August to March	November to June
Green Peas—		
For processing	May to September	October to December
Fresh	May to October	August to December
Potatoes—		
Early planting—		
Perth and South-West	June to July	October to November
Mid-season planting—		
Perth, South-West and Southern Agricultural	July to November	November to March
Late planting—		
South-West and Southern Agricultural	November to February	February to May
Onions	June to August	December to March
Tomatoes :		
Carnarvon and Geraldton areas	February to April	May to November
Other areas	June to December	October to May
Fruit—		
Apples	June to August	February to May
Apricots	July	December to January
Bananas	September	September to May
Lemons	July to August	July to June
Mandarins	July to August	May to September
Nectarines	July	January to February
Olives	July to August	March to April
Oranges, Navel	July to August	May to September
Oranges, Valencia	July to August	August to February
Peaches	July	December to February
Pears	June to July	January to March
Plums	June to July	December to March
Grapes—		
For table use	June to September	January to April
For wine making	June to September	February to April
For drying	June to September	February to March
Shearing and lambing—		
Shearing—		
Pastoral areas	March to August	
Agricultural areas	February to November	
Lambing—		
Pastoral areas	April to July	
Agricultural areas	April to September	

BUSHEL WEIGHTS

The production of cereals, fruit and certain other commodities is generally recorded in bushels. While the weight of a bushel varies according to the nature of the product, it is also subject to considerable variation on account of such factors as method of pack-

ing and size and variety within each kind of product. The average bushel equivalent weights set out below may be used to convert production to pounds weight avoirdupois.

Product	Weight per bushel	Product	Weight per bushel	Product	Weight per bushel
	lb		lb		lb
Apples	42	Linseed	56	Peaches	45
Apricots	48	Loquats	45	Pears	45
Bananas	56	Maize	56	Peas, Field	60
Barley	50	Mandarins	48	Plums	58
Cherries	48	Nectarines	50	Quinces	42
Clover Seed	60	Oats	40	Rice	42
Figs	44	Olives	56	Rye	60
Grapefruit	42	Oranges	48	Tomatoes	60
Lemons	48	Passion Fruit	34	Wheat	60

AGRICULTURE

Wheat

Wheat has been grown from the earliest years of settlement and a brief synopsis of the development of production is given in the *Western Australian Year Book*, No. 7-1968 and earlier issues. By 1966, the area of land sown to wheat had increased to 6.3 million acres from which a record harvest of 103.2 million bushels was obtained for an average yield of 16.3 bushels per acre.

Mechanisation has been of great importance in the growth of wheat farming in Western Australia owing to the relatively low yield per acre obtained.

Most of Western Australia's wheat production is exported as grain and flour and in the following table the fluctuations which have occurred in exports since 1910 are shown, together with figures giving the estimated total wheat equivalent. The United Kingdom has been the most consistent purchaser of the State's wheat, but since 1961-62 China (mainland) and Japan have been the most important customers and in 1966-67 they took 32.0 million and 10.9 million bushels respectively, their purchases together accounting for just over 50 per cent of the State's total wheat exports. In that year other principal buyers, in order of importance, were the United Kingdom, Pakistan, India, Singapore, and North Korea. In the same year principal customers for flour were Ceylon, the Trucial States, the Federation of South Arabia, Muscat and Oman, and Saudi Arabia. Further details of exports appear in Chapter IX, Part 1.

EXPORTS OF WHEAT AND FLOUR

Year	Wheat	Flour (a)	Estimated total wheat equivalent
	bushels	short tons (b)	bushels
1910	2,014,552	*2,821	*2,147,139
1919-20	9,151,125	*129,250	*15,225,875
1929-30	24,953,238	*69,070	*28,199,528
1939-40	15,330,423	*91,667	*19,633,772
1949-50	21,510,390	*115,814	*26,953,648
1959-60	36,713,316	87,851	40,842,313
1962-63	50,720,419	74,574	54,225,397
1963-64	55,021,794	69,090	58,269,024
1964-65	40,507,154	92,402	44,850,048
1965-66	69,371,600	54,157	71,916,979
1966-67	84,980,233	38,365	86,783,388

(a) Ships' stores are excluded from figures for 1959-60 and subsequent years. (b) Short ton = 2,000 lb. * Revised.

The next table gives details of areas sown and wheat produced since 1900.

WHEAT FOR GRAIN—AREA AND PRODUCTION

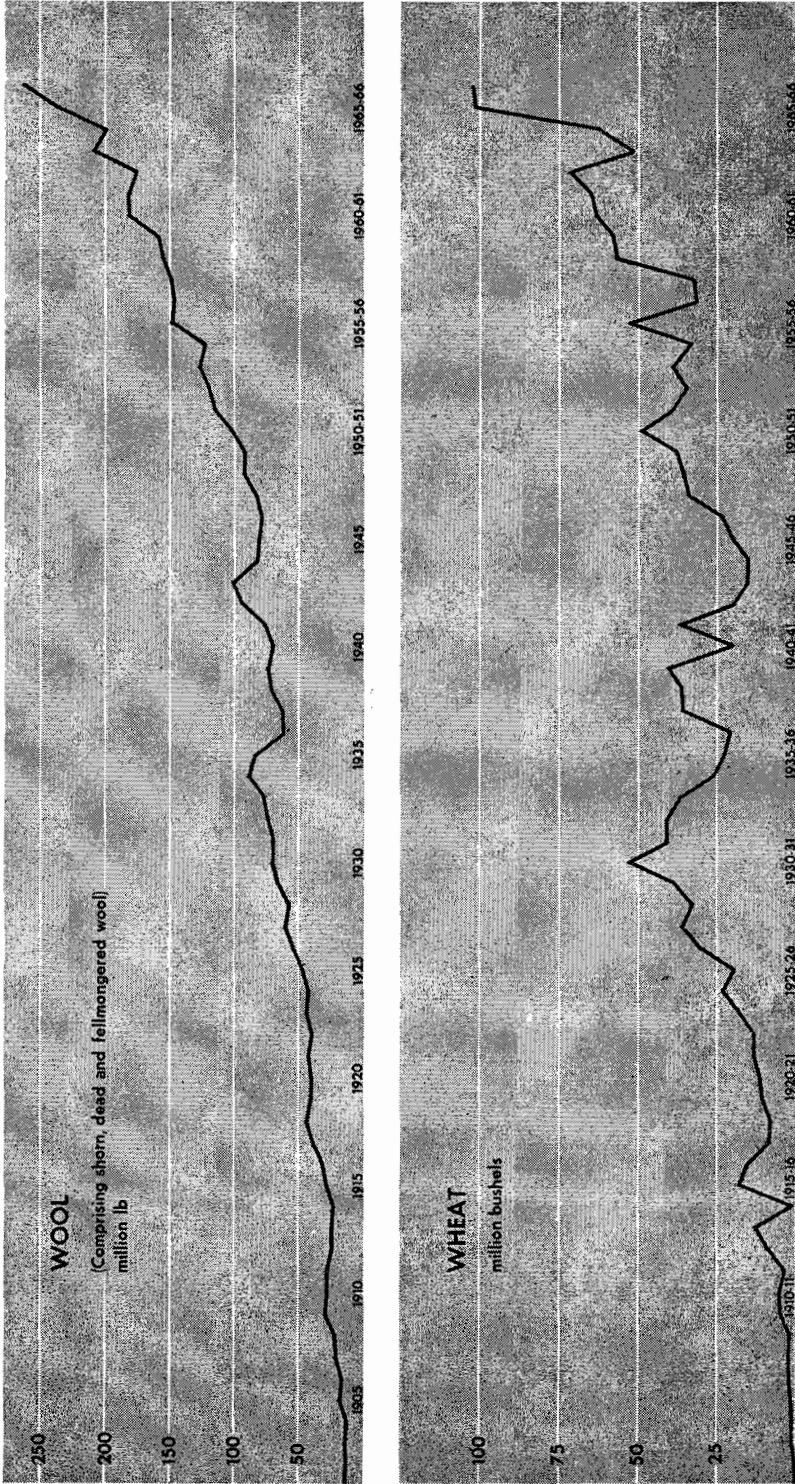
Season	Area sown	Production		
		Total	Average yield per acre	Gross value
1900-01	acres 74,308	bushels 774,653	bushels 10·4	\$ 309,862
1905-06	195,071	2,308,305	11·8	851,188
1910-11	581,862	5,897,540	10·1	2,162,432
1915-16	1,734,117	18,236,355	10·5	6,534,694
1920-21	1,275,675	12,248,080	9·6	11,023,272
1925-26	2,112,032	20,471,177	9·7	12,837,134
1930-31	3,955,763	53,504,149	13·5	12,201,176
1935-36	2,540,696	23,315,417	9·2	9,747,282
1940-41	2,625,401	21,060,000	8·0	8,647,906
1945-46	1,835,780	20,929,000	11·4	15,870,742
1950-51	3,185,389	49,900,000	15·7	65,328,246
1955-56	2,889,585	53,250,000	18·4	68,839,722
1960-61	4,021,225	63,900,000	15·9	92,290,238
1962-63	4,803,797	72,500,000	15·1	107,023,498
1963-64	4,640,434	52,340,000	11·3	74,388,786
1964-65	5,151,267	63,071,000	12·2	88,556,922
1965-66	6,149,727	102,156,000	16·6	153,049,650
1966-67	6,346,613	103,195,000	16·3	153,157,379

The rapid increase in the production and export of wheat between 1910 and 1920 caused problems of transport and storage, and proposals for the bulk handling of the grain led to the formation of a company for this purpose in 1920. This original undertaking was wound up before commencing operations because the technical difficulties then appeared too great and the saving in handling costs problematical. In 1930, however, the idea of handling wheat in bulk was revived and a cheaper method was tested with storage bins at five railway sidings in the Wyalkatchem area during the 1931-32 season. The experiment was successful and despite some opposition to the scheme, the legislature passed the Bulk Handling Act in 1935 to regulate the handling of wheat in bulk. Under the provisions of this Act, an incorporated co-operative company (Co-operative Bulk Handling Limited) was granted the sole right of handling and arranging transport of wheat in bulk in the State. The company, which was formed in 1933 and had taken over the five experimental bulk facilities, progressively extended bulk handling services to 300 country centres. These services include facilities at various centres not serviced by rail transport.

In addition, Co-operative Bulk Handling Limited provided and operates transfer depots for handling grain from narrow gauge to standard gauge railway wagons at Merredin, Northam and Midland as well as grain terminals for shipping at the ports of Geraldton, Fremantle, Bunbury, Albany and Esperance. At 30 September 1968 total permanent storage in the country was 72 million bushels and at the ports 29 million bushels.

The Australian Wheat Board is the sole authority for the marketing of wheat within Australia and of wheat and flour for export. It derives its authority from the provisions of the Wheat Stabilization Plan 1968-69 to 1974-75 established under joint Commonwealth and State legislation to replace similar legislation which expired after the marketing of the 1967-68 crop. The principal object of the Plan is to ensure that growers receive a guaranteed return for their wheat and for this purpose a fund is established by levying, under authority of the *Wheat Export Charge Act 1968* (Commonwealth), a tax on exports for which a price in excess of the guaranteed price is received. Should the price obtained fall below the guaranteed price it is provided that the difference shall be paid from the

Wool and Wheat - Annual Production, 1901 to 1966-67



fund or, if that source is exhausted, by the Commonwealth Government. A further provision with a stabilising effect on the industry fixes the price at which wheat for home consumption may be sold.

By virtue of the *Wheat Industry Stabilization Act 1968* (Commonwealth) and of the *Bulk Handling Act, 1967*, Co-operative Bulk Handling Limited acts as the licensed receiver for the Australian Wheat Board and handles all wheat produced for marketing in Western Australia.

Under the provisions of the *Wheat Tax Act 1957-1966* (Commonwealth), a levy of ¼c per bushel is made on wheat delivered to the Australian Wheat Board. This money, contributed by the growers, is spent by the Wheat Industry Research Council and State Wheat Research Committees set up under the provisions of the *Wheat Research Act 1957*. The Commonwealth Government has undertaken to supply additional funds, with a maximum of \$1 for every \$1 of growers' contributions and, in addition, the amount available for research work has been increased by \$568,000 made available, under the provisions of the *Wheat Acquisition (Undistributed Moneys) Act 1958*, from funds held by the Australian Wheat Board.

HOLDINGS GROWING WHEAT FOR GRAIN, CLASSIFIED ACCORDING TO ACREAGE SOWN AND SIZE OF HOLDING—SEASON 1965-66

Size of holding (acres)	Area of wheat for grain (acres)										Total, all rural holdings
	1-99	100-199	200-299	300-399	400-499	500-699	700-999	1,000-1,999	2,000 and over	Total	
1- 49	11	....	....	....	....	....	....	....	....	11	3,915
50- 99	11	....	....	....	....	....	....	....	....	11	638
100-149	15	....	....	....	....	....	....	....	....	15	661
150-199	12	2	....	....	....	....	....	....	....	14	590
200-299	21	11	1	....	....	....	....	....	....	33	1,058
300-399	21	9	2	1	....	....	....	....	....	33	837
400-499	21	9	3	1	....	....	....	....	....	35	632
500-599	22	7	7	1	1	....	....	....	....	33	523
600-699	32	17	12	4	2	2	....	....	....	66	516
700-799	30	21	9	6	....	2	....	....	....	69	391
800-899	39	24	23	12	3	6	1	....	....	108	378
900-999	39	40	35	29	13	7	....	....	....	163	408
1,000-1,399	141	143	142	136	68	44	15	1	....	690	1,501
1,400-1,999	177	177	176	190	219	308	102	14	....	1,363	2,082
2,000-2,999	215	183	213	257	302	562	475	153	2	2,362	3,148
3,000-3,999	97	97	118	144	132	294	348	345	9	1,584	2,003
4,000-4,999	44	43	46	73	64	145	249	403	18	1,085	1,303
5,000-9,999	34	31	41	44	57	112	196	578	203	1,296	1,435
10,000 and over	7	4	6	7	....	5	28	85	132	278	834
Total	989	827	834	905	867	1,488	1,414	1,579	364	9,267	22,853

HOLDINGS GROWING WHEAT FOR GRAIN, CLASSIFIED ACCORDING TO ACREAGE SOWN AND SIZE OF SHEEP FLOCK—SEASON 1965-66

Size of sheep flock (number)	Area of wheat for grain (acres)										Total, all rural holdings
	1-99	100-199	200-299	300-399	400-499	500-699	700-999	1,000-1,999	2,000 and over	Total	
Nil	109	109	146	122	117	135	122	111	28	999	9,342
1- 49	17	2	2	4	2	2	3	1	....	33	700
50- 99	13	4	3	5	2	4	2	7	....	40	291
100-199	27	11	12	10	6	11	10	6	....	94	444
200-299	28	22	12	18	11	19	11	12	2	135	417
300-399	20	15	27	28	15	23	26	17	1	172	413
400-499	33	32	30	38	24	33	21	16	....	227	415
500-699	60	59	77	85	76	123	91	51	....	622	1,000
700-999	83	83	91	133	153	284	227	139	10	1,203	1,654
1,000-1,399	119	123	98	133	154	337	306	271	29	1,570	2,044
1,400-1,999	137	126	143	143	154	288	284	376	47	1,698	2,255
2,000-2,999	187	148	115	108	103	146	207	338	94	1,446	2,069
3,000-3,999	112	72	54	57	44	65	78	186	88	756	1,112
4,000-4,999	42	19	23	20	5	15	23	44	51	242	491
5,000-9,999	1	2	1	1	1	3	2	4	8	23	166
10,000-19,999	1	....	....	....	....	....	....	....	5	7	39
20,000-49,999	....	....	....	....	....	....	....	....	....	....	1
50,000 and over	....	....	....	....	....	....	....	....	....	....	....
Total	989	827	834	905	867	1,488	1,414	1,579	364	9,267	22,853

In the tables on page 318, holdings growing wheat for grain in 1965-66, in size groups of the acreage sown, are classified according to the size of the holding and the size of the sheep flock on the holding. Of the 22,853 rural holdings of all types in the State, wheat for grain was grown on 9,267. Holdings of between 1,000 and 5,000 acres accounted for 76 per cent of this number and holdings which sowed between 200 and 1,000 acres represented 59 per cent. Of the holdings growing wheat for grain all but 999 carried sheep and 55 per cent had flocks of between 500 and 2,000 sheep.

The principal varieties of wheat sown in each of the seasons 1962-63 to 1966-67 are shown in the following table.

AREAS SOWN TO INDIVIDUAL VARIETIES OF WHEAT

Variety	1962-63		1963-64		1964-65		1965-66		1966-67	
	Area (acres)	Per cent of total	Area (acres)	Per cent of total	Area (acres)	Per cent of total	Area (acres)	Per cent of total	Area (acres)	Per cent of total
Bencubbin	249,835	5.1	249,557	5.3	200,305	3.9	178,555	2.9	139,896	2.2
Bencubbin 48	71,106	1.5	61,922	1.3	49,199	0.9	44,550	0.7	33,893	0.5
Bungulla	465,493	9.6	387,339	8.3	403,361	7.8	394,811	6.4	284,746	4.5
Falcon	1,091	...	3,902	0.1	18,949	0.4	72,000	1.2	326,822	5.1
Gabo	1,889,257	38.9	1,804,027	38.6	1,557,750	30.0	1,137,865	18.4	550,179	8.6
Gamenya	1,826	...	35,472	0.8	433,601	8.3	1,545,590	24.9	2,462,814	38.5
Heron	9,712	0.2	21,097	0.5	54,739	1.1	155,903	2.5	295,275	4.6
Insignia	779,297	16.0	752,883	16.1	892,403	17.2	1,053,935	17.0	971,886	15.2
Insignia 49	545,008	11.2	579,766	12.4	653,356	12.6	665,907	10.7	611,523	9.6
Kondut	129,524	2.7	105,567	2.3	75,579	1.5	57,848	0.9	48,798	0.8
Mendos	...	...	...	...	375	...	9,428	0.2	56,716	0.9
Mengavi	12,009	0.2	82,844	1.8	372,584	7.2	422,114	6.8	205,579	3.2
Olympic	31,798	0.7	36,172	0.8	40,882	0.8	59,975	1.0	59,961	0.9
Woongoody	345,212	7.1	286,570	6.1	219,536	4.2	183,295	3.0	94,559	1.5
Other varieties	327,964	6.7	272,080	5.8	227,448	4.4	214,072	3.5	249,803	3.9
Total	4,859,132	100.0	4,679,198	100.0	5,200,067	100.0	6,195,848	100.0	6,392,450	100.0

In the following table, details of area sown and wheat produced in each of the Australian States and the Australian Capital Territory are shown for the period 1962-63 to 1966-67.

WHEAT FOR GRAIN—AREA AND PRODUCTION: AUSTRALIAN STATES

Season	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Australian Capital Territory	Australia
AREA SOWN TO WHEAT FOR GRAIN ('000 ACRES)								
1962-63	5,008	3,125	919	2,595	4,804	15	3	16,469
1963-64	4,964	3,109	938	2,802	4,640	18	3	16,474
1964-65	5,760	3,236	1,026	2,727	5,151	17	2	17,919
1965-66	4,577	3,074	954	2,745	6,150	14	1	17,515
1966-67	7,135	3,138	1,227	2,960	6,347	13	3	20,823
PRODUCTION OF WHEAT ('000 BUSHELS)								
1962-63	109,002	67,899	18,683	38,339	72,500	419	70	306,912
1963-64	122,472	76,302	22,275	53,971	52,340	483	69	327,912
1964-65	151,483	78,166	22,830	52,817	63,071	364	58	368,789
1965-66	39,117	60,591	17,429	39,976	102,156	368	28	259,666
1966-67	202,501	70,896	35,730	53,816	103,195	385	87	466,610
YIELD PER ACRE (BUSHELS)								
1962-63	21.8	21.7	20.3	14.8	15.1	27.3	29.3	18.6
1963-64	24.7	24.5	23.8	19.3	11.3	27.5	24.6	19.9
1964-65	26.3	24.2	22.3	19.4	12.2	21.7	27.6	20.6
1965-66	8.5	19.7	18.3	14.6	16.6	26.1	20.8	14.8
1966-67	28.4	22.6	29.1	18.2	16.3	30.2	32.5	22.4

Oats

Although oats have been grown in Western Australia since the early development of wheat farming, cultivation was somewhat limited until stimulated by the introduction of large-scale sheep raising in the agricultural areas, when their high nutritional worth as stock feed made them a very valuable crop. The area sown to oats for grain increased from 193,486 acres in 1920 to 274,874 in 1930, to 429,177 in 1940, to 585,701 in 1950 and 1,329,804 in 1960. It then declined steadily until 1963 when the area sown was 1,124,890 acres, but has risen slightly since that year and was 1,203,815 acres in 1966.

In addition to their importance as local stock feed, oats are exported in substantial quantities. In 1966-67 the total sold overseas was 10,509,912 bushels, the principal buyers being the Federal Republic of Germany, Netherlands, Italy and the United Kingdom. Exports to other Australian States are negligible.

Although growers are free to market oats in any way they wish, in practice a large proportion of all sales, whether for export or the local market, is effected through the Western Australian State Voluntary Oats Pool, which is conducted by the Grain Pool of W.A. under the control of the Minister for Agriculture. Co-operative Bulk Handling Limited as the Pool's licensed receiver, handles all oats marketed through the Pool.

OATS FOR GRAIN—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average yield per acre	Gross value
	acres	bushels	bushels	\$
1962-63	1,177,491	18,571,578	15.8	13,951,416
1963-64	1,124,890	17,849,740	15.9	13,092,980
1964-65	1,151,969	14,011,068	12.2	9,888,344
1965-66	1,240,104	23,278,721	18.8	18,402,831
1966-67	1,203,815	22,117,198	18.4	15,799,834

Barley

Barley grows well on the lighter soils of the wheat belt. It is also successful as a first crop on newly-developed land, and the opening up of new areas for farming accounts partly for the remarkable increase in the area sown for grain from 56,574 acres in 1951-52 to a peak of 540,646 acres in 1960-61. Since then the area sown has declined and in 1966-67 was 373,099 acres. Improved production in that year resulted from the significant increase in the yield per acre.

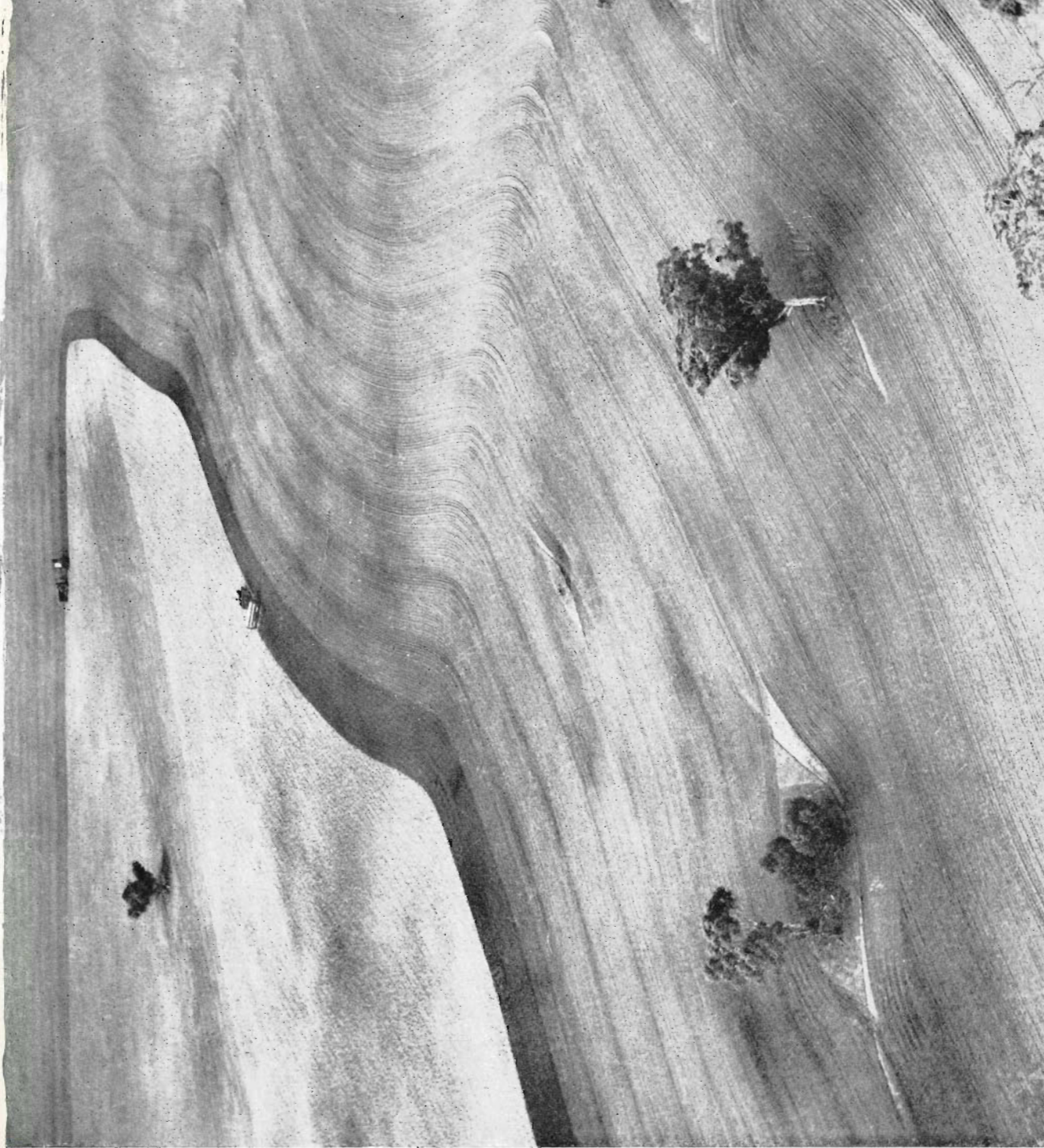
BARLEY FOR GRAIN—AREA AND PRODUCTION

Season	Two-row				Six-row			
	Area	Production			Area	Production		
		Total	Average yield per acre	Gross value		Total	Average yield per acre	Gross value
	acres	bushels	bushels	\$	acres	bushels	bushels	\$
1962-63	60,135	1,120,120	18.6	1,475,196	330,147	4,936,306	15.0	4,600,268
1963-64	65,730	935,191	14.2	1,223,992	233,125	3,141,618	13.5	3,151,340
1964-65	57,982	613,580	10.6	813,422	244,651	3,087,435	12.6	3,126,212
1965-66	71,847	1,263,055	17.6	1,711,846	341,230	5,217,879	15.3	5,585,578
1966-67	72,190	1,450,153	20.1	1,927,087	390,909	5,257,331	17.5	5,548,775

Both 'two-row' and 'six-row' barley are grown and, while a large amount of the grain produced is retained on farms for stock feed, a significant surplus is available for export. In 1966-67 the quantity exported overseas was 4,886,426 bushels, the principal buyers being Italy and Japan. Most 'six-row' barley marketed is shipped overseas, while sales of 'two-row' barley are mainly to local maltsters.

WHEAT SEEDING

Seeding operations at Cundardin, in the wheatbelt, some 100 miles from Perth. With a record harvest of 106,975,000 bushels for the State in 1967-68, production of wheat exceeded 100 million bushels for the third successive year.



The marketing of barley, both for export and for local consumption, is controlled by the Western Australian Barley Marketing Board, Co-operative Bulk Handling Limited acting as the Board's licensed receiver.

Other Grains and Pulse

Rye and field peas are the only other grain or pulse crops which are cultivated to any appreciable extent. Linseed, maize and sorghum are grown but not in significant quantities.

RYE AND FIELD PEAS FOR GRAIN—AREA AND PRODUCTION

Season	Rye				Field peas			
	Area	Production			Area	Production		
		Total	Average yield per acre	Gross value		Total	Average yield per acre	Gross value
	acres	bushels	bushels	\$	acres	bushels	bushels	\$
1962-63	8,765	57,099	6.5	54,872	4,890	29,895	6.1	63,028
1963-64	9,040	70,338	7.8	67,918	3,889	38,706	10.0	76,122
1964-65	9,754	64,533	6.6	68,740	2,781	23,776	8.5	56,246
1965-66	10,052	74,877	7.4	80,838	4,356	30,669	7.0	128,810
1966-67	10,682	99,471	9.3	110,861	4,551	39,435	8.7	107,656

Hay

The principal cereal hay crop is oats and 151,287 tons of oaten hay were cut in 1966-67 from 111,045 acres. Wheat is the only other cereal crop which is used extensively for this purpose and in 1966-67 the production was 43,791 tons from 35,247 acres. Large quantities of meadow hay are cut from clover and grass pastures, production in 1966-67 being 208,893 tons from 139,842 acres. Lucerne, barley, vetches, field peas, and rye are also used for hay making but they are of minor importance only.

HAY—AREA AND PRODUCTION

Season	Meadow		Oaten		Wheaten		Other (a)		Total	
	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production
	acres	tons	acres	tons	acres	tons	acres	tons	acres	tons
1962-63	117,285	184,535	170,892	208,100	43,915	51,795	7,741	8,521	339,833	452,951
1963-64	127,941	182,040	121,316	159,006	31,951	39,634	7,449	8,733	288,657	389,413
1964-65	136,249	202,688	120,993	137,764	38,869	39,700	8,499	10,153	304,610	390,305
1965-66	134,563	197,652	111,615	158,765	37,681	47,354	6,938	10,646	290,797	414,417
1966-67	139,842	208,893	111,045	151,287	35,247	43,791	8,948	13,392	295,082	417,363

(a) Mainly lucerne, barley, vetch and field pea hay.

Pastures

The first established pastures in the State were cultivated to provide grazing for dairy cattle but, with the rapid increase in the number of sheep carried on wheat farms, by far the greater area is now located in the wheat-growing districts.

Subterranean clover was one of the first pasture species sown in these districts and it is still the most important, although other clovers and a variety of grasses including Wimmera rye grass and perennial rye grasses are also grown extensively. The present practice in the higher rainfall areas is to sow a mixture of two or more species, selected for their suitability to the type of soil and rainfall, to give a legume grass pasture.

From 1.9 million acres in 1945-46, the area under established pasture has increased remarkably to 13.0 million acres in 1966-67. The top-dressing of pastures with superphosphate has developed to such an extent that this treatment is now general practice.

Western Australia is in a particularly good position to produce seed of annual legumes and grasses on a large scale and in 1966-67 produced nearly half of the total Australian crop.

Each year approximately one million acres of new land are cleared, much of it along the south coast where the growing season is six or seven months. It has been found that if heavier seed and fertiliser applications are used good subterranean clover seed crops can be grown in the first year on this new land. Similarly, in more inland districts good yields of barrel medic can be obtained on suitable soil types. The paddocks generally being used are large, open and only gently undulating, and are thus suitable for the operation of modern harvesting machines. Very little, if any, rain falls in the summer months and this ensures ideal harvesting conditions.

The development of suction harvesting machines in recent years has enabled this potential to be exploited. Suction harvesters are now used to harvest most of the more important small-seeded legume crops (subterranean clover, barrel medic and rose clover).

Seed certification schemes are operated by the Department of Agriculture for the main species of pasture seed. These schemes ensure that buyers are in a position to obtain good quality seed of the strain they require free from weed seeds. Certification schemes have assisted greatly in marketing and in allowing the development of a sound export trade.

Production of all kinds of pasture seed in 1966-67 totalled a record 24.7 million lb compared with a harvest of 22.6 million lb in 1965-66. There is an important export trade in subterranean clover seed and in 1966-67 the total exported was 3,683,810 lb, almost all of which went to the other Australian States.

PASTURE SEED HARVESTED

Season	Principal pasture seed								Total pasture seed	
	Subterranean clover		Rose clover		Barrel medic		Wimmera rye grass		Area harvested	Pro-duction
	Area harvested	Pro-duction	Area harvested	Pro-duction	Area harvested	Pro-duction	Area harvested	Pro-duction		
	acres	centals (a)	acres	centals (a)	acres	centals (a)	acres	centals (a)	acres	centals (a)
1962-63	27,340	65,123	127	59	2,223	2,438	2,302	2,656	36,331	80,253
1963-64	49,552	122,603	935	911	16,517	28,629	4,558	8,428	77,695	173,818
1964-65	59,275	132,292	1,849	2,822	5,355	5,407	1,468	2,142	75,984	155,894
1965-66	75,973	191,456	3,186	4,655	9,582	14,777	1,508	2,188	95,534	226,271
1966-67	87,001	196,611	6,343	9,745	16,489	24,245	1,798	2,927	118,089	246,954

(a) Cental = 100 lb.

Green Feed

Large areas of oats are grown for use as green feed for stock. Among other crops which are cultivated for this purpose, but to a far lesser extent, are barley, wheat, rye, field peas, lucerne and vetches. The total area of crops used for green feed has declined greatly since 1962-63 and in 1966-67 it fell to 398,851 acres, the lowest figure since 1956-57.

Details of the areas sown to each of the principal crops used for green feed are given in the following table for the five years ended 1966-67.

GREEN FEED—AREA GRAZED OR CUT (Acres)

Season	Oats	Barley	Wheat	Peas and beans	Rye	Lucerne	All other kinds (a)	Total
1962-63	576,182	49,069	11,420	7,405	10,744	3,871	9,227	667,918
1963-64	356,343	28,296	6,813	5,425	5,410	7,622	7,632	417,541
1964-65	378,466	24,796	9,931	7,306	9,991	7,825	7,724	446,039
1965-66	341,668	26,108	8,440	9,047	7,690	10,971	10,021	413,945
1966-67	332,090	22,073	10,590	8,748	6,961	6,396	11,993	398,851

(a) Mainly sudan grass, sudax, sorghum, millet, rape and vetches.

Linseed

During the war, attempts were made to cultivate those varieties of flax which yield linseed as the principal product, but they were largely unsuccessful and were abandoned. Efforts were renewed in 1947-48 but once again were short-lived, being discontinued after five years. Production recommenced in 1957-58 when 1,350 cwt were harvested from 549 acres. Since then area and production have fluctuated widely, the lowest figures being recorded in 1965-66 when an area of 97 acres was cropped for a harvest of 303 cwt. A renewed interest in linseed as a cash crop for the Esperance area resulted in 1,751 acres being sown in 1966-67 for a harvest of 12,680 cwt.

LINSEED—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average yield per acre	Gross value
	acres	cwt	cwt	\$
1962-63	626	2,719	4.3	19,022
1963-64	1,588	8,229	5.2	57,574
1964-65	2,135	11,338	5.3	77,922
1965-66	97	303	3.1	2,060
1966-67	1,751	12,680	7.2	44,380

Cotton

The first commercial crop of cotton was grown at Kununurra in 1962-63 on land irrigated from the Ord River diversion dam at Bandicoot Bar. In 1966-67 a total area of 11,892 acres produced 262,500 cwt of seed cotton, the yield per acre being 2,472 lb. A cotton ginnery to process the seed cotton was installed at Kununurra in 1963 and a second ginnery commenced operations in May 1967.

Under the *Raw Cotton Bounty Act* 1963-68, the Commonwealth Government pays a bounty, up to a maximum amount of \$4 million in any year, on raw cotton of grade higher than 'strict good ordinary' which is produced in Australia. Bounty is paid at the rate of 13.4375 cents per lb on cotton of 'middling white' grade with a staple length of one inch. Provision is made for premiums and discounts on grades and staples above and below these standards. The bounty is payable for the period from 1 January 1964 to 28 February 1969.

COTTON—AREA AND PRODUCTION

Season	Area	Production of seed cotton		
		Total	Average yield per acre	Gross value
	acres	cwt	lb	\$
1963-64	1,526	18,871	1,385	215,358
1964-65	5,475	96,341	1,971	1,065,364
1965-66	8,307	182,421	2,464	1,871,722
1966-67	11,892	262,500	2,472	3,497,000

Potatoes

The cultivation of potatoes, the State's principal vegetable crop, is largely confined to the higher rainfall areas of the south-west. Winter crops are planted during June and early July on the frost free hillsides and drained flats of the coastal areas between Waroona and Donnybrook and on the market garden land in the Perth Statistical Division. Mid-season plantings are made from the middle of July to November on summer-moist areas or on sprinkler-irrigated land in the Shires of Manjimup, Busselton, Albany and Waroona and in market gardens in the Perth Statistical Division. Late crops are planted between mid-November and the end of February in all districts growing early and mid-season crops, other than the Perth Statistical Division.

The average yield of potatoes per acre in Western Australia is consistently very much greater than that for Australia as a whole, and in 1966-67 comparative yields were 10.5 tons and 6.5 tons per acre. This is due mainly to the favourable climatic conditions

in Western Australia and the increasing use of sprinkler irrigation. Delaware, the variety which is grown almost exclusively in the State gives high yields under a wide range of growing conditions. There is a substantial export surplus, the bulk of which usually goes to the other Australian States with smaller consignments being sent overseas, principally to Singapore.

Potato production in Western Australia is controlled, under the provisions of the *Marketing of Potatoes Act, 1946-1966*, by the Western Australian Potato Marketing Board, which is the sole marketing authority for potatoes produced in the State. The object of this provision is to ensure adequate supplies for local consumption and effective marketing of crops.

POTATOES—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average yield per acre	Gross value
	acres	tons	tons	\$
1962-63	6,499	56,900	8·8	3,590,810
1963-64	5,835	55,402	9·5	3,680,892
1964-65	5,797	60,739	10·5	5,371,932
1965-66	6,229	62,865	10·1	5,026,658
1966-67	6,100	64,169	10·5	4,958,829

Onions

The production of onions is largely confined to the metropolitan and adjacent areas, Osborne Park and Spearwood being the main centres. In these districts onions are usually grown on light sandy soils and yields of up to 20 tons per acre are obtained. An increase in area occurred during each season from 1958-59 to 1962-63 when 509 acres were planted. The area planted then declined steadily over the next three seasons to 331 acres in 1965-66. A slight recovery occurred in 1966-67 when 413 acres were planted for a production of 5,417 tons or 13·1 tons per acre.

Onions are imported annually into Western Australia during the winter but a surplus is produced locally during the summer months which is exported overseas, principally to Singapore, Japan and Malaysia.

ONIONS—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average yield per acre	Gross value
	acres	tons	tons	\$
1962-63	509	6,622	13·0	338,548
1963-64	446	6,814	15·3	443,572
1964-65	428	5,981	14·0	376,490
1965-66	331	3,948	11·9	392,870
1966-67	413	5,417	13·1	419,440

Tomatoes

The main centres of production of tomatoes are at Carnarvon and Geraldton and in the districts around Perth. At Carnarvon and Geraldton, because of the warm winter climate, growers are able to produce early crops and take advantage of the high prices ruling on the Melbourne market during the winter and spring. They also supply substantial quantities to the Perth market and there is a consistent export trade with Singapore and Malaysia.

Supplies to the Perth market from December to June are grown in and near the metropolitan area, principally in the Wanneroo and Osborne Park districts. Tomatoes are also grown in a number of districts in the South-West and a small area is planted annually at Kalgoorlie.

The total area under tomatoes reached a peak of 1,555 acres in 1944-45 but the yield per acre in that year was low and total production was only 7,424 tons. Since then, although the area has declined, yields per acre have improved and production in 1966-67 was 7,398 tons from 691 acres, an average of 10.7 tons per acre.

TOMATOES—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average yield per acre	Gross value
1962-63	942	8,426	8.9	\$ 1,143,888
1963-64	866	8,086	9.3	1,174,028
1964-65	722	7,286	10.1	1,177,004
1965-66	649	6,849	10.6	1,719,009
1966-67	691	7,398	10.7	1,949,857

Other Vegetables

In addition to the cultivation of potatoes, onions and tomatoes, previously mentioned, many other vegetables are produced, the bulk of them in or near the metropolitan area where growers benefit not only from proximity to the principal market but also from an abundant supply of water at relatively shallow depths. Small quantities are also produced in many country districts. An important early crop of beans is grown at Carnarvon and transported by road to Perth. Approximately half of this crop is then railed or airfreighted to Adelaide with some going to Melbourne. Exports of cauliflowers to Singapore and Malaysia have become significant in recent years.

Details of the area and production of the principal vegetables other than potatoes, onions and tomatoes for the years 1962-63 to 1966-67 are given in the next three tables.

TURNIPS, CARROTS, PARSNIPS, BEETROOT—AREA AND PRODUCTION

Season	Turnips (swede and white)			Carrots			Parsnips			Beetroot		
	Area	Production		Area	Production		Area	Production		Area	Production	
		Quantity	Gross value		Quantity	Gross value		Quantity	Gross value		Quantity	Gross value
1962-63	159	19,254	\$ 55,512	348	72,735	\$ 254,572	136	18,998	\$ 90,874	132	20,093	\$ 57,768
1963-64	166	19,996	95,232	381	82,379	229,514	127	19,288	105,132	117	17,834	93,726
1964-65	129	15,718	51,756	380	90,053	388,530	120	18,228	122,128	112	21,190	53,682
1965-66	134	16,225	49,842	403	99,523	248,517	124	20,588	113,563	95	16,792	78,519
1966-67	122	17,388	69,671	429	113,149	565,145	107	19,957	227,909	97	14,815	90,964

PUMPKINS, BEANS, GREEN PEAS—AREA AND PRODUCTION

Season	Pumpkins			Beans						Green peas		
	Area	Production		Runner			French			Area	Production	
		Quantity	Gross value	Area	Quantity	Gross value	Area	Quantity	Gross value		Quantity	Gross value
1962-63	1,060	85,902	\$ 214,040	969	93,573	\$ 960,682	52	2,813	\$ 23,630	1,496	39,738	\$ 282,542
1963-64	884	78,798	201,030	1,037	85,426	825,502	44	2,813	30,416	1,666	52,297	234,924
1964-65	937	88,655	344,276	981	86,443	878,596	57	3,406	60,400	2,120	81,956	311,484
1965-66	791	76,216	201,210	952	77,909	1,043,623	32	1,755	29,484	2,942	120,295	267,096
1966-67	867	77,277	277,424	1,028	79,898	1,161,713	42	1,661	22,324	3,236	99,575	418,817

PRIMARY PRODUCTION

CABBAGES, CAULIFLOWERS, LETTUCE—AREA AND PRODUCTION

Season	Cabbages			Cauliflowers			Lettuce		
	Area	Production		Area	Production		Area	Production	
		Quantity	Gross value		Quantity	Gross value		Quantity	Gross value
	acres	cwt	\$	acres	cwt	\$	acres	cwt	\$
1962-63	349	82,520	155,578	663	113,218	394,848	432	74,231	329,094
1963-64	350	102,056	285,254	618	106,329	602,116	416	69,283	420,290
1964-65	344	99,915	238,730	607	119,057	579,688	404	67,235	479,078
1965-66	368	104,638	260,172	663	*127,165	686,698	433	77,655	598,423
1966-67	356	97,523	254,048	679	134,111	763,229	417	75,950	666,402

* Revised.

Orchards

Fruit production is largely confined to the temperate regions between Gingin to the north of Perth and Albany on the south coast. The cool, wet winters and warm, dry summers of this area permit the successful cultivation of a wide variety of fruits. In the southern and south-western sections, apples, pears and stone fruits are grown extensively while in the districts around Perth the principal crops are stone fruits, citrus fruits and grapes. Outside this main fruit-growing area, banana plantations have been established at Carnarvon in the North-West.

The following table shows details of production of the principal groups of orchard fruit during the years 1962-63 to 1966-67.

FRUIT (a)—AREA AND GROSS VALUE OF PRODUCTION

Season	Pome (b)		Citrus (c)		Stone (d)		Other (e)		Total fruit (a)	
	Area (f)	Gross value of production	Area (f)	Gross value of production	Area (f)	Gross value of production	Area (f)	Gross value of production	Area (f)	Gross value of production
	acres	\$	acres	\$	acres	\$	acres	\$	acres	\$
1962-63	15,943	6,922,872	5,865	1,291,548	2,556	844,046	840	525,024	25,204	9,583,490
1963-64	16,222	4,915,282	5,987	1,423,352	2,430	878,414	1,031	767,340	25,670	7,984,388
1964-65	16,903	6,929,850	6,005	1,360,232	2,443	999,070	1,074	1,033,350	26,425	10,322,502
1965-66	17,200	5,418,650	5,964	1,262,268	2,514	957,298	1,037	1,195,402	26,715	8,833,618
1966-67	16,746	7,288,924	6,130	1,618,232	2,489	1,048,423	1,093	1,260,718	26,458	11,216,297

(a) Excludes grapes. (b) Apples, pears and quinces. (c) Principally oranges, mandarins, lemons and grapefruit. (d) Apricots, peaches, nectarines, plums and cherries. (e) Bananas, loquats, figs, passion fruit, almonds and other minor fruits. (f) Includes area under young non-bearing trees.

Apples

Apples, which are the principal fruit crop, account for more than half the total orchard area. Manjimup, Donnybrook, Bridgetown and Mount Barker (based on number of bearing and non-bearing trees) are the most important centres but other districts in the south-west and in the Darling Range near Perth produce large quantities. In 1966-67 the total area of bearing trees was 11,596 acres which produced 2,386,741 bushels, the principal varieties being Granny Smith, Cleopatra, Yates, Jonathan and Delicious.

APPLES—AREA AND PRODUCTION

Season	Area		Production		
	Trees of bearing age	Young trees not bearing	Total	Average yield per acre (a)	Gross value
	acres	acres	bushels	bushels	\$
1962-63	10,833	4,016	1,977,300	182.5	6,453,350
1963-64	10,889	4,237	1,287,310	118.2	4,375,928
1964-65	11,511	4,231	2,355,160	204.6	6,476,414
1965-66	11,760	4,281	1,603,040	136.3	4,808,375
1966-67	11,596	4,058	2,386,741	205.8	6,694,783

(a) Calculated on the area of bearing trees only.

There is a valuable export trade and overseas shipments exceed one million bushels annually. The United Kingdom is the most important market, followed by the Federal Republic of Germany, with Singapore and Sweden also buying significant quantities.

Pears

Pears are usually grown in conjunction with apples but the area planted and the quantity produced are much less, the total area of bearing trees in 1966-67 being 812 acres and the production 153,872 bushels. The bulk of the crop is consumed locally but significant quantities are exported, principally to Singapore, Malaysia and the United Kingdom.

PEARS—AREA AND PRODUCTION

Season	Area		Production		
	Trees of bearing age	Young trees not bearing	Total	Average yield per acre (a)	Gross value
	acres	acres	bushels	bushels	\$
1962-63	799	275	171,740	214.9	466,450
1963-64	783	297	155,817	199.0	537,002
1964-65	799	349	190,915	238.9	451,488
1965-66	800	344	189,979	237.5	608,701
1966-67	812	268	153,872	189.5	592,807

(a) Calculated on the area of bearing trees only.

Citrus Fruit

The following tables give details of production of each type of citrus fruit for the years 1962-63 to 1966-67.

ORANGES AND MANDARINS—AREA AND PRODUCTION

Season	Oranges				Mandarins			
	Area		Production		Area		Production	
	Trees of bearing age	Young trees not bearing	Quantity	Gross value	Trees of bearing age	Young trees not bearing	Quantity	Gross value
	acres	acres	bushels	\$	acres	acres	bushels	\$
1962-63	3,655	976	413,912	1,054,936	224	175	25,229	115,870
1963-64	3,636	1,083	391,047	1,110,412	231	231	27,252	126,462
1964-65	3,710	1,024	480,422	1,096,744	251	248	26,611	112,060
1965-66	3,670	1,017	322,866	974,768	262	288	23,935	122,865
1966-67	3,691	1,120	466,349	1,226,919	272	341	32,978	147,741

LEMONS AND OTHER CITRUS FRUIT—AREA AND PRODUCTION

Season	Lemons				Other citrus (a)			
	Area		Production		Area		Production	
	Trees of bearing age	Young trees not bearing	Quantity	Gross value	Trees of bearing age	Young trees not bearing	Quantity	Gross value
	acres	acres	bushels	\$	acres	acres	bushels	\$
1962-63	522	182	107,160	94,666	119	12	18,789	26,072
1963-64	511	164	123,697	151,968	114	17	21,053	34,510
1964-65	505	126	97,669	121,422	113	28	18,614	30,006
1965-66	505	97	117,604	137,906	108	17	16,060	26,729
1966-67	502	82	141,856	200,953	104	18	20,881	42,619

(a) Principally grapefruit.

While the Shire of Chittering is the chief citrus fruit producer, there are other important areas near Perth in the Shires of Kalamunda, Armadale-Kelmscott, Swan-Guildford, Gosnells and Capel (in order according to number of trees bearing and non-bearing).

Although oranges are by far the most important crop and account for almost four-fifths of the total area, substantial quantities of lemons, grapefruit and mandarins are also produced.

Production is largely for local consumption but there is some export trade, mainly with Singapore, Mauritius and Malaysia.

Stone Fruits

Plums, peaches, apricots, nectarines and cherries are grown in the hills districts in the Darling Range near Perth, in the Swan Valley and in many districts in the South-West. The total area under stone fruit in 1966-67 was 2,489 acres, comprising 1,122 acres of plums, 924 of peaches, 287 of apricots, 110 of nectarines and 46 of cherries. The bulk of the stone fruit crop is consumed locally but shipments of plums are sent overseas, mainly to Singapore and Malaysia.

The following tables give details of production of the principal stone fruits for the five years 1962-63 to 1966-67.

PLUMS AND PEACHES—AREA AND PRODUCTION

Season	Plums and Prunes				Peaches			
	Area		Production		Area		Production	
	Trees of bearing age	Young trees not bearing	Quantity	Gross value	Trees of bearing age	Young trees not bearing	Quantity	Gross value
	acres	acres	bushels	\$	acres	acres	bushels	\$
1962-63	822	262	89,943	377,636	700	240	78,975	253,774
1963-64	814	231	95,152	428,012	706	198	84,228	223,374
1964-65	821	230	101,828	526,556	727	197	87,371	272,230
1965-66	840	250	103,744	384,876	744	212	120,605	379,219
1966-67	869	253	122,505	490,847	742	182	107,669	324,286

APRICOTS AND NECTARINES—AREA AND PRODUCTION

Season	Apricots				Nectarines			
	Area		Production		Area		Production	
	Trees of bearing age	Young trees not bearing	Quantity	Gross value	Trees of bearing age	Young trees not bearing	Quantity	Gross value
	acres	acres	bushels	\$	acres	acres	bushels	\$
1962-63	288	56	35,314	151,064	126	24	13,559	49,366
1963-64	270	46	35,586	153,064	112	16	12,307	51,770
1964-65	256	53	23,996	147,168	104	17	10,525	44,672
1965-66	244	61	28,606	117,758	96	22	14,255	54,360
1966-67	226	61	33,620	148,181	87	23	11,908	60,016

Bananas

Production of bananas is confined almost entirely to a narrow strip of land along the Gascoyne River at Carnarvon. The plantations are dependent on water pumped from bores which tap a subterranean flow in the sands of the usually dry river bed. As a surface flow in the river channel results only from heavy rains, which do not occur every year, a problem is presented in the falling-off of water supplies and in the increase in the salt content of the underground water during long dry periods. These conditions and also periodic damage from cyclones cause fluctuations in the area of the plantations and in production.

The crop is transported by road to Perth and sold locally in competition with bananas imported from other Australian States.

BANANAS—AREA AND PRODUCTION

Season	Area		Production		
	Plants of bearing age	Young plants not bearing	Total	Average yield per acre (a)	Gross value
	acres	acres	bushels	bushels	\$
1962-63	222	83	76,573	344.9	437,384
1963-64	311	86	140,643	452.2	672,454
1964-65	369	100	145,095	393.2	949,984
1965-66	345	101	198,693	575.9	1,117,695
1966-67	364	142	169,085	464.5	1,162,842

(a) Calculated on the area of bearing plants only.

Vineyards

Almost three-quarters of the State's 7,945 acres of grape vines are in the Shire of Swan-Guildford, other important centres being Chittering, Wanneroo, Toodyay, Gosnells and Northam.

The area of vines for the production of dried currants, sultanas and table raisins has declined from a post-war peak of 5,830 acres in 1947-48 to 3,126 acres in 1966-67 but it still represents almost two-fifths of the total area under grapes. Currants are the main item of production and a high proportion of the crop is exported overseas, the United Kingdom and Canada being the principal buyers in 1966-67. Small quantities are exported to other Australian States. Production of sultanas and table raisins is of minor importance and exports are negligible.

Table grapes are grown for the local market and for export overseas, mainly to Singapore and Malaysia. Well over half a million gallons of beverage wine have also been produced annually for the past five years, mostly for local consumption although small amounts are exported to the other Australian States and overseas.

GRAPES—AREA AND PRODUCTION

Season	Fresh grapes for table use and wine making				Dried vine fruits				Production of beverage wine
	Area		Production		Area		Production		
	Vines of bearing age	Young vines not bearing	Quantity	Gross value	Vines of bearing age	Young vines not bearing	Quantity (packed weight)	Gross value	
	acres	acres	tons	\$	acres	acres	tons	\$	gallons
1962-63	4,454	818	7,207	649,386	3,277	136	1,276	289,014	636,026
1963-64	4,449	799	8,246	749,104	3,276	105	2,287	594,040	666,443
1964-65	4,339	626	7,591	724,962	3,238	107	2,439	669,912	612,756
1965-66	4,453	571	7,542	687,670	3,078	113	1,422	484,890	626,686
1966-67	4,342	477	7,401	593,230	2,962	164	1,420	431,679	704,886

Nurseries

Commercial nurseries are concentrated in the Perth Statistical Division, Kalamunda with 30 per cent of the total area of commercial nurseries being the principal centre. Most nursery production is in the form of potted shrubs, ornamental trees and cut flowers for domestic use but large numbers of fruit trees are produced for planting in orchards.

NURSERIES (a): AREA AND VALUE OF PRODUCTION (b)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Area (acres)	291	282	280	284	240
Production (\$)	790,632	776,682	805,356	924,909	893,627

(a) Excludes non-commercial nurseries.

(b) Value at the holding, after deducting costs incurred in marketing.

Holdings Growing Certain Crops

The following table shows the number of holdings which grew certain crops in each of the years 1962-63 to 1966-67.

NUMBER OF HOLDINGS GROWING CERTAIN CROPS

Crop	1962-63	1963-64	1964-65	1965-66	1966-67
20 acres and over—					
Wheat for grain	8,966	8,983	8,779	9,044	8,897
Oats for grain	8,175	7,521	7,648	7,930	7,614
Barley for grain	3,210	2,502	2,489	3,017	2,782
5 acres and over—					
Linseed	14	34	27	4	15
1 acre and over—					
Vegetables (all kinds) (a)	1,926	1,839	1,769	1,813	1,970
Potatoes	726	658	626	627	609
Onions	220	200	204	164	170
Grapes	794	771	704	706	702
Orchard fruit (all kinds) (b)	2,804	2,666	2,698	2,718	2,631
Citrus fruit	933	870	930	923	932
Pome fruit	1,401	1,348	1,382	1,378	1,321
Stone fruit	598	563	581	576	570
Bananas	86	91	98	105	122
Passion fruit	35	32	38	42	40

(a) Includes growers of potatoes and onions.
of bananas and passion fruit.

(b) Includes growers of citrus, pome and stone fruit but excludes growers

Artificial Fertilisers

Soils in Western Australia are acutely deficient in phosphate, and regular applications of phosphatic fertiliser are required for crop and pasture growth. Newly cleared land may require applications of up to 200 lb of superphosphate per acre for satisfactory crop yields, but annual applications can be reduced as the phosphate content of the soil is improved through the residual effect of the added fertiliser. On established land, applications of 70 lb to 100 lb of superphosphate per acre are commonly used in wheat growing.

Nitrogen deficiencies also exist in some areas. Legume pastures have assisted greatly in building up nitrogen in the soil and in some situations appreciable increases in yield may be achieved by applying forms of concentrated nitrogenous fertiliser.

The following table shows details of superphosphate and other artificial fertilisers used on crops and pastures during the years 1962-63 to 1966-67

ARTIFICIAL FERTILISER USED ON RURAL HOLDINGS

Season	Crops					Pastures				
	Area fertilised	Quantity used				Area fertilised	Quantity used			
		Super-phosphate (a)	Other artificial fertilisers	Total	Average per acre		Super-phosphate (a)	Other artificial fertilisers	Total	Average per acre
	acres	tons	tons	tons	cwt	acres	tons	tons	tons	cwt
1962-63	7,307,688	348,693	23,347	372,040	1.0	7,002,201	335,459	5,566	341,025	1.0
1963-64	6,679,342	325,460	25,593	351,053	1.1	7,447,379	362,831	7,058	369,889	1.0
1964-65	7,271,208	357,513	27,830	385,343	1.1	8,887,681	453,205	5,906	459,111	1.0
1965-66	8,434,054	421,071	30,851	451,922	1.1	10,051,456	512,758	7,750	520,508	1.0
1966-67	8,531,382	436,834	37,269	474,103	1.1	11,601,382	609,858	12,594	622,452	1.1

(a) Includes superphosphate with trace elements.

PASTORAL PRODUCTION

Throughout this section, where mention is made of the 'pastoral areas' the portion of the State referred to comprises the Kimberley, Pilbara, North-West and Central Statistical Divisions together with the Shires of Coolgardie, Kalgoorlie, Laverton, Leonora and Menzies, which form part of the Eastern Goldfields Division. The balance of the

State, referred to as the 'agricultural areas', comprises the Perth, South-West, Southern Agricultural, Central Agricultural and Northern Agricultural Divisions together with the Shires of Dundas, Esperance, Ravensthorpe and Yilgarn in the Eastern Goldfields Division.

In the early days of settlement, pastoral activities in Western Australia were confined largely to what are now the agricultural areas and were usually associated with the cultivation of crops. However, beginning with Captain George Grey's visit in 1838 to the area known as the West Kimberley, explorers increasingly drew attention to the pastoral possibilities of large sections of the present Kimberley, Pilbara, North-West and Central Statistical Divisions.

In 1857 and 1858, F. T. Gregory noted the existence of good pastoral country in the Murchison and the Gascoyne districts and in the course of a journey further to the north in 1861 he discovered the Ashburton, Fortescue, De Grey and Oakover Rivers. His reports of good grazing lands in the area led to the establishment of sheep stations by pastoralists from the south, the first of such ventures, in 1863, being in the De Grey district of what is now the Pilbara Statistical Division. Graziers were also turning their attention to the south-east and in the 1870s pastoral lands were being taken up in the coastal areas to the south of the Nullarbor Plain. Another development in the extension of pastoral activity began with Alexander Forrest's journey through the Kimberley in 1879 and his favourable reports on the suitability of the country for grazing. Leases along the Fitzroy and the Ord Rivers were stocked not only with livestock shipped from the south and from the other Australian Colonies but also with cattle brought overland to the area, principally from Queensland and New South Wales, by remarkable feats of droving.

Pastoral production, comprising the production of meat as well as wool, in 1966-67 contributed over 32 per cent of the total net value of Western Australian primary production.

Sheep

The following table shows the total numbers of sheep, and their distribution between the agricultural and pastoral areas, in each year from 1946 to 1967.

SHEEP NUMBERS AND DISTRIBUTION

At 31 March—	In Agricultural areas		In Pastoral areas		State total
	Number	Proportion of State total (per cent)	Number	Proportion of State total (per cent)	
1946	7,029,761	72.0	2,736,222	28.0	9,765,983
1947	6,990,756	71.4	2,796,246	28.6	9,787,002
1948	7,417,053	71.0	3,026,745	29.0	10,443,798
1949	7,509,710	69.1	3,362,830	30.9	10,872,540
1950	7,518,456	68.8	3,404,711	31.2	10,923,167
1951	8,269,814	72.8	3,092,094	27.2	11,361,908
1952	9,174,640	75.3	3,013,112	24.7	12,187,752
1953	9,304,681	74.6	3,169,991	25.4	12,474,672
1954	9,921,867	75.8	3,165,241	24.2	13,087,108
1955	10,273,780	76.6	3,137,502	23.4	13,411,282
1956	10,976,121	77.7	3,152,047	22.3	14,128,168
1957	11,845,409	79.6	3,041,140	20.4	14,886,549
1958	12,704,210	80.8	3,019,753	19.2	15,723,963
1959	13,070,754	80.6	3,144,490	19.4	16,215,244
1960	13,395,527	81.6	3,016,062	18.4	16,411,589
1961	13,940,614	81.3	3,210,770	18.7	17,151,384
1962	14,951,185	81.6	3,362,694	18.4	18,313,879
1963	15,403,902	82.3	3,323,222	17.7	18,727,124
1964	16,608,300	82.4	3,556,568	17.6	20,164,868
1965	18,670,759	83.4	3,721,075	16.6	22,391,834
1966	20,695,040	84.7	3,731,768	15.3	24,426,808
1967	23,525,280	86.0	3,845,106	14.0	27,370,386

The present distribution of sheep in the State is the result of two opposite trends operating over many years. In the pastoral, or station areas where the industry is based on long-term pastoral leases, severe droughts led to a decline in the number of sheep, although some recovery has taken place in recent years. In the agricultural, or farming areas, however, the sheep population has steadily risen. Factors contributing to this rise, particularly since the war, have been the increasing use of subterranean clover in the wheat belt, the provision in many areas of more assured water supplies, a taxation policy which, by the provision of special concessions to primary producers, has encouraged farmers to clear and develop new land, the War Service Land Settlement Scheme which has developed new areas and the stimulating effect of buoyant wool prices in the post-war period.

The overall result has been a marked upward trend in sheep numbers since the war, and at 31 March 1967, the State total was 27.4 million, compared with 9.8 million at the same date in 1946. Numbers in the agricultural areas increased from 7 million, or 72 per cent of the State total, to 23.5 million or 86 per cent. They also increased in the pastoral areas from 2.7 million to 3.8 million, but as a percentage of the State total this represents a decline from 28 per cent to 14 per cent.

SHEEP FLOCKS AT 31 MARCH 1966
CLASSIFIED ACCORDING TO SIZE OF HOLDING AND SIZE OF FLOCK

Size of holding (acres)	Size of sheep flock (numbers)									Total, all rural holdings	
	1-299	300-499	500-699	700-999	1,000-1,399	1,400-1,999	2,000-2,999	3,000-4,999	5,000 and over		Total flocks
1- 99	398	7	1	1	.....	.....	.....	.....	.....	407	4,553
100- 199	271	39	10	3	.....	1	.....	.....	.....	324	1,251
200- 299	225	52	30	16	5	1	.....	.....	.....	329	1,058
300- 399	171	78	41	35	15	4	.....	.....	.....	344	837
400- 499	109	52	49	33	22	10	1	.....	.....	276	632
500- 599	88	46	43	50	26	20	2	.....	.....	275	523
600- 799	125	81	75	108	89	52	11	1	.....	542	907
800- 999	80	86	85	100	101	73	59	.....	.....	584	786
1,000-1,399	112	104	164	208	230	228	160	23	.....	1,229	1,501
1,400-1,999	73	83	183	374	338	368	321	88	4	1,832	2,082
2,000-2,999	86	95	170	393	563	583	516	250	26	2,682	3,148
3,000-4,999	85	81	116	245	472	617	593	339	118	2,666	3,306
5,000-9,999	21	19	26	74	162	257	339	274	151	1,323	1,435
10,000-19,999	1	1	2	9	10	29	49	72	77	250	264
20,000-49,999	1	.....	1	1	1	3	6	13	21	47	57
50,000 and over	6	4	4	4	10	9	12	52	300	401	513
Total	1,852	828	1,000	1,654	2,044	2,255	2,069	1,112	697	13,511	22,853

SHEEP FLOCKS AT 31 MARCH 1966
CLASSIFIED ACCORDING TO SIZE OF FLOCK AND AREA OF ESTABLISHED PASTURE

Area of established pasture (acres)	Size of sheep flock (numbers)									Total, all rural holdings	
	1-299	300-499	500-699	700-999	1,000-1,399	1,400-1,999	2,000-2,999	3,000-4,999	5,000 and over		Total flocks
Nil	357	219	286	435	411	335	185	107	309	2,644	7,529
1- 9	77	1	2	.....	1	.....	.....	.....	.....	81	441
10- 19	61	2	4	3	7	5	.....	1	.....	83	340
20- 29	85	5	4	7	11	4	.....	1	.....	88	289
30- 49	101	7	7	20	13	6	1	.....	.....	162	474
50- 69	97	11	11	17	12	11	1	3	.....	164	439
70- 99	131	25	15	28	16	4	3	.....	.....	222	568
100-149	224	56	62	68	44	29	15	4	1	503	1,136
150-199	158	84	48	49	39	29	18	1	2	428	945
200- 299	241	129	135	176	128	53	31	6	1	900	1,494
300- 399	138	109	113	171	157	66	25	9	1	789	1,115
400- 499	73	57	101	157	173	119	33	8	1	722	920
500- 699	72	63	106	241	345	308	154	24	3	1,316	1,534
700- 999	41	38	68	179	326	492	368	41	3	1,556	1,665
1,000-1,999	24	21	36	98	330	714	965	485	46	2,719	2,814
2,000 and over	2	.....	2	5	31	80	264	421	329	1,134	1,150
Total	1,852	828	1,000	1,654	2,044	2,255	2,069	1,112	697	13,511	22,853

In the preceding tables sheep flocks at 31 March 1966, in size groups, are classified according to the size of the holding and to the area of established pasture. Of the 22,853 holdings of all types, sheep were carried on 13,511. Holdings of between 1,000 and 5,000 acres accounted for 62 per cent of the flocks and holdings which carried between 500 and 2,000 sheep for 51 per cent of the flocks. Of the holdings carrying sheep 10,867 or 80 per cent had some established pasture and 9,136, or 68 per cent had 200 acres and over.

An analysis of collected data relating to breeds of sheep as at 31 March 1968 showed that Merinos accounted for 91 per cent of the total. Corriedales, Polwarths and British breeds, the most important of which are Romney Marsh, Dorset Horn, South Down, Border Leicester and Suffolk, comprised 4 per cent and the remaining 5 per cent was made up of Crossbreds, including Merino Comebacks. With low wool prices operating during the ten years prior to the war, some farmers turned to the production of fat lamb carcasses for export, mainly to the United Kingdom. The industry which developed as a result was based on the use of Corriedale and British breeds of rams, which in 1968 comprised about 17 per cent of the rams in the State. As a result of the high wool prices during the Korean war the 'fat lamb' industry declined sharply in 1950-51 and 1951-52 but recovered in 1952-53. The recovery in the industry was maintained for some years and exports of lamb have fluctuated between 4.08 million lb in 1953-54 and 11.5 million lb in 1960-61. Since then increased lamb production in the United Kingdom and variable market prices have led to a sharp decline in the export of lamb, the total falling to 2.88 million lb in 1966-67.

The following table shows the numbers of each breed of sheep in the State at 31 March 1968.

BREEDS OF SHEEP AT 31 MARCH 1968

Breed	Rams (one year and over)	Other sheep	Total
Merino	343,009	26,943,090	27,286,099
Other recognised breeds—			
Corriedale	22,480	781,767	804,247
Polwarth	4,259	126,829	131,088
Romney Marsh	5,177	60,285	65,462
Dorset Horn	10,812	58,667	69,479
South Down	11,773	33,724	45,497
Border Leicester	10,880	139,346	150,226
Suffolk	2,800	12,847	15,647
English Leicester	452	5,769	6,221
Cheviot	361	3,522	3,883
Shropshire	410	1,402	1,812
Other	2,163	8,020	10,183
Total, Other recognised breeds	71,567	1,232,178	1,303,745
Merino Comeback (a)	1,294	337,642	338,936
Crossbreds (b) and other mixed breeds	1,702	1,230,395	1,232,097
Total, all sheep	417,572	29,743,305	30,160,877

(a) More than half Merino.

(b) British breed to the extent of one-half or more.

Wool

Total wool production in 1966-67 amounted to 272.6 million lb, the highest ever recorded, compared with 158.3 million lb ten years earlier. Shorn wool in 1966-67 accounted for 261.0 million lb. It was shorn from 28.7 million sheep and lambs, the average weight of wool shorn being 9.1 lb, compared with 9.2 lb in the previous season. The balance of the 1966-67 production comprised 2.9 million lb of dead and fellmongered wool, and 8.7 million lb of wool exported on skins.

During the war years wool was compulsorily acquired by the Commonwealth Government in accordance with an agreement with the United Kingdom. The scheme was administered by the Central Wool Committee and the price paid was determined by a system of appraisal which, however, operated within limits agreed upon by the two Governments. During this period large stocks of wool were accumulated and after the war an organisation was formed with the object of selling this surplus with the least possible disturbance to ruling prices. Government control of wool ceased after the war and wool auctions operated by members of the National Council of Wool Selling Brokers of Australia were resumed in Perth in 1946. These sales are attended by Australian and overseas buyers who bid for individual lots. Some wool is auctioned at sales conducted independently of the National Council and a significant portion of the clip is purchased on farms by wool dealers who buy direct from producers. In September 1957, auctions were held at Albany for the first time. Sales in Perth were discontinued in 1960 and the selling centre was transferred to Fremantle.

SHEEP SHORN AND WOOL PRODUCTION

Year	Sheep shorn (a)			Average weight of wool shorn (a)	Wool production (in the grease)			
	Sheep	Lambs	Total		Shorn (a)	Dead and fellmongered (b)	Exported on skins (c)	Total
	'000	'000	'000	lb	'000 lb	'000 lb	'000 lb	'000 lb
1963	*16,286	3,790	20,077	8.7	174,000	3,176	6,947	184,123
1964	17,021	4,191	21,212	9.8	207,235	2,320	7,019	216,574
1965	18,437	4,742	23,179	8.6	198,200	2,795	6,040	207,035
1966	20,458	5,177	25,635	9.2	234,850	3,506	9,174	247,530
1967	22,824	5,857	28,681	9.1	261,000	2,852	8,723	272,575

(a) Up to and including 1965, figures are for the year ended 31 March. The figures for 1966 and later relate to the year ended 30 June. (b) Up to and including 1965, figures comprise dead wool for the year ended 31 March, and fellmongered wool for the year ended 30 June. The figures for 1966 and later relate entirely to the year ended 30 June. (c) Year ended 30 June. * Revised.

GROSS VALUES OF WOOL PRODUCTION (\$'000)

Year	Shorn wool (a)	Dead wool and fellmongered wool (b)	Wool exported on skins (c)	Total
1963	78,816	1,255	2,916	82,988
1964	115,345	986	3,532	119,863
1965	92,282	993	2,528	95,803
1966	114,049	1,134	3,015	118,198
1967	120,437	1,072	3,312	124,821

(a) See note (a) to table above.

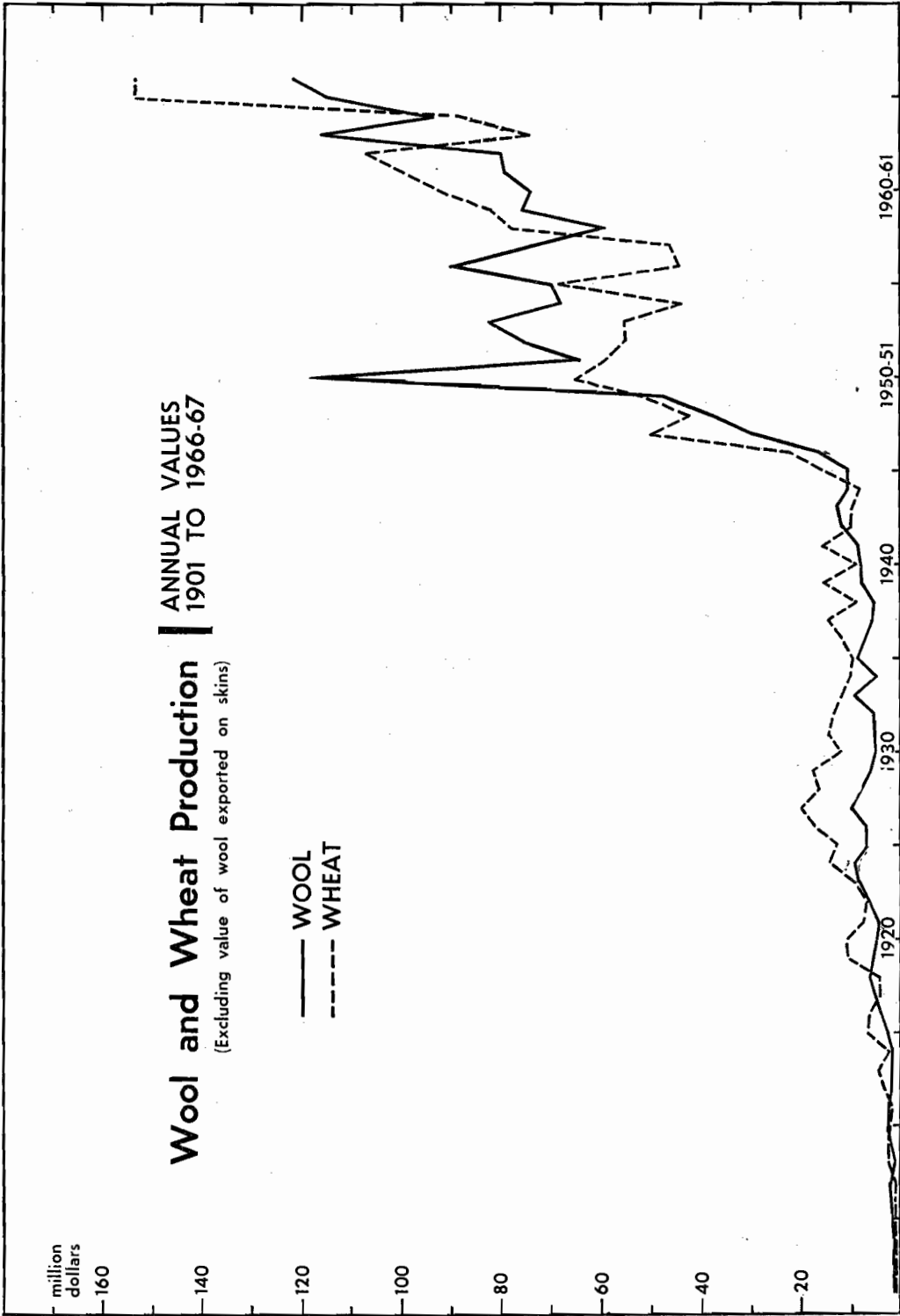
(b) See note (b) to table above.

(c) Year ended 30 June.

Although the greater proportion of the woolclip is exported in the grease, scouring, or degreasing, is done in the State and degreased wool is an appreciable item in the external wool trade. During 1966-67 exports of greasy and degreased wool were 214.1 million lb and 21.6 million lb respectively. The most important buyers of greasy wool were Japan, the United Kingdom, France, the Federal Republic of Germany, Italy, Belgium-Luxembourg, the Union of Soviet Socialist Republics, the United States of America, Australian States, India and Czechoslovakia. Principal purchasers of degreased wool were the United States of America, the United Kingdom, the Federal Republic of Germany, the Union of Soviet Socialist Republics, Australian States, Italy and Canada.

Cattle

Following an investigation into the adequacy of the wording and arrangement of the cattle sections of the forms used in collecting agricultural and pastoral statistics, certain changes have been made in the classification of cattle as at 31 March in 1964 and later years.



Prior to 1964, informants were asked to classify their stock as either 'beef cattle' or 'dairy cattle'. These two terms tended to cause confusion between breed and purpose. For example, in cases where vealer production was carried on in association with dairying the informant was in doubt as to how to classify part or all of the herd. From 1964, informants have been asked to classify cattle according to the two main purposes of 'meat production' and 'milk production', irrespective of breed, and to report separately the numbers of cows and heifers kept for their own domestic milk supply. Consequently, detailed statistics of cattle for 1964 and later are not comparable with those for earlier years.

The table below shows the numbers of cattle for meat production kept on rural holdings at 31 March 1964 to 1967. The table on page 339 shows, for the same dates, the numbers kept for milk production. Cattle numbers in each State and Territory at 31 March 1967 are given in the second table on page 342.

In 1967 the Kimberley Statistical Division carried 533,374 head of cattle for meat production, or 46.1 per cent of the State Total. Other pastoral areas carried 91,930 head and agricultural areas 532,608.

The cattle which were originally shipped or driven overland from the other Australian Colonies to start the industry in the northern pastoral areas were preponderantly shorthorn breeds, and these still form the great bulk of all cattle kept for meat production in those areas. Carcass weights, however, have been increased by importing better-type bulls, by improving watering facilities on the cattle stations and by the almost complete replacement of droving by the transport of the animals from stations to abattoirs in large road trucks.

Killing and freezing works operate at the ports of Wyndham, Broome and Derby and consignments of frozen and chilled beef from these centres go mainly to overseas destinations. Some of it is sent south for consumption in the metropolitan area and live cattle are also shipped from northern ports to be slaughtered for the metropolitan market. By far the greater proportion of beef consumed in the southern part of the State, however, is supplied from the agricultural areas, much of it being from stock culled from dairy herds.

The following table shows the numbers and proportions of cattle for meat production in agricultural areas and in pastoral areas at 31 March 1964 to 1967. The agricultural areas have become an increasingly important source of meat production in recent years, and now contain almost half of the cattle kept for this purpose, compared with one-quarter ten years earlier.

CATTLE FOR MEAT PRODUCTION—NUMBERS AND DISTRIBUTION

Particulars	At 31 March—			
	1964	1965	1966	1967
Number of head—				
In agricultural areas	415,361	411,142	451,062	532,608
In pastoral areas	656,287	627,262	610,705	625,304
Total	1,071,648	1,038,404	1,061,767	1,157,912
	per cent	per cent	per cent	per cent
Proportion of total—				
In agricultural areas	38.8	39.6	42.5	46.0
In pastoral areas	61.2	60.4	57.5	54.0

In two tables on page 337 herds of cattle kept for meat production at 31 March 1966, in size groups, are classified according to the size of the holding and the area of established pasture. Of the 22,853 rural holdings of all types, cattle for meat production were carried on 8,304. Holdings of between 1,000 and 5,000 acres accounted for 41 per cent of the herds, and holdings which carried less than 50 cattle for meat production for 67 per cent of the herds. Of the holdings carrying cattle for meat production 7,266, or 88 per cent, had some established pasture and 5,231, or 63 per cent, had 200 acres and over.

DENMARK INLET

The Denmark River on the south coast flows through rich grazing country. At 31 March 1968 the total number of cattle in the Shire of Denmark exceeded 16,000.



Block by courtesy
of The Swan Brewery
Company Limited

CATTLE FOR MEAT PRODUCTION AT 31 MARCH 1966
CLASSIFIED ACCORDING TO SIZE OF HOLDING AND SIZE OF HERD

Size of holding (acres)	Size of cattle herd (numbers)									Total, all rural holdings	
	1-9	10-19	20-29	30-49	50-99	100-199	200-299	300-999	1,000 and over		Total herds
1- 99	384	130	53	41	17	....	....	....	....	625	4,553
100- 199	203	139	82	106	73	12	....	....	....	615	1,251
200- 299	144	103	78	105	126	32	2	....	....	590	1,058
300- 399	97	88	56	90	91	56	6	1	....	485	837
400- 499	71	45	42	62	112	56	11	3	....	402	632
500- 599	38	40	34	49	81	66	15	3	....	326	523
600- 799	82	58	49	77	120	88	27	14	....	515	907
800- 999	86	46	27	46	87	73	30	15	....	410	786
1,000-1,999	162	78	53	80	110	95	36	25	....	639	1,501
1,400-1,999	266	111	70	76	121	68	23	30	....	765	2,082
2,000-2,999	383	134	100	122	151	68	33	26	2	1,019	3,148
3,000-4,999	365	129	85	113	159	69	23	34	1	978	3,306
5,000-9,999	173	46	46	62	64	58	19	32	2	502	1,435
10,000-19,999	36	7	1	1	16	12	8	17	5	25	264
20,000-49,999	6	1	1	1	2	3	4	3	4	12	57
50,000 and over	21	19	12	27	18	34	17	44	93	285	513
Total	2,517	1,174	791	1,076	1,348	790	254	247	107	8,304	22,853

CATTLE FOR MEAT PRODUCTION AT 31 MARCH 1966
CLASSIFIED ACCORDING TO SIZE OF HERD AND AREA OF ESTABLISHED PASTURE

Area of established Pasture (acres)	Size of cattle herd (numbers)									Total, all rural holdings	
	1-9	10-19	20-29	30-49	50-99	100-199	200-299	300-999	1,000 and over		Total herds
Nil	430	152	86	81	82	45	25	47	90	1,038	7,529
1- 9	86	10	3	1	2	....	....	....	....	102	441
10- 19	91	19	5	8	3	....	....	....	....	126	340
20- 29	57	28	11	9	2	....	....	....	....	107	289
30- 49	87	62	28	23	9	3	....	1	....	213	474
50- 69	58	66	38	32	12	....	....	....	2	208	439
70- 99	77	77	40	52	20	3	....	....	....	269	568
100- 149	173	91	68	94	96	13	2	2	....	539	1,136
150- 199	123	70	50	82	111	32	....	3	....	471	945
200- 299	167	119	82	115	169	85	16	....	1	754	1,494
300- 399	135	82	36	92	133	99	13	2	....	592	1,115
400- 499	99	51	43	59	82	87	18	5	....	444	920
500- 699	189	70	46	80	162	113	54	25	....	739	1,534
700- 999	238	89	74	108	119	103	40	26	....	797	1,665
1,000-1,999	363	156	126	167	220	121	50	80	2	1,285	2,814
2,000 and over	144	32	55	73	126	86	36	56	12	620	1,150
Total	2,517	1,174	791	1,076	1,348	790	254	247	107	8,304	22,853

Slaughtering

LIVESTOCK SLAUGHTERED AND MEAT PRODUCED

Year ended 30 June—	Livestock slaughtered (a)								Meat produced (b)	
	Sheep		Lambs		Cattle		Calves		Mutton and lamb	Beef and veal
	Number	Gross value (c)	Number	Gross value (c)	Number	Gross value (c)	Number	Gross value (c)		
1963	'000 1,618	'\$000 6,486	'000 863	'\$000 5,174	'000 283	'\$000 17,070	'000 27	'\$000 653	tons 41,236	tons 55,934
1964	1,288	7,819	859	6,196	341	19,863	34	831	36,690	66,025
1965	1,280	7,010	787	6,332	300	21,376	28	837	35,839	56,983
1966	1,696	9,293	858	7,293	299	27,524	16	721	44,695	58,089
1967	1,695	8,912	905	6,829	284	25,836	17	734	46,381	54,811

(a) Mainly slaughtering for human consumption but also includes small numbers of livestock slaughtered for boiling down. Details of pigs slaughtered and production of pigmeat are shown on page 342. (b) Dressed carcass weight; excludes condemned carcasses and offal. (c) Value 'on hoof' at principal market.

The previous table gives details of slaughtering in abattoirs, butcheries and on stations and farms. A table showing particulars of pigs slaughtered and pigmeat produced appears on page 342.

Beef from cattle slaughtered at Wyndham, Broome and Derby in the Kimberley Division is principally for export. The local market for meat is supplied mainly from abattoirs at Midland, Fremantle, Waroona, Harvey, Bunbury, Albany, Geraldton, Woorloo and Kalgoorlie but most of these establishments also slaughter for the export trade. Small establishments operating in country towns also contribute substantially to total production, and most stations and many farms slaughter sufficient for all or part of their own requirements.

DAIRYING

Compared with the wheat, wool and meat producing industries, dairying as a major well-organised rural activity is of fairly recent origin. Its growth was retarded initially by the difficulty of clearing heavily-timbered country in the South-West and the need for special methods of pasture establishment, but these problems have been progressively overcome and dairying is now a significant feature of primary production, although only limited development has taken place in recent years.

Until the establishment of the first butter factory at Busselton in 1898, dairy farming in Western Australia was essentially for the production of whole milk, although small quantities of farm butter were marketed. As more factories commenced processing, the industry steadily developed and its growth was further stimulated by the establishment of irrigation areas, the first at Harvey in 1916, and by the introduction of the Group Settlement Scheme in 1921. Another important factor in increasing production was the successful establishment of subterranean clover which resulted in a marked improvement in pastures.

The industry has been assisted by the extensive experimental work carried out by the Department of Agriculture and the advisory service which it provides on all aspects of dairy farming.

Price instability has been one of the major difficulties of the industry and in 1926 the 'Paterson Plan', which was a voluntary scheme of price stabilisation, was introduced. It met with considerable success but weaknesses finally became apparent and it was abandoned in 1934 in favour of the Dairy Products Marketing Regulation Act passed by the State Parliament. On 1 April 1946, Western Australia entered the voluntary butter price equalisation scheme, operated since 1936 by the Commonwealth Dairy Produce Equalization Committee Ltd., and in January 1947 the State extended its participation to include cheese. The Committee, which comprises certain members of the State Dairy Products Boards and other persons representing the industry, enters into agreements with manufacturers to secure to them equal rates from sales of butter and also of cheese, and for this purpose may fix basic prices at which these products sold in Australia or abroad are to be taken into account. The effect is that local and export trade are distributed among manufacturers in equitable proportions. The Committee fixes basic prices and equalises returns to factories through an Equalisation Fund. In addition, subsidies provided by the Commonwealth Government are distributed by the Committee, through factories to dairy farmers, by payments on butter and cheese manufactured. The fourth five-year stabilisation plan, which came into operation on 1 July 1967, provides a fixed bounty of \$27 million annually for the Australian industry. The average subsidy rates per cwt in 1966-67 were \$5.66 on butter and \$2.04 on cheese.

From 1942 until 30 June 1948, and again from 1 July 1949 to 30 June 1952, a subsidy was paid by the Commonwealth Government on milk supplied for the manufacture of processed milk products. By means of the *Processed Milk Products Bounty Act 1962-1966*, the Commonwealth provided for payment of a maximum amount of \$700,000 as a bounty on exports of processed milk products during the year ended 30 June 1963. For the purpose of the Act, processed milk products are goods containing butterfat and

produced from cow's milk, but excluding butter, cheese and certain other specified goods. By later amendments to the Act, bounty was continued up to a maximum of \$1,000,000 in respect of exports during 1963-64 and of \$800,000 on those for 1964-65. Subsequent amendments extend the operations of the Act until 30 June 1972, the maximum amount of bounty payable each year being maintained at \$800,000.

The following table shows the numbers of cattle kept for milk production on rural holdings at 31 March 1964 to 1967.

CATTLE FOR MILK PRODUCTION

Particulars	At 31 March—			
	1964	1965	1966	1967
	number	number	number	number
Bulls of dairy breeds used or intended for service—				
Aged one year and over	5,269	4,848	4,438	3,324
Calves (aged under one year)	(a)	1,671	1,429	1,615
Total	(a)	6,519	5,867	4,939
Cattle used or intended for production of—				
Milk or cream for sale—				
Cows: In milk	46,661	43,917	42,777	38,691
Dry	71,718	69,098	66,514	64,229
Heifers: Springing (within 3 months of calving)	26,034	25,662	24,290	21,509
Other (aged one year and over)	30,751	30,211	27,778	28,395
Calves (aged under one year)	36,543	33,479	32,051	31,941
Milk or cream for use on rural holdings—				
House cows and heifers	10,250	11,137	10,182	9,426
Total	221,957	213,504	203,592	194,191
Total cattle for milk production	(b) 227,226	220,023	209,459	199,130

(a) Not available.

(b) Excludes bull calves intended for service; see footnote (a).

In the next two tables herds of cattle kept for milk production at 31 March 1966, in size groups, are classified according to the size of the holding and the area of established pasture. Of the 22,853 rural holdings of all types, cattle for milk production were carried on 3,685. Holdings of between 1,000 and 5,000 acres accounted for 25 per cent of the herds but 79 per cent of these herds had less than ten head each. All holdings with less than ten head accounted for 38 per cent of the herds in the State. Of the holdings carrying cattle for milk production 3,375, or 92 per cent, had some established pasture and 1,971, or 53 per cent, had 200 acres and over.

CATTLE FOR MILK PRODUCTION (a) AT 31 MARCH 1966
CLASSIFIED ACCORDING TO SIZE OF HOLDING AND SIZE OF HERD

Size of holding (acres)	Size of cattle herd (numbers)										Total all rural holdings
	1-4	5-9	10-19	20-39	40-59	60-79	80-99	100-149	150 and over	Total herds	
1- 19	58	12	3	2	.....	.....	.....	.....	.....	75	2,799
20- 29	15	11	2	2	.....	.....	.....	.....	.....	30	586
30- 49	26	6	12	6	.....	.....	.....	.....	.....	50	530
50- 69	16	7	10	8	5	.....	.....	.....	.....	48	320
70- 99	20	8	13	22	8	8	.....	.....	1	80	318
100- 149	23	9	12	72	46	29	8	6	.....	205	661
150- 199	35	10	18	55	58	48	22	8	4	258	590
200- 299	48	3	17	67	110	132	72	55	12	516	1,058
300- 399	35	4	12	40	79	83	54	80	22	409	837
400- 499	28	3	5	19	38	41	43	68	37	282	632
500- 699	52	3	3	20	35	62	41	90	58	364	1,039
700- 999	62	6	4	14	26	23	23	52	54	264	1,177
1,000-1,399	76	13	10	6	5	14	14	20	29	187	1,501
1,400-1,999	152	11	6	1	4	3	7	6	27	217	2,082
2,000-4,999	454	25	5	2	5	4	2	3	16	516	6,454
5,000 and over	160	11	4	1	1	2	1	1	3	184	2,269
Total	1,260	142	136	337	420	449	287	390	264	3,685	22,853

(a) Excludes herds with no cattle for milk production other than house cows.

CATTLE FOR MILK PRODUCTION (a) AT 31 MARCH 1966
CLASSIFIED ACCORDING TO SIZE OF HERD AND AREA OF ESTABLISHED PASTURE

Area of established pasture (acres)	Size of cattle herd (numbers)										Total, all rural holdings
	1-4	5-9	10-19	20-39	40-59	60-79	80-99	100-149	150 and over	Total herds	
Nil	227	20	15	12	9	14	5	3	5	310	7,529
1- 9	31	3	.....	.....	1	.....	.....	1	.....	36	441
10- 19	28	15	5	4	1	1	.....	.....	.....	54	340
20- 29	21	10	9	2	2	1	.....	1	.....	47	289
30- 49	33	10	23	16	4	4	.....	1	3	94	474
50- 69	34	6	21	37	11	6	1	1	.....	117	439
70- 99	28	7	16	78	34	15	4	1	3	186	568
100- 149	69	11	9	103	134	88	23	11	1	449	1,136
150- 199	34	3	8	26	111	140	61	29	9	421	945
200- 299	75	4	9	26	68	108	94	124	24	532	1,494
300- 399	66	7	1	14	19	41	58	98	47	351	1,115
400- 499	61	1	4	9	12	8	20	58	42	215	920
500- 699	98	8	5	8	7	13	13	41	64	257	1,534
700- 999	126	16	4	.....	5	7	7	14	33	212	1,665
1,000-1,999	220	13	5	1	1	2	.....	5	32	279	2,814
2,000 and over	109	8	2	1	1	1	.....	.....	3	125	1,150
Total	1,260	142	136	337	420	449	287	390	264	3,685	22,853

(a) Excludes herds with no cattle for milk production other than house cows.

The quantity and gross value of whole milk produced in each of the years 1962-63 to 1966-67 are given in the following table.

WHOLE MILK PRODUCTION (a)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Quantity	56,029	57,162	61,883	61,865	55,611
Gross value (b)	13,967	14,333	15,819	16,220	15,087

(a) Year ended 30 June. Includes milk used for processing into butter, cheese and condensery products. Details of butter and cheese production appear in Part 2 of this chapter. (b) Includes subsidy paid by Commonwealth Government.

Pig Raising

For many years the rearing of pigs has been carried on in conjunction with the production of butterfat as cream, thus providing a practical means of using the skim milk obtained. This is now on the decline, however, owing to the current trend for whole milk to be supplied in bulk by the dairy farmers direct to processing plants. In the main, pigs are now raised on grain-growing holdings and in 1967 almost 70 per cent of the pigs in the State were in the wheat belt. There are also a number of farmers in the districts around Perth who specialise in pig raising and in fattening for market pigs obtained from country areas.

The principal breeds in Western Australia are the Berkshire, Large White and Landrace and crosses of these breeds. Pigs are reared for bacon and ham as well as pork and, although the greater proportion of production is consumed locally, there is some export trade, mainly to other Australian States. In 1966-67 a total of 843,225 lb of pork was shipped interstate and 401,946 lb overseas, mainly to Singapore, Hong Kong, Malaysia and Christmas Island (Indian Ocean).

In two tables on page 341 pig herds at 31 March 1966, in size groups, are classified according to the size of the holding and the size of the herd of cattle for milk production on the holding. Of the 22,853 rural holdings of all types, pigs were carried on 3,537. Holdings with between 1,000 and 5,000 acres of land accounted for 54 per cent of the pig herds and those which carried less than fifteen head for 34 per cent of the herds. Of the holdings carrying pigs 1,033, or 29 per cent, had some cattle for milk production and 629, or 18 per cent, had ten or more cattle for milk production.

PIG HERDS AT 31 MARCH 1966
CLASSIFIED ACCORDING TO SIZE OF HOLDING AND SIZE OF HERD

Size of holding (acres)	Size of pig herd (numbers)									Total, all rural holdings	
	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-99	100 and over		Total herds
1- 19	23	19	8	7	10	6	5	20	22	120	2,799
20- 29	7	1	6	4	....	2	2	4	9	35	586
30- 49	12	5	2	4	9	4	....	10	8	54	530
50- 69	9	8	1	1	7	2	2	4	3	37	320
70- 99	17	3	2	2	7	4	2	8	4	49	318
100- 149	27	5	9	9	5	9	6	22	9	101	661
150- 199	22	11	10	3	13	8	5	11	5	88	590
200- 299	35	33	23	21	25	5	8	24	8	182	1,058
300- 399	19	16	13	12	28	11	9	16	8	132	837
400- 499	18	14	10	12	10	10	6	16	4	100	632
500- 699	23	19	17	14	21	21	10	21	5	151	1,039
700- 999	24	25	18	13	25	28	9	28	7	177	1,177
1,000-1,399	23	30	35	21	29	27	18	42	15	240	1,501
1,400-1,999	46	40	45	40	64	50	35	65	21	406	2,082
2,000-4,999	107	112	131	120	223	161	93	238	83	1,268	6,454
5,000 and over	35	31	41	15	57	52	35	88	43	397	2,269
Total	447	372	371	298	533	400	245	617	254	3,537	22,853

PIG HERDS AT 31 MARCH 1966, ACCORDING TO SIZE OF HERD OF CATTLE FOR MILK PRODUCTION AND SIZE OF PIG HERD

Size of herd of cattle for milk production (numbers)	Size of pig herd (numbers)									Total, all rural holdings	
	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-99	100 and over		Total herds
Nil	287	238	260	203	396	289	178	450	203	2,504	19,168
1- 4	46	42	34	30	42	43	28	69	30	364	1,260
5- 9	8	2	7	7	6	2	1	4	3	40	142
10- 14	6	2	....	1	1	4	1	3	....	18	68
15- 19	2	1	....	1	5	2	2	4	....	17	68
20- 29	12	9	4	4	7	1	....	3	....	40	152
30- 39	13	9	6	6	7	5	1	9	....	56	185
40- 49	14	9	10	7	12	4	1	3	....	60	210
50- 59	5	13	12	10	12	8	4	6	2	72	210
60- 69	14	8	11	6	15	4	4	5	1	68	244
70- 79	12	9	7	5	10	4	9	13	6	75	205
80- 89	10	9	5	6	8	8	3	14	1	64	169
90- 99	....	6	4	3	3	5	2	6	1	30	118
100-149	8	10	8	6	9	12	8	23	5	89	390
150-199	6	1	1	2	....	7	2	3	....	22	133
200 and over	4	4	2	1	....	2	1	2	2	18	131
Total	447	372	371	298	533	400	245	617	254	3,537	22,853

In the table below, the numbers of pigs on rural holdings at 31 March are shown for each of the years 1963 to 1967. The number of pigs at 31 March 1967 was 160,983, a significant increase over the previous year and the highest figure since 1962 when the total reached 174,182.

PIG NUMBERS

At 31 March—				Boars	Breeding sows	Other pigs (a)	Total
1963	....	....	....	3,041	17,849	109,901	130,791
1964	....	....	....	2,951	17,947	107,242	128,140
1965	....	....	....	3,098	19,250	114,844	137,192
1966	....	....	....	3,110	20,696	120,216	144,022
1967	....	....	....	3,302	23,652	134,029	160,983

(a) Includes baconers, porkers, suckers, weaners and slips.

The next table shows the numbers and gross value of pigs slaughtered in each of the years 1962-63 to 1966-67, together with the quantity of meat produced. Factory production of bacon and ham is also shown.

PIGS SLAUGHTERED (a) AND MEAT PRODUCED

Year ended 30 June—	Pigs slaughtered		Pigmeat produced (c)	Bacon and ham produced (d)
	Number	Gross value (b)		
		\$'000	'000 lb	'000 lb
1963	237,422	5,411	26,276	8,594
1964	185,222	5,118	22,066	8,468
1965	182,822	5,915	22,089	8,921
1966	195,439	5,953	23,395	9,605
1967	214,637	6,021	25,948	10,259

(a) Comprises slaughtering in abattoirs, butcheries and on stations and farms. (b) Value 'on hoof' at principal market or at factory door. (c) Dressed carcass weight; excludes offal but includes quantities used to produce bacon and ham. (d) Factory production.

LIVESTOCK IN AUSTRALIA

The following table gives details of livestock numbers in each State and Territory of Australia at 31 March 1967.

LIVESTOCK NUMBERS AT 31 MARCH 1967—AUSTRALIA
(Thousands)

State or Territory	Sheep	Cattle				Pigs
		Bulls (1 year and over) used or intended for service	For production of milk or cream	Mainly for meat production	Total	
New South Wales	63,848	83	1,052	3,011	4,146	514
Victoria	31,239	75	1,913	1,540	3,528	351
Queensland	19,305	126	880	5,913	6,919	468
South Australia	17,864	16	239	431	687	222
Western Australia	27,370	26	194	1,137	1,357	161
Tasmania	4,321	9	247	266	522	86
Northern Territory	(a) 8	(a) 32	(b) 1	(a) 1,064	(c) 1,097	(a) 3
Australian Capital Territory	281	(d)	2	11	14	(e)
Australia	164,237	367	4,528	13,375	18,270	(f) 1,804

(a) At 30 June 1967. (b) At 30 September 1966. (c) See footnotes (a) and (b). (d) Less than 500. (e) Not available for publication. (f) Incomplete. Excludes Australian Capital Territory.

POULTRY FARMING

Poultry farming in Western Australia is now mainly a specialist industry and a large proportion of the egg production is on holdings which carry sufficient birds to make the activity the sole or predominant source of income. Most of the commercial poultry farms are situated in the Perth Statistical Division, within a 30-mile radius of Perth, but birds are also kept for commercial production on orchards, dairy farms and wheat farms throughout the agricultural areas.

On specialist poultry farms modern developments in breeding, sexing and nutrition have resulted in considerably higher egg production per bird. Egg-producing birds are largely first-cross hens, bred mainly from White Leghorn cocks and Australorp hens. Production of poultry meat has increased considerably in recent years. It is now predominantly a specialised industry using strains of birds which have been developed specifically for meat production.

Under the *Marketing of Eggs Act, 1945-1965*, all producers are required to market their eggs either through the Western Australian Egg Marketing Board or under the permit system which is administered by the Board. The principal purpose of this legislation is to ensure satisfactory disposal of eggs, including that surplus over local requirements which is consistently produced and which must be sold overseas at prices which usually do not offer a reasonable return to the producer. In order to provide a fund with which

to equalise returns from local and export sales the Board, prior to 1 July 1965, made a charge on all eggs sold locally. This charge has now been replaced by a levy imposed by Commonwealth legislation which came into operation on 1 July 1965.

The *Poultry Industry Levy Act 1965-1966* provides for the imposition throughout Australia of a levy on hens not less than six months old kept for commercial purposes. Special exemptions are made in respect of 'broiler breeder hens', being hens used to produce chickens for table purposes. The levy, which does not apply to flocks of fewer than twenty-one hens, nor to the first twenty hens in any flock, is payable fortnightly and may not exceed \$1 annually per bird. It commenced on 1 July 1965 at a rate of 2.71c per fortnight for each hen. Subsequently, the levy was increased and reached the maximum permitted by the Act (\$1 annually per hen) in 1966-67 and 1967-68. In July 1968 the levy stood at 4.00c per fortnight for each hen.

Under the *Poultry Industry Levy Collection Act 1965-1966* the authority responsible for the collection of the levy in this State is the Western Australian Egg Marketing Board. The *Poultry Industry Assistance Act 1965-1966* establishes a Poultry Industry Trust Fund for the receipt of the amount of the levy and other moneys. The Act provides for payment from the Fund to a State, by way of financial assistance, of such amounts as the Commonwealth Minister may determine upon the recommendation of The Council of Egg Marketing Authorities of Australia.

Although the Commonwealth levy replaces the egg equalisation levies formerly imposed by the several State authorities for the purpose of equalising returns from local markets and export sales, the State authorities continue to make charges necessary to defray the costs of handling, grading and marketing of eggs.

In 1966-67 Kuwait, the Federation of South Arabia, Qatar, Saudi Arabia, the Trucial States, and the Bahrain Islands were the most important overseas markets for eggs in the shell. Exports of egg pulp were not significant in 1966-67.

POULTRY NUMBERS (a)

At 31 March—							Fowls	Ducks	Turkeys	Geese
1963	....	....	....	....	....	....	1,443,516	12,328	8,327	896
1964	....	....	....	....	....	....	1,613,079	10,094	7,495	749
1965	....	....	....	....	....	....	2,006,988	7,851	10,005	643
1966	....	....	....	....	....	....	1,914,759	15,729	15,621	1,190
1967	....	....	....	....	....	....	2,460,144	25,831	22,678	6,692

(a) Figures for 1967 include details of poultry for non-commercial purposes on rural holdings which are excluded in previous years.

EGGS SOLD AND POULTRY SLAUGHTERED FOR TABLE PURPOSES

Year ended 31 March—	Eggs sold (a)		Poultry slaughtered for table purposes
	Quantity	Gross value	Gross value
	'000 dozen	\$'000	\$'000
1963	7,644	3,522	2,164
1964	8,092	3,719	2,661
1965	8,627	3,884	3,139
1966	10,063	4,735	3,666
1967	9,603	4,863	4,922

(a) Figures for 1967 include details of poultry for non-commercial purposes on rural holdings which are excluded in previous years.

BEE KEEPING

Commercial producers of honey in Western Australia may be divided into three categories. There are a comparatively small number of specialist apiarists, engaged solely or mainly in honey production, who operate on a large scale and transport their hives from district to district. There are also some substantial producers who are engaged in agricultural activities and use their farms as a central site from which they may transport their hives

to other areas as necessary. Finally there are the many farmers and orchardists who keep a few hives and produce honey as a minor supplementary activity. This pattern of production is illustrated by the following table.

BEE KEEPERS, BEEHIVES AND HONEY PRODUCTION (a)—1966-67

Classification of hives (a)	Bee keepers (b)		Productive beehives (c)		Honey production	
	Number	Proportion of total (per cent)	Number	Proportion of total (per cent)	Quantity	Proportion of total (per cent)
5-19	201	43.04	824	2.02	lb 36,428	0.53
20-49	108	23.13	1,385	3.39	72,326	1.05
50-99	39	8.35	1,631	3.99	114,680	1.67
100-199	43	9.21	4,503	11.03	498,372	7.24
200-299	17	3.64	3,718	9.11	424,794	6.17
300-499	30	6.42	10,470	25.64	2,032,352	29.53
500-799	21	4.50	10,819	26.50	2,226,147	32.35
800 and over	8	1.71	7,480	18.32	1,476,855	21.46
Total	467	100.00	40,830	100.00	6,881,954	100.00

(a) Excludes details of bee keepers with less than five hives. (b) At 30 June 1967. (c) Represents the number of hives at 30 June 1967 from which honey was taken during the year and excludes hives kept for production but from which no honey was taken, nuclei, pollination hives, etc.

In 1966-67 exports of honey totalled 7,504,948 lb, the export value being \$847,991. The principal buyers were the United Kingdom, which purchased 5,588,800 lb, the Federal Republic of Germany 300,160 lb, and the other Australian States 296,628 lb.

BEEHIVES AND PRODUCTION OF HONEY AND BEES-WAX (a)

Year	Beehives (b)		Honey production		Bees-wax production	
	Productive (c)	Unproductive (d)	Quantity	Gross value	Quantity	Gross value
1962-63	number 37,380	number 8,800	'000 lb 6,099	\$'000 537	'000 lb 79	\$'000 28
1963-64	39,924	9,480	8,510	860	103	34
1964-65	39,323	9,539	8,066	520	106	42
1965-66	41,749	8,782	10,923	650	138	52
1966-67	40,830	10,402	6,882	440	99	44

(a) Excludes particulars of bee keepers with less than five hives. (b) Number at 30 June. (c) Hives from which honey was taken during the year. (d) Includes hives kept for production but from which no honey was taken during the year, nuclei, pollination hives, etc.

THE DEPARTMENT OF AGRICULTURE

Brief references have been made earlier in this Chapter to the important services rendered to rural producers by the Department of Agriculture. The Department is the branch of the State Government Service responsible for bringing scientific advice to farmers and pastoralists, for carrying out research into a wide range of technical problems and for administering Acts of Parliament dealing with agricultural and pastoral matters. Its activities can be classified under the four headings: investigation or research; advisory, now more commonly called 'extension' functions; provision of certain services for the assistance of the man on the land; and regulatory work which consists of carrying out the provisions of some of the numerous laws relating to agriculture.

The operations of the Department are organised under a series of Divisions and Branches, the heads of which are responsible to the Director of Agriculture. The Divisions are Animal (including Animal Health and Nutrition Laboratory and sections for Veterinary Services, Animal Husbandry, Apiculture, Poultry and Brands), Wheat and Sheep (including the Cereal Products and Fleece Testing Laboratories), Dairy, Horticulture (covering Fruit and Vegetables), Soils (including Soil Conservation and Irrigation), Plant Research, Biological Services (including Plant Pathology, Entomology, Botany,

Seed Certification and Weed Control), and North-West. In addition there are separate sections covering Rural Economics and Marketing, Information, Abattoirs and Library and close liaison is maintained with the Agriculture Protection Board. Muresk Agricultural College was formerly controlled and staffed by the Department but, as from 1 January 1969, the College became part of The Western Australian Institute of Technology.

Sections of government administration known as Departments of Agriculture usually originated in the demands of farmers for government assistance in coping with their technical problems. The Western Australian Department of Agriculture had its origin in a Bureau of Agriculture which was formed in 1894. In 1898 the Department of Agriculture was established and absorbed the staff of the Bureau. Up to this time, some seventy years after the first settlement, agriculture in Western Australia had made little progress. The area of cleared arable land was less than 2 per cent of the present area. Superphosphate had not been used on Western Australian farms and wheat varieties suitable for the drier districts to the east of Northam were not then available. There was little comprehension of the many problems associated with land development and not much public appreciation of the part that science might play in solving them.

From small beginnings the Department's responsibilities and activities extended as agriculture developed. In the first quarter of a century of its existence, expansion and consolidation of farming in the wheat belt overshadowed other activities. That was only natural, as the acreage of wheat for grain expanded from 200,000 in 1905 to nearly four million acres in 1930, and for much of that time the State's development was synonymous with wheat belt expansion.

State Farms and Research Stations

Perhaps the most important work in the Department's first ten or fifteen years was that concerned with the establishment of experiment farms, or 'State farms' as they were at first called. The first of these had its origin in plots which were established at Hamel in 1896. Valuable work was carried on at this centre for nearly twenty years in connection with the growing of potatoes, fruit, cereals, hops, fodder crops and pasture, and some success was achieved with wheat breeding.

Government farms were opened at Narrogin in 1901 and at Nabawa, 25 miles north of Geraldton, in 1902. In 1907 a farm at Nangeenan, near Merredin, was taken over from the Lands Department and is now the Merredin Research Station. In the same year a farm was established in the South-West at Brunswick in order to provide object lessons in dairying, as it was felt that there were great possibilities of expanding the dairying industry. After functioning for several years this farm was closed and the land was subsequently used for closer settlement purposes.

In 1911 a change was made in the policy of the government farms in the wheat belt and their character changed from 'experimental' to 'experiment' farms and ultimately to 'research stations'. Instead of being conducted mainly with the object of producing revenue they were to be used primarily for collecting information concerning local conditions that would be of value to the district. In addition, wheat, oats and barley were bred and pure pedigree seed produced. It would be difficult to over-estimate the subsequent value of the farms in this new role, which is still one of their most important functions. In later years more research stations were established and they now number twenty-two.

Research stations at Nabawa, Badgingarra, Wongan Hills, Merredin, Beverley, Mount Barker, Newdegate, Salmon Gums and Gibson deal with agriculture in the cereal-growing and sheep-raising districts and stations at Bramley (though dealing mainly with beef cattle), Denmark and Wokalup serve the dairying districts. Vegetable research stations are situated at Medina and Manjimup and a new pig research unit has been established at the Medina station. The poultry industry is served by a station at Herdsman Lake. A viticultural research station has been established at Upper Swan and a horticultural research station at Stoneville in the Darling Range to the east of Perth.

The Kimberley Research Station, operated in conjunction with the Commonwealth Scientific and Industrial Research Organization, is concerned with problems of irrigation in relation to agriculture in the tropics, with particular reference to the agricultural settlement now taking place on the Ord River. The Fitzroy Pastoral Research Station in West Kimberley is in an early stage of development. At Abydos, near Port Hedland, regeneration of overgrazed pastoral country and a study of sheep breeding problems are the main concerns. At the Gascoyne Research Station at Carnarvon, problems of growing tropical fruits and winter vegetables, and pastoral problems in the area are being investigated. The Wiluna Groundwater Research Station is for the study of the controlled use of underground water supplies, lucerne growing and sheep feeding problems.

Advisory Services

Extension work is perhaps the Department's most important function and has exercised a powerful influence in publicising and accelerating the adoption of better farming methods. It is difficult to assess the results of any educational undertaking in terms of money, but the desirability of having a well-informed farming community, receptive to new ideas, is obvious. Although the best method of taking advice to farmers is for the technical officer to visit farms for discussion with the farmer on his own property, this is unfortunately not always possible as an officer may have between 500 and 1,000 farms in his district. Individual visits often have to be restricted to cases where a specific request has been made or where some urgent action is required.

Extension officers support and foster the formation of farmers' organisations such as Pasture Groups and attend meetings and field days where talks can be given to groups of farmers. It is estimated that in the past year over 8,000 farmers attended nearly 160 field days with which the Department was associated. Field experiments, both at the stations and on farmers' properties, form an excellent basis for demonstrations and talks. The various competitions in which extension officers act as judges provide another means of bringing farmers together for discussion. These competitions are generally concerned with crops and pastures but may include other types such as those conducted by Junior Farmers' Clubs for show exhibits and for debates. Extensive use is made of the radio which, in Western Australia, probably reaches more people than does any other medium. Between 200 and 300 broadcasts are given by departmental officers each year and a weekly press service is maintained to supply information through press, radio and television. In addition, the Department produces several publications including a monthly *Journal of Agriculture*, which has a circulation of about 20,000, special quarterly publications for dairy farmers and bee keepers, and bulletins covering a wide range of subjects.

Advisory work is not concentrated in a single Division but is carried out by several Divisions and Branches of the Department. In recent years to decentralise the work of the Department, groups of officers have been stationed at Albany, Armadale, Bridgetown, Bunbury, Busselton, Denmark, Derby, Esperance, Geraldton, Harvey, Kalamunda, Kalgoorlie, Katanning, Kununurra, Lake Grace, Manjimup, Margaret River, Merredin, Moora, Narrogin, Northam, Three Springs, Wiluna and at the Gascoyne and Kimberley Research Stations. An officer is also stationed at each of the following places: Broome, Camballin, Donnybrook, Gosnells, Jerramungup, Kellerberrin, Koorda, Midland, Mount Barker, Mundaring, Pinjarra, Port Hedland and Wyndham.

Research Activities

In the field of investigation and research, problems which have been dealt with would comprise a lengthy list and only a few of the more important can be mentioned here. The value to the State of cereal-breeding activities is well known. Cereal varieties produced by the Department have increased the income of farmers by many millions of dollars over the years in which they have been grown. The introduction of new plant species and varieties, the evaluation of their suitability for local conditions and the determination of rotations for improving yields and maintaining soil fertility are important features of the work in cereal-growing districts.

Research into plant diseases and deficiencies forms another important section of the Department's investigational work. Considerable success has been achieved in the recognition and remedying of deficiencies of trace elements in soils, notably of copper, zinc and molybdenum. As a result of this work, fertilisers containing trace elements have been applied in recent years to extensive areas of the State's farming land. These investigations, together with allied work on superphosphate and sulphur and the establishment of subterranean clover pastures, constitute the technical factors which have made possible the rapid post-war expansion of light land development.

In the pastoral areas of the north-west the sheep-carrying capacity of large tracts of country has been seriously reduced by drought and overgrazing. Recent work by officers of the Department has shown that much of this country can be reclaimed by adopting systems of grazing management different from those employed in the past.

Nutritional disorders and diseases of farm animals cause considerable loss to farmers and pastoralists. Some of the Department's most notable successes have been achieved when dealing with problems in this field, which include enzootic ataxia, enterotoxaemia, toxic paralysis, clover disease in sheep, copper and cobalt deficiencies in cattle, contagious pleuro-pneumonia, Kimberley horse disease, plant poisoning of stock and infertility in dairy cows. Problems of sheep infertility, of lupinosis, brucellosis in sheep and in beef herds in south-west areas and of mastitis in dairy cows are among investigations at present in progress.

A soil conservation service was established in the Department in 1947. Since then a great deal of information about the incidence and nature of erosion has been collected and many farmers have been assisted with their erosion problems. Considerable attention has also been given to the salt problem in the agricultural districts.

In somewhat more restricted fields the use of a hormone spray instead of cincturing, for currant vines, is a noteworthy change in agricultural practice resulting from investigations by the Department. The selection of the rust-resistant runner bean variety, 'Westralia', has greatly reduced one of the hazards with which the bean grower has to contend.

Agriculture Protection

For the control, prevention and eradication of noxious weeds and vermin, there is an Agriculture Protection Board which operates in collaboration with the Department of Agriculture.

The Board, which was established in 1951 following recommendations by a Royal Commission, is constituted under the provisions of the *Agriculture Protection Board Act, 1950-1964*, and comprises the Director of Agriculture or his deputy, as Chairman; the Chief Vermin Control Officer of the Department of Agriculture; an officer of the State Treasury; two representatives of the agricultural industry; one representative of the pastoral industry; and five representatives of local government authorities.

The income of the Board consists of appropriations from the Consolidated Revenue Fund and other moneys as prescribed by the Agriculture Protection Board Act.

For the purposes of the Agriculture Protection Board Act, the term 'noxious weeds' means those plants which are so proclaimed or declared under the *Noxious Weeds Act, 1950-1965*. 'Vermin' means any animal, bird or insect proclaimed to be vermin as provided by the *Vermin Act, 1918-1965*, and includes rabbits, foxes, dingoes, sparrows, starlings, Argentine Ants and grasshoppers.

The Board formulates policies for the control, prevention and eradication of noxious weeds and vermin, advises on methods, directs and assists in general operations, provides services to help local government authorities and landholders in destruction work and conducts scientific research and investigations for the improvement of control techniques and policies. Control work extends to Crown lands, including reserves, for the benefit of adjoining landholders.

Improvements in the control of both noxious weeds and vermin have resulted from the activities of the Agriculture Protection Board and there have been some notable successes, including a great reduction in rabbit numbers effected by the use of myxomatosis virus and by organised drives for their destruction, mainly by poisoning.

Other Services

The Department operates certain services which assist the producer to increase his efficiency. Probably the best known is the production of pure pedigree varieties of seed wheat, oats and barley. These are of value to the cereal grower, who is able to obtain his requirements at moderate cost. Sponsoring and supervising the production of approved lines of seed, notably potatoes and beans, has led to the wide use of these specialised lines with a resulting increased yield, and certification of pure lines of pasture seed gives farmers a guarantee of quality in the seed they buy. Assistance to dairy farmers to form herd-testing units, thus enabling them to gauge the performance of their herds, is another service of similar nature. Assistance and technical advice is given to farmers concerned with the installation of irrigation schemes and the preparation of land for irrigation.

The producers who benefit from the services mentioned in this section pay something for them, but not necessarily the full amount of the cost of providing them.

Administration of Acts

The Department of Agriculture is responsible for administering some fifty Acts concerning a wide range of subjects. Some of the more important relate to animal and plant diseases and insect pests, industry trust funds, soil conservation, vermin control, marketing of agricultural products and registration of feeding stuffs, fertilisers and stock brands.

ARTIFICIAL BREEDING BOARD

The Artificial Breeding Board was established under the *Artificial Breeding Board Act, 1965* which came into operation by proclamation on 16 December 1966. The Act provides that the board shall consist of a chairman, vice-chairman and three other members, of whom one shall be a veterinary surgeon. Responsibility for promotion of artificial breeding of stock has been placed in the hands of the Board which, in effect, assumed control of artificial insemination work established in 1956 by the Department of Agriculture at the Wokalup Research Station.

FARM MANAGEMENT SERVICE LABORATORY

The University of Western Australia, by resolution of the Senate, approved the establishment of the Farm Management Service Laboratory within the University in 1966. The aims of the Laboratory are to develop concepts and services in management accounting and planning which are specially suited to the needs of farmers; to make these developments available to farmers; and to use information processed by the Laboratory for teaching and research within the Institute of Agriculture at the University of Western Australia.

The Laboratory hires its own staff and computer time, and pays its own operating expenses. Fees are charged to cover costs, though initially the Laboratory has been drawing on capital grants made to it by various firms and institutions through the John Thomson Agricultural Economics Centre at the Institute of Agriculture.

Services provided by the Laboratory have recently been extended to include computer techniques for planning farm businesses and solving farm problems. A set of programmes is being developed for these purposes and pilot studies are under way.

Some 450 farmers in Western Australia enrolled to obtain the Managerial Information Service of the Laboratory in its initial year. The service has since been extended to farmers outside this State.

TRAPPING

Although trapping has been carried on from the first years of settlement, it has never been an important industry. In 1966-67 the recorded gross value was only \$986,286 but reliable and complete information is difficult to obtain and this amount could therefore be deficient.

Kangaroos have been destroyed in great numbers from the earliest days, the principal reason for the organised destruction being the damage done to pastures and fencing. As early as 1849 the export of kangaroo skins for the year was no less than 12,387. Skins are still exported and some are also used in local factories. Kangaroo meat is used as pet food.

The earliest recorded export of rabbit skins relates to the year 1900 and the meat and skins of these animals have been a source of income to trappers ever since. In an attempt to reduce the damage done to crops and pastures, various methods of control have been adopted and since the second World War an intensive campaign, using myxomatosis virus, poisons and warren ripping, has met with considerable success. As a result, the quantity of rabbit meat produced and the number of skins exported and treated locally have declined greatly and are now insignificant.

Wild goats are slaughtered and the meat is exported.

The skins of animals other than marsupials and rabbits, together with exports of Western Australian fauna, are taken into account in the value of the trapping industry (see tables on page 312) but these are not significant.

FORESTRY

The Prime Indigenous Forests

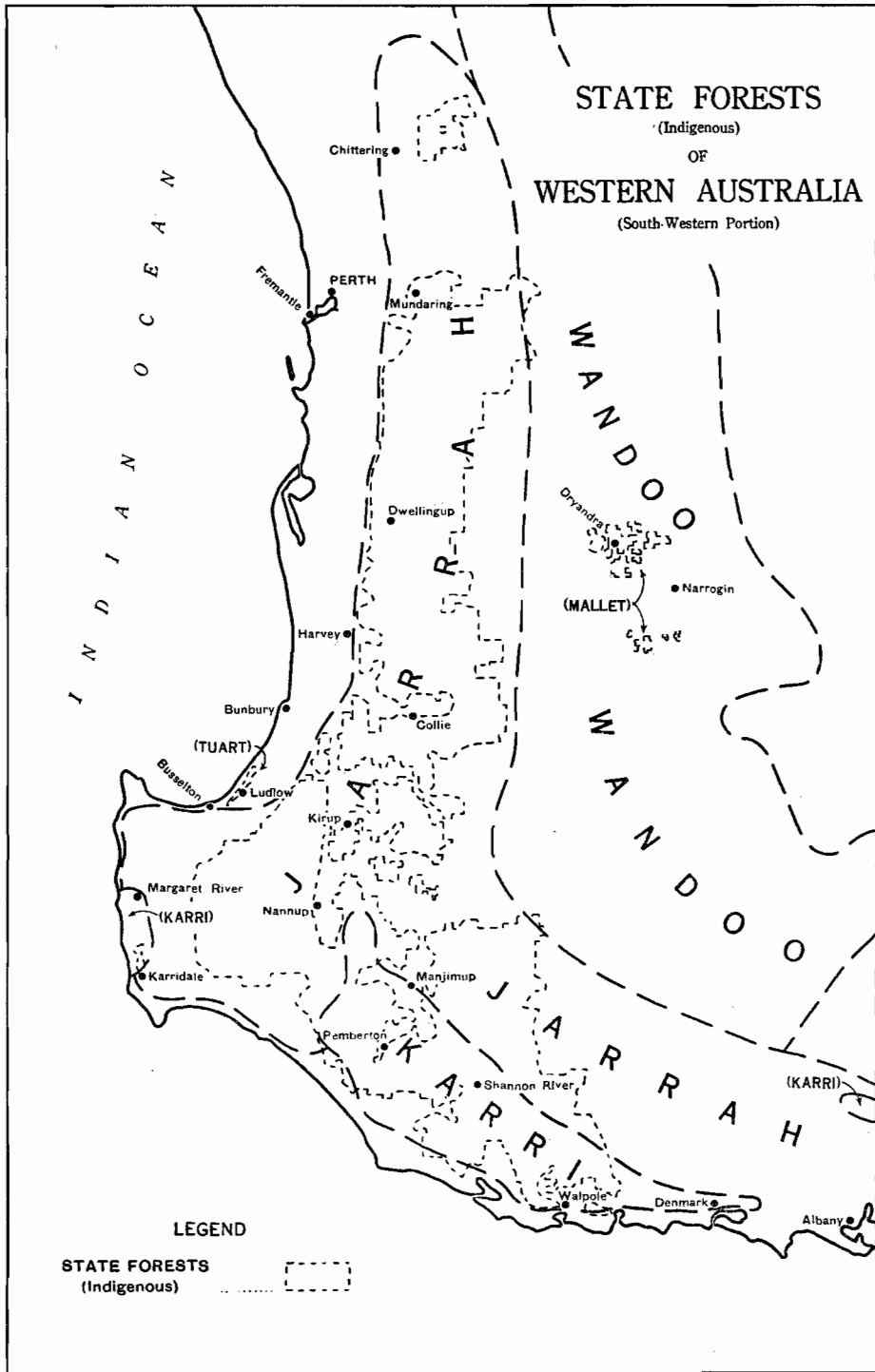
Although the prime indigenous forests of Western Australia cover only a small percentage of the area of the State, they are of considerable economic importance. This is not only on account of the durability, strength and general-purpose nature of their hardwood timbers, but also because of their occurrence on the water catchment areas in the high-rainfall and closely-populated section of the State. Being easy to regenerate after cutting, they form a natural and effective protection against soil erosion. Nearly 4.5 million acres have been permanently dedicated as State Forests and approximately 2.5 million acres have been established as Timber Reserves under the Forests Act and the Land Act.

Jarrah (*Eucalyptus marginata*) is the State's principal timber and the prime forest covers over three million acres of the State Forests. Karri (*E. diversicolor*) is next in importance and is distributed over some 800,000 acres but only about 20 per cent of it is in pure stands. Wandoo (*E. redunca*) accounts for a smaller portion of the dedicated area and Tuart (*E. gomphocephala*), another valuable timber, has a restricted area of about 6,000 acres. Blackbutt (*E. patens*) occurs in patches throughout the jarrah and karri forests and is an important milling timber with properties and uses similar to jarrah. Marri (*E. calophylla*), the most widespread of the commercial eucalypts, is noted as a pole timber and is now being sawn in increasing quantities for building scantling. Of greatest importance, however, is the potential of marri as a resource for a wood chip or wood pulp industry.

Other eucalypts and many trees of different genera occur within the prime forest belt but they are not of major economic importance. The main distribution of the prime forests, which are practically confined to the south-western portion of the State, is shown on the accompanying map.

The Inland Forests

Beyond the area of prime forest is an inland forest of sclerophyllous woodland, within which are a number of eucalypts (both tree and mallee form), as well as several types of *Acacia*, such as the wattles and mulgas, tea tree (*Melaleuca spp.*) and casuarinas.



Sandalwood (*Santalum spicatum*), indigenous to the wheat belt and semi-arid areas of the State, is still exported to Asian countries but is now obtained only from the semi-arid regions.

While none of the inland forest can be classed as suitable for sawmilling in the ordinary sense, it forms an important source of timber for mining and agricultural purposes. During recent years, soil conservation in the regions of low rainfall has received increasing attention and the importance of controlling clearing, grazing and firewood cutting has been recognised. The Forests Department maintains a staff to exercise these controls and to advise on tree planting.

Forestry Administration

Scientific forestry was given considerable impetus in Western Australia with the passing of the Forests Act in 1918. Extensive cutting over the previous fifty years had seriously depleted the State's timber resources and adequate provision had not been made for protection and regeneration. Under the Act, however, wide powers are conferred on the Forests Department, which is granted nine-tenths of the net annual government revenue from forestry sources. The sum received, together with various other grants, is used for regeneration, fire control and associated purposes.

The forests are now managed on a long-range working plan to ensure continuity of the industry, trees being approved for cutting and marked accordingly by trained foresters, who work under the direction of the Conservator of Forests and closely control both the indigenous forest and the mallet and pine plantations. The future productivity of the forests is also safeguarded by ensuring that cutting is carried out in such a way as to protect immature growth and to encourage natural regeneration, which is a very important feature of the Department's policy.

Brown Mallet (*Eucalyptus astringens*), the bark of which has a high tannin content, once covered large areas in the wandoo forest belt (see map on page 350) but was practically exterminated by clearing for farms and by excessive exploitation. Regenerated areas and plantations of mallet now total 19,111 acres and it is unlikely that this total area will increase.

Plantation methods are being employed to grow pines, principally *Pinus pinaster* and *Pinus radiata*, as the State has no indigenous softwoods of commercial significance. Financial assistance granted by the Commonwealth in terms of the *Softwood Forestry Agreements Act 1967* will enable the State, from 1968, to plant 6,000 acres per annum. Thirteen plantations with a planted area of 53,944 acres have been established and it is planned to provide, ultimately, 240,000 acres of pine forest. Most of the land selected for pine planting is of limited value for agriculture but when used for pines it constitutes a valuable long-term investment, with the prospective development of industries for the manufacture of paper, wallboard and similar products.

Because of the hot, dry summers experienced in most of the areas covered by State Forests, there is a considerable risk of damage by fire and intensive precautions are taken by the Department to minimise this danger. Look-out towers, provided with radio or telephone communication, are manned at strategic points and controlled burning of approximately 900,000 acres per year is carried out during spring and, to a lesser extent, in autumn. Trials, over the past three years, of prescribed burning by dropping incendiaries from a low-flying aircraft have proved successful and, during 1967-68, over 400,000 acres were burnt in this way. Restrictions are placed on all burning operations by farmers and other persons when the fire hazard is high and at such times warnings are issued emphasising the danger.

In association with the system of cutting control, various royalties, licence and permit fees are collected as part of the Consolidated Revenue of the State.

Information concerning forest tenures, the issuing of licences and permits, etc. is given under the heading 'Forests Department' in the section *Methods of Leasing* in Chapter VII, Part 1.

Principal Forest Products

Sawn timber is the principal form of forest production, but there has been a rapid increase in the local use of logs for plywood manufacture during recent years. Karri and, to a lesser extent, locally-grown pine logs are used for this purpose, together with imported logs. Particle board, manufactured from small-size thinnings from coastal plantations of *Pinus pinaster*, is becoming an increasingly important product.

In addition to these major products, the State's forest wealth includes wandoo (the whole tree) and mallet bark for tannin extract, sandalwood for export and as a source of sandalwood oil, firewood for general purposes, and various seeds and plants for propagation both in Australia and abroad. Wandoo and jarrah are used as a source of charcoal for the high-grade charcoal pig-iron produced at Wundowie. The karri, wandoo, marri and some inland species are important nectar producers for apiarists, who move their bees to various forest sites in following the nectar flow.

The following table gives details of sawn and round timber production from 1957-58 to 1966-67. After reaching a figure of 211·8 million superficial feet in 1958-59, sawn timber production then fell substantially and did not reach this level again until 1965-66 when production was 211·6 million superficial feet. A decline was again registered in 1966-67 when production fell to 204·5 million superficial feet. During the ten-year period covered by the table, the output of round timber, which consists mainly of mining timber, piles, poles, fencing posts and rails, ranged between a maximum of 31·5 million superficial feet in 1957-58 and a minimum of 20·0 million superficial feet in 1962-63.

TIMBER PRODUCTION (a)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Timber—Sawn '000 sup. feet	185,809	195,724	207,304	*211,638	204,505
Timber—Round '000 sup. feet	20,026	23,187	25,950	22,109	21,229

(a) From local logs and includes railway sleepers and plywood veneers in terms of superficial feet. * Revised.

Sawmilling is dealt with in greater detail under *Secondary Industry* in Part 2 of this Chapter.

In 1966-67 exports of railway sleepers totalled 31·8 million superficial feet, of which 6·9 million went to other Australian States and 24·9 million to overseas markets, principally Jordan, New Zealand, Pakistan and the Republic of South Africa. In the same year 20·4 million superficial feet of other timber were exported to other Australian States and 6·8 million were shipped overseas, the principal markets being Netherlands, New Zealand, the Republic of South Africa and the United Kingdom.

FISHERIES (INCLUDING WHALING AND PEARLING)

The fishing industry in Western Australia consists of three distinct activities, the catching of edible species, whaling and pearl-shell production. In addition, pearl culture has been successfully established in recent years.

General Fisheries

Since the end of the second World War, crayfish has become the most important item of production of that section of the industry which is concerned with the catching of edible species. Prior to the war there was a small local market for fresh crayfish, but in 1941 production was stimulated by canning for the armed forces. Although canning continued until 1950, it had become far less important by 1947 than another development, the freezing of crayfish tails for export, mainly to the United States of America. The overseas demand, which developed rapidly in post-war years, gave great impetus to the industry and the take increased almost eightfold between 1947 and 1960-61, when



KARRI FOREST

The karri forest is confined to the hilly country of the extreme south-west of the State where the annual rainfall is in excess of 40 inches. Distributed over some 800,000 acres, the karri tree (*Eucalyptus diversicolor*) attains a height of nearly 300 feet and is the source of a valuable hardwood timber.

total production of live crayfish was 18·0 million lb, valued at \$6·01 million to the fishermen. The highest catch ever recorded was in 1962-63 when production reached 21·4 million lb, the value being \$7·91 million. Production in 1966-67 was 19·0 million lb for a value of \$11·3 million. Overseas exports of crayfish tails in 1966-67 totalled 8·0 million lb, with an f.o.b. value of \$13·9 million, the highest ever attained.

The most important commercial species of crayfish in Western Australian waters is *Panulirus cygnus*, which occurs off the south-west coast between Geraldton and Hamelin Bay. The principal localities around which crayfish are caught are the Abrolhos Islands, Geraldton, Dongara, Beagle Island, Green Head, Jurien Bay, Cervantes, Lancelin, Ledge Point and Fremantle. The industry is protected from overfishing by such measures as the declaration of closed seasons; the proclamation of fishing zones; the prohibition of the taking of fish of less than a prescribed size or of female crayfish having berry (*i.e.* eggs) attached; requiring that every crayfish pot shall have an escape gap of specified dimensions; the granting only in special circumstances of new licences for boats for crayfishing; and limiting the number of pots that a boat may carry or use at any one time. The catch is processed either on specially equipped freezer boats or at shore stations licensed under the *Fisheries Act, 1905-1967* as processing establishments.

The large catches of Australian salmon (*Arripis trutta*), which school in the bays on the south and lower south-western coasts, yield a large proportion of the production of inshore and beach fishing and are used almost exclusively for canning. The remainder of the catch from this type of fishing comprises chiefly tailor (*Pomatomus saltator*), sea herring or ruff (*Arripis georgianus*), Western sand whiting (*Sillago schomburgkii*), sea mullet (*Mugil cephalus*) and trevally or skipjack (*Usacaranx georgianus*). This is sold mainly as wet fish on the local market, but large quantities of sea herring are canned and there are some exports, principally of whiting, to the other Australian States.

The coastal waters northward from the mouth of the Murchison River to North West Cape and Exmouth Gulf are the source of several species of commercial importance. Snapper (*Chrysophrys auratus*) are caught between the Murchison River and North West Cape, during the northern schooling season from May to August. Cod and groper, though in smaller quantities, are also caught between the Murchison River and North West Cape. The waters northward from the Murchison River to Bernier Island, west of Carnarvon, yield heavy catches of Westralian jewfish (*Glaucosoma hebraicum*). At Shark Bay a prawn-fishing industry has been successfully established in recent years, the catch being processed at Carnarvon. The species caught are the Western king prawn (*Penaeus latisulcatus*) and the tiger prawn (*P. esculentus*). A prawn fishery has also been established at Exmouth Gulf, the principal species being the banana prawn (*P. merguensis*) and the tiger prawn. The catch is processed at Learmonth and on freezer boats. As a conservation measure the number of fishing boats licensed to operate has been limited to thirty at Shark Bay and seventeen at Exmouth Gulf. From a catch of 238,937 lb in 1961-62, the production of prawns increased to 3,897,552 lb in 1966-67. Production is expected to increase still further due to the establishment of commercial prawn fishing in the Nickol Bay area, near Roebourne, and because of promising experimental trawling being carried out in other areas along the north-west coast.

The first fishing grounds to be exploited were the estuaries and rivers and, although they are not now as important as other grounds, they still provide substantial quantities of fish of a fairly wide variety. The principal species are cobbler (*Cnidoglanis macrocephalus*) and yellow-eye mullet (*Aldrichetta forsteri*), most of which are caught in Leschenault and Peel Inlets and the Harvey and Swan estuaries. Other species include garfish (*Hemirhamphus australis*), Perth herring or gizzard shad (*Fluvialosa vlaminghi*), sea mullet, tailor, sand whiting, King George whiting (*Sillaginodes punctatus*), and flat-head. Crabs (*Portunus pelagicus*), king prawns and other prawns are also caught commercially in these waters.

There are no indigenous inland or freshwater fish of commercial value. A small crustacean, the marron (*Cherax tenuimanus*), occurs in the streams of the lower South-West. Brown trout, rainbow trout and English perch have been introduced into the streams of the southern districts.

Research work on crayfish, Australian salmon, prawns, tuna, whiting and whales in Western Australian marine waters is being carried out by the Commonwealth Scientific and Industrial Research Organization in association with other Commonwealth and State Government authorities, including the Western Australian Department of Fisheries and Fauna, for whom a new marine research centre has been built at Waterman, about ten miles north of Fremantle. The centre incorporates eleven separate laboratories and a large aquarium, with circulating water, for experiments and studies of fish behaviour.

The principal species of edible fish are shown in the following table with the quantities of each species caught in the years 1962-63 to 1966-67.

PRODUCTION OF FISH (a)

Species—Common name	1962-63	1963-64	1964-65	1965-66	1966-67
Crustaceans—	lb	lb	lb	lb	lb
Crabs	35,685	29,751	27,992	34,526	95,995
Crayfish	21,380,000	17,972,537	16,378,120	17,794,139	18,956,062
Prawns	1,016,751	2,118,317	1,829,490	2,484,785	3,897,552
Total	22,432,436	20,120,605	18,235,602	20,313,450	22,949,609
Other—					
Bream, Black	27,526	32,242	37,733	32,608	28,941
Bream, Buffalo	17,309	38,898	29,361	16,647	17,379
Bream, Western Yellowfin	46,261	36,795	49,829	25,302	4,065
Cobbler	495,478	486,991	255,461	206,306	197,087
Cod	18,981	43,688	49,283	57,049	35,951
Flathead	17,019	22,600	17,446	19,723	18,844
Garfish, Sea	34,931	73,576	51,780	62,612	51,035
Groper	21,030	19,447	27,445	31,714	29,003
Herring, Perth	106,803	184,238	311,204	*483,557	469,810
Jewfish, Westralian	292,830	321,386	283,467	273,679	286,096
Mackerel, Scaly	92,277	107,347	257,103	373,729	80,968
Mackerel, Spanish	139,299	192,821	229,641	226,372	119,771
Mullet, Sea	902,137	902,142	984,206	1,216,315	991,808
Mullet, Yellow-eye	443,532	373,788	431,508	772,999	769,550
Mulloway (River Kingfish)	8,804	28,024	39,471	46,448	18,767
Pilchard	161,492	39,065	20,689	336,794	260,963
Ruff (Sea Herring)	839,012	529,006	880,922	939,261	710,425
Salmon, Australian	3,156,585	4,614,914	3,401,307	6,508,108	9,244,698
Samson Fish (Sea Kingfish)	72,488	80,164	62,821	118,464	115,969
Shark	681,838	687,660	802,478	969,574	837,752
Snapper	1,385,711	1,543,052	1,083,244	548,589	572,698
Tailor	196,542	163,201	191,768	196,210	134,573
Tarwhine	5,359	9,885	4,325	10,439	2,583
Trevally, Silver (Skipjack)	80,269	81,388	104,475	106,466	63,990
Tuna	121,321	52,909	32,902	47,465	106,341
Whiting, King George	59,358	45,896	37,314	45,361	43,259
Whiting, Western Sand	559,977	542,131	413,993	399,964	468,748
Other species (b)	321,843	993,001	1,589,752	*1,545,540	923,979
Total	10,306,012	12,246,255	11,680,928	15,617,295	16,605,053
GRAND TOTAL	32,738,448	32,366,860	29,916,530	35,930,745	39,554,662

(a) Estimated live weight.

(b) Includes turtles and edible molluscs.

* Revised.

A summary of the principal statistics of the fishing industry is given in the following table.

GENERAL FISHERIES

At 31 December	Boats licensed	Value of boats and equipment	Fishermen licensed (a)	Year ended 30 June—	Production			
					Crayfish		Other fish (b)	
					Quantity (c)	Value	Quantity (d)	Value
	number	\$	number		'000 lb	\$	'000 lb	\$
1962	1,325	8,588,200	2,483	1963	21,380	7,906,000	10,134	1,203,602
1963	1,456	9,780,520	2,526	1964	17,973	6,889,472	11,494	1,374,882
1964	1,438	9,246,590	2,299	1965	16,378	11,191,714	10,361	1,299,552
1965	1,458	8,795,976	2,346	1966	17,794	11,388,247	14,343	1,256,267
1966	1,475	9,707,380	2,350	1967	18,956	11,344,143	15,960	1,013,173

(a) Comprises employees and working proprietors.
weight of whole crayfish.

(d) Estimated live weight.

(b) Excludes crustaceans, edible molluscs and turtles.

(c) Live

Whaling

Whaling has been conducted along the Western Australian coast from the first years of settlement and whale oil and whale bone were among the earliest exports from the Colony. Activity since then has fluctuated widely and at times ceased altogether. The latest large-scale revival of the industry began in 1949, when a station at Point Cloates on the north-west coast was reopened after a lapse of more than twenty years. A treatment plant was established by the Australian Whaling Commission at Babbage Island, near Carnarvon, in 1951 and a plant at Frenchman Bay near Albany was enlarged in the following year. In 1956, the company operating from Point Cloates purchased the Australian Whaling Commission's station at Babbage Island and transferred its activities to that base.

During the 1963 season the two whaling companies operating in Western Australia took only eighty-seven humpback whales, compared with a quota of 550 allocated under the procedure laid down by the International Whaling Commission. At a meeting held in London in July 1963 the Commission decided that more stringent measures should be adopted to prevent further depletion of numbers. Accordingly it imposed a total ban on the taking of humpback whales for an indefinite period in all waters of the Southern Hemisphere. The company operating from Carnarvon, which relied mainly on the taking of humpbacks, ceased whaling activities at its Carnarvon base early in August 1963.

Before the 1962 season the whales taken were predominantly humpbacks. The only station now operating is at Frenchman Bay where sperm whaling has been carried on since 1955.

The figures in the following table have been derived from information provided by the Fisheries Branch of the Commonwealth Department of Primary Industry.

WHALING

Year	Humpback		Sperm	
	Whales taken	Oil produced (a)	Whales taken	Oil produced (a)
1963	(b) 88	tons 638	(c) 654	tons 4,028
1964	801	5,069
1965	668	4,379
1966	606	4,042
1967	587	3,738

(a) 1 ton = 6 barrels (approximately).

(b) Includes one blue whale.

(c) Includes three sei whales.

Pearl-Shell Fishing and Pearl Culture

Pearl and pearl-shell fishing has been a valuable industry for many years, the main centre being Broome. The pearls obtained were once an important feature of production but the success of the industry now depends almost entirely on the shell produced and the price obtainable for it. Activities were suspended following the outbreak of war with Japan, when valuable luggers and equipment were lost. After the war recovery of the industry was slow because of a shortage of suitable boats and the difficulty in obtaining experienced divers. In 1953 the rate of progress improved when the services of trained Japanese divers again became available. By 1957 production of shell had reached the pre-war level of about 1,000 tons but due to the depressed state of the market it fell to 753 tons in 1958. Except for a slight recovery in 1960, production declined in each year from 1959 until 1964, when 138 tons of shell were raised. In 1965 and 1966 quantities increased slightly to 160 tons and 185 tons respectively, due to the increased demand for shell for pearl culture. A further gain was recorded in 1967 when production reached 221 tons.

In 1956 a licence was granted to a company to culture pearls at Kuri Bay in Brecknock Harbour, 130 miles north-east of Derby. The initial harvest of pearls was gathered in 1957 and thereafter from 1958 to 1966 the quantity harvested increased each year.

Practically the whole of the output was marketed overseas. Licences have since been issued for the establishment of pearl culture farms in Samson Inlet, Hiro Bay and Mura Bay and in King Sound and at Exmouth Gulf near Giralia Landing. Pearls were harvested at Exmouth Gulf for the first time in 1965. During 1966 approximately 50,000 live shells were shipped from Western Australia to Papua, where they were used to establish the pearl culture industry at Fairfax Harbour. A further 40,000 live shells were shipped in 1967. Figures in the following table do not include details of culture pearl production.

PEARL AND PEARL-SHELL FISHERIES
(Excluding Pearl Culture)

Item	Year ended 31 December—				
	1963	1964	1965	1966	1967
VESSELS OPERATING					
Number	13	10	11	13	14
Aggregate tonnage	338	256	252	301	332
Value (including equipment)	\$ 134,000	108,000	96,600	106,000	123,500
NUMBER OF PERSONS ENGAGED					
European	6	10	5	7	9
Australian Aboriginal	19	19	25	17	8
Asian—					
Chinese	6	4	2	2	1
Filipino ....	....	....	....	....	....
Japanese	45	30	28	34	37
Koepanger	2	1	2	2	1
Malay	42	38	44	60	76
Other ....	....	1	1	1	....
Total	95	74	77	99	115
Total persons engaged	120	103	107	123	132
PEARL-SHELL AND PEARLS PRODUCED					
Pearl-shell—					
Quantity tons	242	138	160	185	221
Value \$	217,700	182,080	258,394	278,608	354,845
Value of pearls \$	8,640	1,092	980	1,329	4,200

MINING AND QUARRYING

The development of mining as a major industry in Western Australia began with the discovery of gold in the Kimberley in 1885, although some forty years earlier coal had been found at the Irwin River and copper and lead in the Northampton district. The impetus given to prospecting by the Kimberley finds led to other gold strikes between 1887 and 1891 and the rich discoveries at Coolgardie in 1892 and at Kalgoorlie in 1893.

The mining industry has been for many years of considerable significance in the Western Australian economy and it has recently increased in importance due to the exploitation of iron ore, nickel, oil and other minerals. The mineral resources of the State are extremely varied in character and are widely distributed geographically. Extensive exploratory work is being undertaken to evaluate the known deposits and also to locate other reserves of minerals. The geology of the State is described in Chapter II Part 1—*Physical Features and Geology*, and reference is made there to the occurrence of mineral deposits.

Developments in recent years have led to a great increase in the value of mineral production. Beach sands in the lower south-west of the State are being exploited for their ilmenite content and bauxite deposits in the Darling Range near Perth are being worked as a source of alumina which is exported interstate and overseas. Vast reserves of high-grade iron ore in the Pilbara and elsewhere are being mined, the first commercial shipments to overseas destinations commencing in 1966. Commercial production of crude oil from Barrow Island and of nickel ore from Kambalda has also begun.

Mineral statistics presented in the following pages are derived principally from the annual census of mining and quarrying conducted by the Bureau of Census and Statistics. Data from the census are supplemented where necessary by publishable information made available by the Western Australian Department of Mines.

The following table gives details of mine and quarry production during the calendar years 1965 to 1967.

MINE AND QUARRY PRODUCTION

Item	1965		1966		1967	
	Quantity	Value	Quantity	Value	Quantity	Value
Gold (a)	fine oz 656,355	\$ 22,284,899	fine oz 627,052	\$ 23,242,512	fine oz 573,755	\$ 21,618,215
Silver (b)	234,280	274,473	*226,912	*266,232	218,442	297,086
Asbestos—	tons		tons		tons	
Crocidolite	9,280	1,974,246	11,465	2,414,905	....	....
Chrysotile	402	57,678	119	19,326	76	3,215
Barytes	751	6,006	1,810	26,660	962	21,613
Beryl	14	2,891	13	2,992	11	3,682
Clays—all kinds (c)	541,200	534,304	577,217	536,039	613,981	501,265
Coal	993,741	4,409,972	1,061,095	4,562,087	1,062,151	4,764,502
Copper ore	2,052	258,517	*3,268	*524,827	3,093	558,835
Cupreous ore (d)	1,079	99,234	962	87,954	776	52,126
Felspar	1,384	19,488	1,282	18,050	342	5,112
Gypsum	46,607	89,154	41,884	79,873	40,078	303,193
Ilmenite concentrates	430,435	4,331,784	497,848	4,801,929	469,142	4,537,917
Iron ore	2,313,434	4,662,022	*6,106,105	33,771,718	12,160,702	84,358,259
Lead, silver-lead and silver-lead-zinc ore and concentrates	4,878	401,978	2,681	*109,242	910	96,893
Leucoxene concentrates	380	16,858	756	31,273	696	35,257
Limestone and shell (including road-making stone but excluding building stone)	949,358	905,324	*1,362,919	1,430,519	1,276,391	888,503
Magnesite	199	3,176	135	1,959	1,258	12,224
Manganese ore	97,901	2,106,058	183,209	4,091,257	195,065	4,465,602
Monazite concentrates	1,447	155,040	1,346	162,778	1,570	207,370
Ochre	187	2,240	207	2,140	261	5,220
Pyritic ore and concentrates	59,180	1,048,425	76,136	1,070,135	78,685	1,113,400
Rutile concentrates	225	15,990	576	40,515	400	28,757
Stone, building and monumental—						
Sandstone, limestone, granite, etc.	185,588	443,522	*146,687	*412,064	126,998	404,587
Stone, crushed and broken (e)	2,078,940	5,938,418	*2,157,330	*6,373,342	2,480,117	6,759,617
Talc	7,088	205,410	9,155	231,625	7,901	227,037
Tantalite concentrates (including tantalite-columbite)	24,807	23,055	*10,550	*19,691	78,400	172,211
Tin ore and concentrates	679	1,558,770	973	2,072,176	1,074	2,197,648
Zircon concentrates	23,410	687,310	25,159	899,263	32,166	1,193,369
Other (value only) (f) ....	....	1,326,020	....	2,207,191	....	22,023,158
Total value ....	....	53,842,262	....	*89,512,274	....	156,855,873

(a) Values are in terms of Australian currency and include amounts realised by the Gold Producers' Association Ltd. on sales of Western Australian gold—in 1965, \$114,640; in 1966, \$96,657; in 1967, \$70,569. They also include Commonwealth net subsidiary paid to gold producers—in 1965, \$1,659,163; in 1966, \$3,550,489; in 1967, \$3,617,813. (b) By-product from treatment of auriferous ore and excludes silver contained in silver-lead and copper ores and concentrates exported, for which see table on page 360. (c) Includes production of bentonite. (d) For fertiliser. (e) Excludes limestone. (f) Includes production of nickel, crude oil, bauxite and salt. * Revised.

During the war years employment in mining and quarrying decreased considerably and, although there was some recovery after 1945, the number of men engaged in 1966 was only 7,526 compared with 16,530 in 1939. This decline in employment occurred mainly in the gold-mining industry and further comment on it appears on pages 358-60. Mining for iron ore was largely responsible for the significant increase in the number employed in 1966.

MEN WORKING AT MINES AND QUARRIES (a)

Description	1962	1963	1964	1965	1966
Gold mining (b)	4,963	4,901	(c) 4,383	4,094	4,053
Coal mining	757	757	765	760	726
Other mining and quarrying	1,819	1,837	2,255	2,307	2,747
Total	7,539	7,495	7,403	7,161	7,526

(a) Average over the whole year. (b) Includes alluvial diggers. (c) Decrease due mainly to cessation of operations during 1963 at a number of mines situated in the Coolgardie, Mount Margaret and Yilgarn Goldfields.

The mining laws of the State have been designed to encourage as well as to control activity in the industry. This policy and the experience of other countries were given due consideration in framing them and they are regarded as equitable and offering all reasonable incentives to mining development. The various tenures are described in detail in Chapter VII, Part 1.

Gold

Although specimens of gold had been found in earlier years at several places in the Colony, it was first discovered in payable quantities in the Kimberley in 1885. This find led to widespread prospecting activity, resulting in further gold strikes between 1887 and 1891 in the Yilgarn, Pilbara, Ashburton and Murchison districts. These were followed by spectacular discoveries in 1892 at Coolgardie and in 1893 at Kalgoorlie where the famous Golden Mile was developed. The Golden Mile is still the principal source of gold in the State and accounts for about one-half of Australia's total production. By 1900 all the present proclaimed goldfields, ranging from Kimberley in the north to Phillips River in the south, had been opened up.

The production of each of these fields, as reported to the Department of Mines, for each year from 1962 to 1966 is shown in the following table.

MINE PRODUCTION OF GOLD (a) CLASSIFIED ACCORDING TO GOLDFIELD
(Fine ounces)

Goldfield	1962	1963	1964	1965	1966
Kimberley	31	160	15	11	18
Pilbara	1,603	1,764	968	508	917
West Pilbara	9	....	....	....	....
Ashburton ....	....	....	1	....	....
Gascoyne	274	242	311	260	350
Peak Hill	269	87	18	101	6
East Murchison	353	278	848	1,244	1,044
Murchison	94,679	83,700	71,414	55,477	42,472
Yalgoo	153	102	....	....	7
Mount Margaret	27,186	31,982	909	257	715
North Coolgardie	17,567	18,357	17,858	13,879	10,336
Broad Arrow	935	1,285	3,027	3,057	2,274
North-East Coolgardie	138	231	173	335	487
East Coolgardie (b)	526,478	531,102	509,984	477,900	461,264
Coolgardie	11,888	10,139	4,008	4,627	5,636
Yilgarn	65,138	17,904	2,784	2,238	1,020
Dundas	110,252	102,951	100,864	95,393	99,063
Phillips River	2,987	(c) 2,542	(c) 2,210	(c) 1,064	(c) 1,389
Outside proclaimed goldfields (d)	99	34	89	4	53
Total	860,039	802,860	(e) 715,481	656,355	627,052

(a) As reported to the Department of Mines. (b) Includes Golden Mile, Kalgoorlie; see letterpress preceding table.
(c) Produced mainly from copper concentrates. (d) Includes South-West Mineral Field. (e) See footnote (c) to table above.

Production reached a maximum of 2,064,800 fine ounces in 1903 but there followed a gradual and continuous decline, due mainly to exhaustion of surface deposits, until in 1929 the yield was only 377,176 fine ounces. In succeeding years various economic factors stimulated activity in the industry and there was a well-maintained improvement

until 1939 when production reached 1,214,238 fine ounces. The second World War brought about a decline which was accelerated by the introduction early in 1942 of a rigid system of manpower control. The average annual production as reported by gold mines for the five-year period 1962-1966 was 732,357 fine ounces.

The figures given in the following table relate to refinery production and comprise gold refined at the Perth Branch of the Royal Mint and gold contained in gold-bearing materials exported. Particulars for individual years do not agree with those for mine production, quoted in earlier tables, because of the delay between production at the mine and refining at the Mint. Values are in Australian currency and include amounts distributed by the Gold Producers' Association Ltd. from premiums on sales of Western Australian gold. The amounts shown as 'Commonwealth net subsidy' represent payments made to gold producers under the Gold-Mining Industry Assistance Act passed by the Commonwealth Parliament in 1954. The values exclude amounts, totalling \$488,644, paid by the Commonwealth under the *Gold Mines Development Assistance Act* 1962 in the form of a development allowance to approved producers not receiving the subsidy. This Act expired on 30 June 1965 and was not renewed, as the result of an amendment made in 1965 to the Gold-Mining Industry Assistance Act liberalising the conditions applying to subsidy payments and continuing the operation of the Act until 30 June 1970.

REFINERY PRODUCTION OF GOLD

Year	Quantity (a)			Value			
	Refined outside the State (b)	Refined at Perth Mint	Total	Mint value	Payments by Gold Producers' Association Ltd.	Commonwealth net subsidy	Total
	fine oz	fine oz	fine oz	\$	\$	\$	\$
1962	4,539	854,829	859,368	26,855,252	16,208	1,243,146	28,114,606
1963	4,665	795,546	800,212	25,006,614	28,758	1,339,566	26,374,938
1964	3,071	709,776	(c) 712,847	22,276,468	23,418	1,083,374	23,383,260
1965	2,997	656,440	659,437	20,607,404	114,760	1,659,163	22,381,327
1966	1,462	627,315	628,777	19,649,273	116,014	3,550,489	23,315,776

(a) Figures do not in all cases add to the totals shown owing to rounding to the nearest fine ounce. (b) Comprises gold in ores and concentrates exported. (c) See footnote (c) to first table on page 358.

GOLD MINING—SUMMARY OF OPERATIONS (a)

Year	Leases in force at 31 December (b)		Gold-mining machinery in use at 31 December					Total value of gold-mining machinery	Ore treated	Employment at mines (c)		Alluvial diggers
	Leases	Area	Batteries		Other crushing mills	Cyaniding				Above ground	Under ground	
			Number	Head of stamps		Leaching and agitating vats	Vacuum filters and presses					
1962	No. 983	acres 18,025	No. 44	No. 262	No. 173	No. 199	No. 66	\$ 17,293,740	tons 2,989,653	No. 2,388	No. 2,552	No. 23
1963	989	18,253	38	252	166	197	63	17,777,490	2,770,166	2,346	2,527	28
1964	953	17,716	37	237	201	155	84	14,615,846	2,645,956	(d) 2,111	(d) 2,243	29
1965	960	18,032	32	215	213	133	61	14,535,960	2,530,165	1,982	2,091	21
1966	1,008	18,647	32	219	134	129	69	17,048,933	2,619,016	1,960	2,075	18

(a) Includes Government Batteries. (b) Includes leases taken up on private property. (c) Average over whole year. Excludes workers on sick, accident, annual and long service leave. (d) See footnote (c) to first table on page 358.

Except for minor fluctuations, a general increase in the quantity of ore treated annually occurred between 1946 and 1960. Although there has been a decline since that year, the quantity treated in 1966, 2.62 million tons, was nevertheless considerably greater than the amount of 2.19 million tons treated in 1946. The higher tonnage of ore treated

annually in post-war years has been achieved with a decreasing work force by the introduction of new methods and improved tools and machinery, the number of men employed (including alluvial diggers) having declined from 6,961 in 1946 to 4,053 in 1966.

The Department of Mines operates batteries for the treatment of ore which is mined by prospectors or other small producers, and various concessions are made in order to encourage work which is exploratory or too limited in extent to warrant the installation of major plant. Figures for the State Batteries are included in the previous table.

Silver

Western Australia had produced over 11.4 million ounces of silver up to 31 December 1966, by far the greater part of it as a by-product in the recovery of gold. The other silver production is from silver-lead, silver-lead-zinc and copper ores and concentrates exported for treatment outside the State.

PRODUCTION OF SILVER

Year	From treatment of auriferous ore		Silver content of silver-lead, silver-lead-zinc and of copper ores and concentrates exported	
	Quantity	Value	Quantity	Value
	fine oz	\$	fine oz	\$
1962	213,987	202,662	4,379	4,158
1963	213,878	245,560	6,886	7,728
1964	224,573	263,282	17,159	19,916
1965	234,280	274,473	11,102	13,007
1966	226,912	266,232	9,819	10,930

Asbestos

Several types of asbestos occur in the State but only two have been produced in significant quantities. Blue asbestos (crocidolite) is found at Wittenoom Gorge in the West Pilbara district and, in 1966, production was 11,465 tons, valued at \$2,414,905. The production of chrysotile, which occurs at a number of places in the Pilbara and West Pilbara districts, was only 119 tons in 1966, valued at \$19,326. Production of crocidolite ceased in 1966.

PRODUCTION OF ASBESTOS

Year	Crocidolite		Chrysotile		Total	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	\$	tons	\$	tons	\$
1962	15,617	3,383,866	52	2,206	15,669	3,386,072
1963	11,095	2,404,004	10	1,566	11,105	2,405,570
1964	10,614	2,124,200	536	87,362	11,150	2,211,562
1965	9,280	1,974,246	402	57,678	9,682	2,031,924
1966	11,465	2,414,905	119	19,326	11,584	2,434,231

Bauxite

Following a survey of bauxite deposits, which occur over a large area in the Darling Range, trial shipments of bauxite totalling 36,741 tons were sent to Tasmania and Japan in 1959 and 1960. In 1961 the Alumina Refinery Agreement Act was passed by the State Parliament ratifying an agreement between the Government and Western Aluminium No Liability for the construction of a refinery at Kwinana to produce alumina from bauxite mined in the Darling Range and for the export of bauxite. A summary of the main provisions of the Act appears on page 104 of the *Official Year Book of Western Australia*, No. 4—1964. The refinery commenced production of alumina towards the end of 1963 with an initial annual capacity of 210,000 metric tons. The capacity of the

refinery has been expanded to 630,000 metric tons and further expansion is being undertaken which will increase the capacity to 830,000 tons per annum by mid-1969. Alumina from the refinery is shipped to Victoria for reduction to aluminium and exported to Japan and the United States of America.

Extensive deposits of bauxite were discovered in 1965 in the Admiralty Gulf area in the Kimberley and an exploration programme is continuing in order to determine more precisely the size of the deposits. A feasibility study is also being undertaken to determine whether the deposits can be developed commercially.

Beryllium Ore

Beryl occurs in many localities throughout the State but is obtained mainly from the Pilbara and Gascoyne districts. Production was negligible until, as a result of the wartime demand for beryllium-copper alloys, 548 tons were produced in 1943 and 387 tons in 1944. It then declined but later recovered to some extent, reaching a post-war peak of 350 tons in 1957. Production subsequently fluctuated considerably but declined from 261 tons in 1961 to only 13 tons in 1966.

PRODUCTION OF BERYL

Particulars	1962	1963	1964	1965	1966
Quantity (tons)	195	82	80	14	13
Value (\$)	64,904	22,204	18,076	2,891	2,992

Coal

The first reports of coal discoveries, in the Murray district and on the Irwin River, were made in 1846 but the only commercial production in Western Australia occurs at the Collie River Mineral Field. The coal is sub-bituminous in rank and there are substantial reserves in the area.

Annual production exceeded one million tons for the first time in 1954, but in 1956 it fell to 830,007 tons. It increased in each of the next four years and in 1960 production totalled 922,393 tons. A major producer closed its mines on the termination in December 1960 of its contract for the supply of coal to the State Government, and production declined to 765,740 tons in 1961. There was a substantial recovery in 1962, when 919,112 tons were produced. This recovery has been maintained and production in 1966 was 1,061,095 tons, the highest ever recorded.

COAL PRODUCTION

Year	Quantity			Value
	From deep mines	From open cuts	Total	
	tons	tons	tons	\$
1962	598,501	320,611	919,112	3,961,556
1963	600,934	301,561	902,495	3,970,120
1964	644,107	343,313	987,420	4,678,934
1965	508,260	485,481	993,741	4,409,972
1966	493,256	567,839	1,061,095	4,562,087

Open-cut mining was commenced at Collie in 1943 and the amount produced by this means increased rapidly until in 1952 almost one-half of the total production came from open cuts. In each year from 1953 to 1960 the proportion of open-cut coal was less than in 1952, and in 1960 was little more than one-eighth of all coal produced. New contracts for government requirements, which came into operation at the beginning of 1961, provided for an increase in supplies from open-cuts, and in 1966 more than 50 per cent of all coal produced came from this source.

For some years after the war, employment in coal mining rose steadily and reached 1,560 in 1954. It then declined and in 1960 had fallen to 984. There was a sharp decrease in 1961 when the total was only 582, of whom one-third were employed above ground compared with about one-fifth in each of the three previous years. In each year from 1962 to 1966, the number of men employed exceeded 700, the proportion of those working above ground having risen to over two-fifths in 1966.

MEN WORKING AT COAL MINES (a)

Description	1962	1963	1964	1965	1966
Above ground	257	240	246	293	307
Under ground	500	517	519	467	419
Total	757	757	765	760	726

(a) Average number employed over the whole year.

Copper Ore

Copper ore in commercial quantities was discovered in 1849 in the Northampton district. High-grade ore was found in 1855 at Bowes River in the same area and in 1872 one of the richest deposits was discovered in the West Pilbara near Roebourne. Considerable quantities of copper have been produced at the mines in the Northampton district, where it occurs in association with lead, and also in the Ravensthorpe area, in association with gold. Another important producer has been the Murrin Murrin district in the Mount Margaret area.

Due to low prices, rising costs of mining and treatment and the exhaustion of rich secondary ores near the surface, production was on a very small scale between 1925 and 1956. It then increased substantially and in 1961 reached 6,290 tons valued at \$651,392. In the succeeding years production has fluctuated and in 1966 amounted to 3,268 tons worth \$524,827.

PRODUCTION OF COPPER ORE (a)

(For smelting to copper)

Particulars	1962	1963	1964	1965	1966
Quantity (tons)	5,277	6,266	4,619	2,052	3,268
Value (\$)	414,766	615,804	558,068	258,517	524,827

(a) For production of cupreous ore for fertiliser see following section.

Cupreous Ore (for fertiliser)

The demand for copper to remedy trace element deficiencies in soils created a market for low-grade ores for use in chemical fertilisers. Until this development, the production of ores having a low copper content was uneconomical because of high costs of transport and smelting.

PRODUCTION OF CUPREOUS ORE FOR FERTILISER

Particulars	1962	1963	1964	1965	1966
Quantity (tons)	9,275	3,235	2,197	1,079	962
Value (\$)	189,138	272,400	251,970	99,234	87,954

Production for use in fertilisers commenced in 1947 and increased to 7,731 tons in 1955. After reaching a peak of 11,859 tons in 1959, it declined in 1960 and 1961 but improved to 9,275 tons in 1962. In the next four years production decreased substantially and in 1966 amounted to only 962 tons. The Pilbara and Peak Hill areas are the principal sources of supply.

Ilmenite, Leucoxene, Monazite, Rutile and Zircon

Although beach sands being treated near Bunbury, Busselton and Capel also contain leucoxene, monazite, rutile and zircon, the ilmenite content is of particular importance because it is virtually chrome-free and little difficulty is experienced in producing a concentrate of high quality. Operations began in 1956, when the recorded production of ilmenite concentrates was 3,293 tons valued at \$30,300. Output has risen rapidly and in 1966, production amounted to 497,848 tons valued at \$4,801,929.

PRODUCTION OF ILMENITE CONCENTRATES

Particulars	1962	1963	1964	1965	1966
Quantity (tons)	174,579	195,008	297,322	430,455	497,848
Value (\$)	1,586,718	1,854,244	2,811,812	4,331,784	4,801,929

Concentrates containing leucoxene, monazite, rutile and zircon are recovered as by-products from the treatment of the beach sands and the first shipments were made in 1958, when 513 tons of concentrates valued at \$33,518 were exported. In 1966 recorded production totalled 27,837 tons valued at \$1,133,829.

PRODUCTION OF LEUCOXENE, MONAZITE, RUTILE AND ZIRCON CONCENTRATES

Year	Leucoxene		Monazite		Rutile		Zircon		Total	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	tons	\$	tons	\$	tons	\$	tons	\$	tons	\$
1962	627	17,832	600	38,072	523	24,766	3,731	80,046	5,481	160,716
1963	547	13,892	1,320	105,688	763	45,460	12,542	261,292	15,172	426,332
1964	656	26,660	1,126	97,294	669	42,150	21,511	435,402	23,962	601,506
1965	380	16,858	1,447	155,040	225	15,990	23,410	687,310	25,462	875,198
1966	756	31,273	1,346	162,778	576	40,515	25,159	899,263	27,837	1,133,829

Iron

Iron-ore deposits are widely distributed throughout Western Australia and the State's iron-ore reserves have been assessed at over 15,000 million tons of high-grade ore. Since 1951 large quantities of hematite have been produced at Cockatoo Island (Yampi Sound) in the West Kimberley district for shipment to other Australian States. The first shipment of ore from the deposits on the adjacent Koolan Island was made in January 1965, following the completion of mining and loading facilities which had been under development since 1960.

PRODUCTION OF IRON ORE

Particulars	1962	1963	1964	1965	1966
Quantity (tons)	1,403,752	1,333,138	1,357,715	2,313,434	6,106,105
Value (\$)	2,869,476	2,690,508	2,770,930	4,662,022	33,771,718

In recent years there have been a number of developments in connection with iron-ore deposits which has led to greatly expanded production.

As a result of the passage in 1960 of the Broken Hill Proprietary Company's Integrated Steel Works Agreement Act, which ratifies an agreement between the State Government and the Company relating to the establishment of an integrated iron and

steel industry in Western Australia, developmental work was undertaken in the Koolyanobbing Range and production from the Company's leases in this area commenced in April 1967. The ore is being railed to Kwinana at a rate of approximately 110,000 tons per month for use in the Broken Hill Proprietary Company's blast furnace at Kwinana which was commissioned in May 1968, and for export interstate.

The announcement in December 1960 of the Commonwealth Government's decision to modify its embargo on overseas exports, which had been in force since 1938, caused increased interest in Western Australian deposits. The subdivision of the deposits (other than those reserved for the domestic iron and steel industry under the Commonwealth's revised export policy) into three categories was announced by the State Government in March 1961. The first category includes known high-grade deposits, not covered by lease agreements, which are to be retained by the Crown to ensure supplies for the State's steel requirements or for export. The second category, being known medium and low-grade deposits, and the third category, comprising deposits as yet undiscovered, may be made the subject of temporary reservations granting the right to explore, each such reservation being limited to a maximum area of 50 square miles.

The State Parliament ratified a number of agreements between the Government and private companies for the mining and export of iron ore and, in certain instances, for secondary processing of the ore as a later development and, ultimately, for the establishment of integrated iron and steel works. The provisions of these agreements are referred to on pages 106 and 110 of the *Official Year Book of Western Australia*, No. 4—1964, in the section *Legislation during 1963 and 1964* in Chapter III of the succeeding issue, on page 114 of the *Western Australian Year Book*, No. 6—1967 and on page 111 of this issue. The ore is now being exported overseas, mainly to Japan. A number of contracts between leading Japanese steel mills and certain of the mining companies resulted in large-scale mining operations which commenced in 1966. Ore from Koolanooka Hills, near Morawa, is being transported by rail to the port of Geraldton, 100 miles distant. From Mount Goldsworthy, about 70 miles east of Port Hedland, the ore is being railed to a deep-water port on Finucane Island, just off Port Hedland. Ore mined at Mount Tom Price, in the Hamersley Range area south-west of Port Hedland, is being railed 179 miles to the port of Dampier in King Bay, which is west of Roebourne. The first shipments of iron ore under these contracts were made from Geraldton on 17 March 1966; from Port Hedland on 2 June 1966; and from Dampier on 22 August 1966. Development of the deposits at Mount Whaleback in the Ophthalmia Range about 260 miles south of Port Hedland has commenced and the first shipment of ore to Japan was despatched from Port Hedland on 1 April 1969. At that date contracts had been signed for the delivery of 337 million tons of iron ore and pellets with an f.o.b. value of \$2,600 million and more than \$416 million had been spent by the companies on mine development, railways, townships, deep water ports and pelletising facilities. Additional expenditure to which the companies are committed under their agreements with the State Government amounted to \$562 million in April 1969. The actual expenditure, however, is expected to be in excess of this amount.

Pig-iron production in Western Australia began in 1948 at Wundowie in the Darling Range east of Perth using charcoal produced from local eucalypts. Originally, brown iron ore (limonite) mined near Wundowie was used in the smelting process, but has been replaced by ore obtained from Koolyanobbing, east of Bullfinch in the Yilgarn district. The extensive deposits in the Koolyanobbing area are mainly high-grade hematite ores with some limonite. The production of pig-iron at Wundowie for each of the five years in the period ended 30 June 1967 is shown on page 383.

Lead Ore

Lead ore was discovered near the lower Murchison River in 1848, at what became known as the Geraldine Mine. It has since been found in other localities, principally in the Pilbara, Ashburton and West Kimberley districts, and a half a million tons have been raised, the great bulk of it from the mineral field around Northampton, the area of the first finds. Production fluctuated very widely and ceased almost entirely during

the war, but a substantial increase occurred in the post-war years and in 1956 it rose to 7,613 tons. After 1956 it declined rapidly and in 1963 only 185 tons were produced. In 1964, when 3,354 tons were produced, there was a revival of lead mining in the West Kimberley mineral field. Production in 1965 and 1966 was 4,878 and 2,681 tons respectively.

Although the ore from the Northampton field is almost free from silver, that from other areas further north, notably the Ashburton, Pilbara and West Kimberley, has a silver content which may be as much as 10 ounces per ton. Production of such ores is included in the following table.

PRODUCTION OF LEAD, SILVER-LEAD, AND SILVER-LEAD-ZINC ORES (a)

Particulars	1962	1963	1964	1965	1966
Quantity (tons)	443	185	3,354	4,878	2,681
Value (\$)	30,502	13,070	198,868	401,978	109,242

(a) Including concentrates.

Manganese Ore

Deposits of manganese ore occur in several parts of the State but up to the end of 1947 only 252 tons had been mined. After 1947 production increased rapidly and in 1961 totalled 83,660 tons valued at \$2,141,390. After a decline to 34,808 tons in 1963, production increased and in 1966 a record output of 183,209 tons valued at \$4,091,257 was produced. Two-thirds of the quantity mined in 1966 came from the Pilbara field, the remainder being obtained from the Peak Hill field.

PRODUCTION OF MANGANESE ORE

Particulars	1962	1963	1964	1965	1966
Quantity (tons)	67,871	34,808	60,182	97,901	183,209
Value (\$)	1,789,758	864,268	1,415,788	2,106,058	4,091,257

Nickel

The discovery of nickel deposits at Kambalda, 30 miles south of Kalgoorlie, was announced in March 1966. The company developing the deposits reported the presence of more than 2,300,000 tons of high-grade nickel sulphide ore and has contracted to export nickel concentrates to overseas buyers. Production commenced in June 1967 and the first shipment was made to Canada in August 1967, treatment of ore at the rate of 10,000 tons per month being achieved by the end of that year. The concentrates are being transported 25 miles by road to Widgiemooltha and railed to the port of Esperance for shipment. In January 1968 the operating company, Western Mining Corporation Limited, entered into an agreement with the State Government which provides for the construction by the company of a nickel refinery at Kwinana with an annual capacity of not less than 15,000 tons and estimated to cost not less than \$45 million. Under the agreement the Company is also obliged to construct a smelting works at Kambalda or Kalgoorlie if feasibility investigations show that its establishment is economically viable. The agreement was subsequently ratified by the State parliament in terms of the *Nickel Refinery (Western Mining Corporation Limited) Agreement Act, 1968*.

Promising discoveries of nickel ore have been made at Mount Martin, 25 miles south-west of Kalgoorlie and at Scotia, about 35 miles north-west of Kalgoorlie and intensive drilling programmes are being carried out to prove the extent of the ore bodies.

Petroleum

An extensive programme of oil exploration was commenced in 1951 but, although flow oil was found in the Exmouth Gulf area of the Carnarvon Basin in 1953, no commercial development resulted. After 1953 the search was intensified and a large area of the State has been scientifically examined and geological and geophysical surveys are still being carried out. In 1964, gas and oil were produced from wells at Yardarino about eight miles east of Dongara on the west coast. Oil and gas were discovered in the same year on Barrow Island, 60 miles north-east of Onslow, and gas was obtained from a well drilled in the Bonaparte Gulf Basin in the extreme north of the State. In February 1965, a show of gas was obtained in a well at Gingin, 50 miles north of Perth, and subsequent tests confirmed the find. In the same month gas flowed from a well drilled 25 miles south of Dongara. No commercial development of these discoveries has yet been undertaken except at Barrow Island which, in May 1966, was declared a commercial oilfield, after prolonged testing. Oil production commenced in 1967 and the first shipment of oil from this field was made on 25 April 1967. Recoverable reserves at Barrow Island are estimated at 200 million barrels and production during July 1968 exceeded 31,000 barrels per day. In 1968 oil and gas were obtained from a well drilled at sea 110 miles north-east of Barrow Island but prospects for commercial development have yet to be assessed.

Pyrites

The mining of iron pyrites was developed during the war to provide a substitute for overseas supplies of sulphur required for the manufacture of sulphuric acid for superphosphate. Production at Norseman, which was the principal source of supply since 1942, ceased in June 1968. A second source of supply was developed in 1956 when a metropolitan works commenced using concentrates from a gold mine at Kalgoorlie for the extraction of gold and sulphur. Sulphur is still being obtained from this source.

PRODUCTION OF IRON PYRITES (ORE AND CONCENTRATES)

Particulars	1962	1963	1964	1965	1966
Quantity (tons)	49,461	58,472	58,396	59,180	76,136
Value (\$)	848,380	974,496	1,109,078	1,048,425	1,070,135

Tin Ore

Tin ore was first discovered at Greenbushes in 1888. It has since been found at several other places, but the Greenbushes and Pilbara fields have been the only major producers. Output declined during the war but increased substantially after 1949 and reached a peak in 1956 when 358 tons of ore and concentrates valued at \$416,546 were produced. In 1958 it declined to 138 tons valued at \$154,638, the decrease being due mainly to contraction of operations in the Greenbushes field. After 1958 production again increased and in 1966 total output was 973 tons valued at \$2,072,176.

PRODUCTION OF TIN ORE AND CONCENTRATES

Particulars	1962	1963	1964	1965	1966
Quantity (tons)	465	576	637	679	973
Value (\$)	668,538	816,046	1,240,782	1,558,770	2,072,176

Other Minerals

In addition to the other minerals listed in the table on page 357 there are some which have a high potential value but are not produced in large quantities at present. Zinc is associated with many of the silver-lead ores and some of the copper ores and has been mined as the carbonate with a zinc content of 38 per cent. Arsenious oxide and antimonial concentrates were produced commercially for some years as by-products in the treatment of auriferous ores. Small amounts of bismuth concentrates assaying as high

as 73 per cent bismuth have also been produced. Production of tantalum ores and concentrates has fluctuated with demand, but a large part of world requirements has been met from the State's resources. Tungsten ores have been produced in small quantities for some years with a slight increase during the war. Since then, output has been spasmodic. Glass sand (silica) is being produced and significant quantities are being exported overseas. Lithium, yttrium, cerium, thorium, vanadium, niobium, and molybdenum-bearing minerals are known to occur in commercial quantities and small amounts of minerals containing uranium, rubidium and caesium have been found. Deposits of bentonite, barytes, graphite, mica, kyanite, sillimanite, spodumene and vermiculite are also known and small amounts have been produced.

Quarrying

Salt. Common salt (sodium chloride) occurs extensively in Western Australia both in maritime lagoons and in inland lakes and has been harvested on a commercial basis for many years from dry lake beds. Over recent years, however, the production of salt by the solar evaporation of sea water has become much more significant and four separate companies are currently engaged in solar salt schemes on the north-west coast. The low rainfall of this area coupled with a high evaporation rate make the north-west ideal climatically for solar salt production.

The industrial salt produced from the solar salt farm established at Useless Loop in Shark Bay in 1964 is exported to Japan under a contract for the supply of 1.6 million tons annually over a seven-year period. Other areas in the vicinity of Port Hedland, Dampier and Exmouth are also being developed.

In addition to these solar evaporation schemes, there is a proposal to harvest salt from Lake Lefroy, near Widgiemooltha in the Shire of Coolgardie, where the salt deposited has an exceptional purity.

Potash. At Lake MacLeod north of Carnarvon, Texada Mines Pty. Limited has completed a \$300,000 proving programme for the production of potash from brine and the company is proceeding with the establishment of a potash industry at an estimated cost of \$13 million. An agreement between the Western Australian Government and Texada Mines Pty. Limited relating to the production of potash and other evaporites at or near Lake MacLeod was ratified by Parliament in terms of the *Evaporites (Lake MacLeod) Agreement Act, 1967*.

Commercial production of potash is planned to commence before the end of 1971 and the potash will be exported from Cape Cuvier where the company is developing a port. A market is also being sought by Texada Mines Pty. Limited for the large quantities of salt which will be produced as a by-product of potash production.

The following table gives details of the production of certain quarry products from 1958 to 1967. It should be noted that gravel, sand and clays, for which reliable and complete information cannot be obtained, are not included.

Gross values of production of quarry products during 1962-63 to 1966-67 appear in the table on page 312.

SELECTED ITEMS OF QUARRY PRODUCTION

Year	Building and monumental stone (a)	Other stone	
		Granite, diorite, quartzite, basalt, etc. (b)	Limestone and shell (c)
	tons	tons	tons
1963	210,770	1,206,388	687,163
1964	148,939	1,750,351	749,062
1965	185,588	2,078,940	949,358
1966	*146,687	*2,157,330	*1,362,919
1967	126,998	2,480,117	1,276,391

(a) Calcareous sandstone (including limestone) and granite.

(b) Principally for roads, concrete aggregate, filling, etc.

(c) Principally for the manufacture of lime and cement and for road making.

* Revised.

*Chapter VIII—continued***Part 2—Secondary Industry****EXPLANATORY NOTES AND DEFINITIONS**

Unless otherwise stated the figures quoted in this Part cover all industrial establishments conforming to the definition of a factory, including power stations and gas works.

Factory

For statistical purposes a factory is defined as any establishment which is engaged in the processes of manufacturing, assembling, treating or repairing and in which four or more persons are employed during any period of the year or power other than manual is used.

Employment

Average employment figures may be expressed as an average 'over the period worked' or as an average 'over the whole year'. Thus, a factory which operates for only six months of the year and employs twenty persons throughout that period has an average employment of twenty 'over the period worked' but an average of only ten 'over the whole year'. Where seasonal industries, such as meat and fish preserving, whaling or fruit packing, are involved there can consequently be a considerable difference between figures covering the same field if different bases are used in their computation. In this Part, unless otherwise stated, figures quoted are the average 'over the whole year'. It should also be noted that they include working proprietors, but exclude all persons engaged in obtaining raw materials (*e.g.* fallers and haulers employed by sawmills) and all persons engaged in selling and distribution.

Salaries and Wages

Salaries and wages quoted exclude amounts drawn by working proprietors.

Value of Output

The value of output is the selling value 'at the factory' (*i.e.* the value at the point of sale less all selling and distribution costs) of all goods made or processed during the year and includes the amount received for other work done, such as repair work, assembling and making-up for customers. Any bounty or subsidy received on finished products is included.

Net Production

'Net Production' is the value added in the course of manufacture and is the sum available for payment of wages, rent, depreciation, other sundry expenses and for interest and profit. It is obtained by deducting from the value of output the cost of goods consumed in the process of production. The costs deducted are those of materials used, fuel, power and light, lubricating oil and water, repairs to plant and buildings, tools replaced, and containers and materials used for packing.

Confidential Information

The Acts under which these statistics are collected require that information supplied on any individual return must be treated as confidential. For this reason it has not been possible to publish some items and in other cases it has been necessary to combine details



SILVER LAKE SHAFT, KAMBALDA

The discovery of nickel deposits at Kambalda, 30 miles south of Kalgoorlie, was announced in March 1966. Sinking of the first shaft, the Silver Lake Shaft overlooking Lake Lefroy, commenced in July of the same year.

Block by courtesy of Western Mining Corporation Limited

NICKEL ORE TREATMENT PLANT, KAMBALDA

Treated ore is transported 25 miles by road to Widgiemooltha and then railed to the port of Esperance for shipment. The first consignment of nickel concentrates was made from Esperance in August 1967.

Photograph by Western Mining Corporation Limited



IRON-ORE MINING OPERATIONS
MOUNT NEWMAN

Ore from deposits at Mount Whaleback is crushed before transportation by rail to Port Hedland, some 260 miles distant. Illustrated are the belt conveyor leading from the secondary crusher to the transfer station, with the boom stacker and train loadout tunnel on the extreme right.

Photograph by Mt Newman Mining Co. Pty. Limited

for publication. As these confidential provisions apply throughout Australia separate details have, in some instances, been withheld in order to prevent disclosure of confidential information in respect of another State. The tables affected carry appropriate footnotes.

THE CLASSIFICATION OF FACTORIES

In the compilation of statistical data relating to factories in Australia, a standard classification of manufacturing industries is used. It is designed in accordance with decisions of the 1945 Conference of Statisticians, and represents a revision and extension of a classification which was introduced in 1930-31, replacing the revised versions of the original classification formulated in 1902. The construction of a new classification, compatible with the United Nations International Standard Industrial Classification, is being undertaken and it is expected that this will be introduced for the 1968-69 factory census.

Where the nature of the goods produced would place a factory in more than one sub-class of industry but its activities cannot be thus separated, it is classified according to its predominant activity.

Owing to limitations of space, details published in general tables in this Part are confined to the sixteen classes of industry. Details relating to each of the sub-classes applicable to this State may be found in the *Statistical Register of Western Australia—Part VI, Factory Statistics*.

The classes and sub-classes in the current classification of factories are shown below. In the case of several of the sub-classes listed there is no recorded activity in Western Australia.

CLASSIFICATION OF FACTORIES

CLASS 1. TREATMENT OF NON-METALLIFEROUS MINE AND QUARRY PRODUCTS

Coke works
Briquetting and pulverised coal
Carbide
Lime, plaster of paris, asphalt
Fibrous plaster and products
Marble, slate, etc.
Cement, portland
Asbestos cement sheets and mouldings
Other cement goods
Other

CLASS 2. BRICKS, POTTERY, GLASS, ETC.

Bricks and tiles
Earthenware, china, porcelain, terracotta
Glass (other than bottles)
Glass bottles
Other

CLASS 3. CHEMICALS, DYES, EXPLOSIVES, PAINTS, OILS, GREASE

Industrial and heavy chemicals and acids
Pharmaceutical and toilet preparations
Explosives (including fireworks)
White lead, paints, varnishes
Oils, vegetable
Oils, mineral
Oils, animal
Boiling down, tallow refining
Soap and candles
Chemical fertilisers
Inks, polishes, etc.
Matches
Other

CLASS 4. INDUSTRIAL METALS, MACHINES, IMPLE- MENTS AND CONVEYANCES

Smelting, converting, refining, and rolling of iron and steel
Foundries (ferrous)
Plant, equipment and machinery (including machine tools)
Other engineering
Extracting and refining of other metals; alloys
Electrical machinery, cables and apparatus
Construction and repair of vehicles—
Tramcars and railway rolling stock—
Government and municipal
Other
Motor vehicles—
Construction and assembly
Repairs
Motor bodies
Horse-drawn vehicles
Motor accessories
Aircraft
Cycles and accessories
Other
Ship and boat building and repairing, marine engineering—
Government
Other
Cultery and small hand tools
Agricultural machines and implements
Non-ferrous metals—
Rolling and extrusion
Founding, casting, etc.
Sheet metal working, pressing, and stamping
Pipes, tubes and fittings (ferrous)
Wire and wire working (including nails)

CLASS 4. INDUSTRIAL METALS, MACHINES, IMPLEMENTS AND CONVEYANCES (*continued*)

Stoves, ovens, and ranges
Gas fittings and meters
Lead mills
Sewing machines
Arms and ammunition (excluding explosives)
Wireless and amplifying apparatus
Other metal works

CLASS 5. PRECIOUS METALS, JEWELLERY, PLATE

Jewellery
Watches and clocks (including repairs)
Electroplating (gold, silver, chromium, etc.)

CLASS 6. TEXTILES AND TEXTILE GOODS (INCLUSIVE OF KNITTED GOODS)

Cotton ginning
Cotton spinning and weaving
Wool—carding, spinning, weaving
Hosiery and other knitted goods
Silk, natural
Rayon, nylon, and other synthetic fibres
Flax mills
Rope and cordage
Canvas goods (tents, tarpaulins, etc.)
Bags and sacks
Textile dyeing, printing and finishing
Other

CLASS 7. SKINS AND LEATHER (NOT CLOTHING OR FOOTWEAR)

Furriers and fur dressing
Woolscouring and fellmongery
Tanning, currying, and leather dressing
Saddlery, harness and whips
Machine belting (leather or other)
Bags, trunks and other goods of leather and leather substitutes

CLASS 8. CLOTHING (EXCEPT KNITTED)

Tailoring and ready-made clothing
Waterproof and oilskin clothing
Dressmaking, hemstitching
Millinery
Shirts, collars, underclothing
Foundation garments
Handkerchiefs, ties, scarves
Hats and caps
Gloves
Boots and shoes (not rubber)
Boot and shoe repairing
Boot and shoe accessories
Umbrellas and walking sticks
Dyeworks and cleaning (including renovating and repairing)
Other

CLASS 9. FOOD, DRINK, AND TOBACCO

Flour milling
Cereal foods and starch
Animal and bird foods
Chaffcutting and corncrushing
Bakeries (including cakes and pastry)
Biscuits
Sugar mills
Sugar refining
Confectionery (including chocolate and icing sugar)
Jam, fruit and vegetable canning

CLASS 9. FOOD, DRINK, AND TOBACCO (*continued*)

Pickles, sauces, vinegar
Bacon curing
Butter factories
Cheese factories
Condensed and dried milk factories
Margarine
Meat and fish preserving
Condiments, coffee, spices, etc. (including tea blending and packing, food packing, etc.)
Ice and refrigerating
Salt
Aerated waters, cordials, etc.
Breweries
Distilleries
Wine-making
Cider and perry
Malting
Bottling
Tobacco, cigars and cigarettes
Dehydrated fruit and vegetables
Ice cream
Sausage casings
Arrowroot
Other

CLASS 10. SAWMILLING, WOODWORKING AND BASKETWARE

Sawmills—sawing from the log
Sawmills—resawing, dressing, etc.
Plywood mills (including veneers)
Bark mills
Joinery
Cooperage
Boxes and cases
Woodturning, woodcarving, etc.
Basketware, wickerware, etc.
Perambulators
Wall and ceiling boards (not plaster or cement)
Other

CLASS 11. FURNITURE OF WOOD, BEDDING, ETC.

Cabinet, furniture making and upholstery
Bedding and mattresses (not wire)
Furnishing drapery
Picture frames
Window and verandah blinds

CLASS 12. PAPER, STATIONERY, PRINTING, BOOK-BINDING, ETC.

Newspapers and periodicals
Printing, government
Printing, general (including bookbinding)
Stationery and paper products
Stereotyping, electrotyping
Process and photo-engraving
Cardboard boxes, cartons, and containers
Paper bags
Paper making
Pencils, penholders, chalks, crayons
Other

CLASS 13. RUBBER

Rubber goods (including tyre making)
Tyre retreading and repairing

CLASS 14. MUSICAL INSTRUMENTS

Gramophones and gramophone records
Pianos, piano-players, organs, etc.
Other

CLASS 15. MISCELLANEOUS PRODUCTS

Linoleum, oilcloth, etc.
 Bone, horn, ivory, and shell
 Plastic moulding and products
 Brooms and brushes
 Optical instruments and appliances
 Surgical and other scientific instruments and appliances
 Photographic material, developing, etc.
 Toys, games, and sports requisites
 Artificial flowers
 Other

CLASS 16. HEAT, LIGHT, AND POWER

Electric light and power—
 Government
 Local authority
 Other
 Gas works—
 Government
 Local authority
 Other

HISTORICAL REVIEW

While secondary industry in Western Australia has grown considerably since 1900 the greatest advance both in the number and the size of factories operating has occurred since 1945. One of the factors contributing to this growth has been the provision of adequate power in the south-western portion of the State by the expansion of electricity supplies provided by generating stations linked in a grid system.

In 1900 there were 632 factories operating in Western Australia. By 1910 the number had risen to 822 and by 1920 to 998. Progress during the first World War was comparatively slow, mainly because the more advanced manufacturing facilities already existing in other States were better suited to rapid development. During the decade 1921-1930, however, efforts were made to foster Western Australian secondary industry and considerable success was achieved during the latter years of this period, the number of factories increasing from 1,170 in 1926 to 1,466 in 1930. Although some decline occurred in the depression years of 1930 to 1933, there were 1,658 factories in operation in 1935 and by 1940 the number had reached 2,129.

No immediate stimulus to the State's manufacturing activity followed the outbreak of the second World War, but the more direct threat to Australia which resulted from the fall of Singapore called for a total use of industrial potential, and from 1942 onwards an increasing volume of war contracts was placed in Western Australia. The greatest demand was for processed foodstuffs but other forms of war production which were especially developed included munitions manufacture, shipbuilding (principally of wooden coastal craft) and marine engineering. Although fewer factories operated because of the decline in those classes of production which were purely for civilian purposes, employment and output increased substantially.

Production which had developed largely to meet the demands of the armed services declined sharply at the conclusion of the war and this was reflected particularly in the decreased manufacture of processed foodstuffs, the full production of which considerably exceeded civilian requirements. However, secondary industry as a whole benefited greatly from the engineering skills and equipment acquired in wartime activities and their transfer to civilian uses facilitated the expansion of the metal industries in the State and influenced the production of small to medium-sized machine tools and the establishment of a factory producing several types of tractors and farm machinery.

Such advances enlarged the scope of Western Australian secondary industry and by 1966-67 the number of factories had increased to 5,167. However, net production per head of population still remains higher in all the other States except Queensland. This applies particularly to New South Wales and Victoria which have consistently increased their lead in industrial production. Manufacturing net production per head of population in each of the States and in Australia as a whole during 1966-67 was as follows: New South Wales, \$687·7; Victoria, \$687·8; Queensland, \$351·1; South Australia, \$510·7; Western Australia, \$389·5; Tasmania, \$520·4; and Australia, \$588·2.

The average number of persons employed in Western Australian factories from 1900 to 1967 was as follows: 1900, 11,166 persons; 1905, 13,481; 1910, 14,894; 1915, 15,882; 1920, 16,942; 1925-26, 20,667; 1929-30, 19,643; 1934-35, 17,769; 1939-40, 22,967;

1944-45, 29,146; 1949-50, 40,733; 1954-55, 49,314; 1959-60, 49,651; 1964-65, 58,097; and 1966-67, 63,757. These figures indicate the moderate increase which occurred in factory employment between 1900 and 1920, the continued expansion in the 1920s, the decline in the early 1930s and the accelerated development during and after the second World War. They do not show the levels to which it fell during the first World War and during the depression years but these movements can be seen from the annual averages appearing in the *Statistical Summary from 1829* preceding the *Appendix*.

The large increase between 1944-45 and 1949-50 was due in part to the establishment of many smaller types of factory, such as motor-repair workshops, dry-cleaning works and bakeries, resulting from the return to civilian life of service personnel and from unusually large population gains by natural increase and from immigration. This high level of population increase was maintained in the following five years and in 1954-55 average factory employment reached 49,314. In 1955-56 the number of persons engaged in factories exceeded 50,000 for the first time but then declined in each of the three succeeding years and in 1958-59 had fallen to 48,417. An improvement in 1959-60, when the average for the year rose to 49,651, was maintained over the next seven years and by 1966-67 employment in factories had risen to 63,757.

A summary of selected items of factory activity from 1900 is given in the following table.

SELECTED ITEMS OF FACTORY ACTIVITY

Year	Number of factories	Persons employed (a)			Book values of—		Engines and electric motors used to drive machinery (b) rated hp	Net production (c) \$ (d)
		Males	Females	Total	Land and buildings	Plant and machinery		
1900	632	10,261	905	11,166	\$ 2,408,652	\$ 2,505,854	7,270	\$ (d)
1905	777	11,829	1,652	13,481	3,579,224	3,739,506	11,151	(d)
1910	822	12,404	2,490	14,894	3,645,536	3,878,546	11,378	5,472,140
1915	983	13,453	2,429	15,882	5,271,046	5,467,164	21,997	6,467,870
1920	998	14,311	2,631	16,942	7,127,554	6,822,496	26,481	9,708,150
1925-26 (e)	1,170	17,393	3,274	20,667	9,710,322	10,961,810	37,631	19,222,226
1929-30	1,466	15,921	3,722	19,643	11,246,428	12,181,972	37,754	14,976,120
1934-35	1,658	14,248	3,521	17,769	11,346,922	11,526,856	42,520	12,569,846
1939-40	2,129	18,331	4,636	22,967	13,726,936	15,916,990	66,925	18,055,456
1944-45	1,931	22,404	6,742	29,146	15,308,374	16,508,462	80,667	25,920,018
1949-50	3,023	33,711	7,022	40,733	22,110,004	22,913,534	120,380	52,088,052
1954-55	3,727	42,294	7,020	49,314	60,459,826	109,916,410	204,848	121,911,658
1959-60	4,279	42,957	6,694	49,651	87,145,524	128,449,900	261,660	172,746,624
1962-63	4,492	46,252	7,183	53,435	102,856,394	132,635,014	292,425	216,422,104
1963-64	4,609	48,163	7,542	55,705	118,812,882	155,514,314	327,425	230,511,312
1964-65	4,734	50,065	8,032	58,097	131,739,180	163,526,092	345,586	260,637,078
1965-66	4,906	51,464	8,818	60,282	151,047,390	197,209,623	371,888	288,802,710
1966-67	5,167	53,981	9,776	63,757	170,308,112	250,858,368	397,513	335,787,600

(a) Includes working proprietors and, up to and including 1925-26, fallers and haulers employed by sawmills. (b) Excludes engines used in electricity generating stations and motors driven by electricity of own generation. (c) See *Explanatory Notes and Definitions* on page 368. (d) Figures not available. (e) Period of 18 months ended 30 June 1926.

Several relatively large concerns began to operate during the post-war years. Sharp rises in the total horsepower of engines used to drive machinery are indicative of this growth in the number of highly-mechanised works. Increases in net production and the enhanced values of land and building and of plant and machinery are also significant, but when considering these figures allowances should be made for price changes which occurred during the period.

In 1948 a blast furnace, using charcoal made in an associated wood-distillation plant, began producing high-grade charcoal-iron. Additions have since been made to the plant and its original capacity of 10,000 tons per annum has been expanded to approximately 50,000 tons. Major developments have included the establishment in 1955 of an oil refinery (expanded in 1963 to produce lubricating oils) and a second portland cement factory and a steel rolling mill in 1956. In 1960 the State Parliament passed legislation

to ratify agreements made by the Government with the Broken Hill Proprietary Company Limited relating to the establishment of an integrated iron and steel works in Western Australia and with Australian Paper Manufacturers Limited for the establishment and operation of a mill to produce paper and paper board. Reference is made to this legislation on pages 92 and 95 of the *Official Year Book of Western Australia*, No. 3—1962. In 1963, a factory near Bunbury commenced extraction of titanium oxide pigment from ilmenite, a refinery at Kwinana commenced production of alumina from bauxite mined in the Darling Range, and a cotton ginnery at Kununurra, in the Kimberley Statistical Division, commenced processing seed cotton grown in the Ord Irrigation District. In 1964, two factories commenced the manufacture of rubber tyres and in 1966 the paper mill established by Australian Paper Manufacturers Limited commenced production. Two major industrial projects, a blast furnace at Kwinana and an iron ore pelletising plant at Dampier, commenced operations during 1967-68.

GENERAL SUMMARY

During the past ten years the number of factories in Western Australia increased by 31 per cent from 3,941 to 5,167 and the average number of persons employed in factories increased by 32 per cent from 48,462 to 63,757. By comparison, during the same period the total number of factories in Australia rose by 15 per cent from 54,194 to 62,500 and the average number of persons in factory employment increased from 1,076,383 to 1,309,208, a gain of 22 per cent.

In the following table factory activity in Western Australia during 1966-67 is compared with that of the other Australian States and Territories. The greatest number of factories is located in New South Wales which also produced the highest value of output and net production. Victoria ranks second in terms of output followed by Queensland and South Australia. Western Australian factory output exceeded only that of Tasmania, Northern Territory and the Australian Capital Territory.

PRINCIPAL ITEMS OF FACTORY STATISTICS—AUSTRALIA, 1966-67

States and Territories	Number of factories	Persons employed (a)	Salaries and wages (b)	Value of—				
				Materials used (c)	Power, fuel and light (d)	Net production (e)	Output (e)	Land, buildings, plant and machinery (f)
			\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
New South Wales	24,849	524,054	1,399,746	3,466,134	238,113	2,938,227	6,642,474	3,622,460
Victoria	18,053	445,307	1,167,437	2,678,791	134,399	2,235,430	5,048,620	2,616,449
Queensland	6,013	117,937	282,209	982,896	46,949	592,607	1,622,451	896,055
South Australia	6,222	118,220	299,106	728,094	51,302	563,764	1,343,160	767,310
Western Australia	5,167	63,757	153,597	399,406	30,031	335,788	765,224	421,166
Tasmania	1,771	34,879	90,756	223,566	19,826	194,571	437,964	403,141
Northern Territory	187	1,423	4,349	7,214	946	7,847	16,007	13,308
Australian Capital Territory	238	3,631	10,483	14,918	735	18,860	34,514	33,147
AUSTRALIA	62,500	1,309,208	3,407,683	8,501,020	522,300	6,887,094	15,910,414	8,773,036

(a) Average number employed over the whole year, including working proprietors. (b) Excludes amounts drawn by working proprietors. (c) Includes containers and repairs to buildings, plant, etc. (d) Includes lubricating oil and water. (e) See *Explanatory Notes and Definitions* on page 368. (f) Book values at end of year; includes estimated value of rented premises and plant.

Composition of Secondary Industry

In common with the majority of Australian States the main classes of secondary industry in Western Australia, measured by the value of net production, are Class 3—Chemicals, dyes, explosives, paints, oils, grease; Class 4—Industrial metals, machines, implements and conveyances; and Class 9—Food, drink and tobacco. This is shown in the following table which gives, for each of the sixteen classes, the principal statistics of factory activity for 1966-67.

PRINCIPAL ITEMS ACCORDING TO CLASS OF INDUSTRY, 1966-67

Class of industry	Number of factories	Persons employed (a)	Salaries and wages (b)	Value of—				
				Materials used (c)	Power, fuel and light (d)	Net production (e)	Output (e)	Land, buildings, plant and machinery (f)
			\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1. Treatment of non-metalliferous mine and quarry products	157	2,023	5,446	13,342	1,679	15,691	30,712	16,921
2. Bricks, pottery, glass, etc.	47	1,593	4,503	3,165	1,594	8,728	13,487	7,456
3. Chemicals, dyes, explosives, paints, oils, grease	89	3,003	9,327	87,749	5,297	42,601	135,646	56,505
4. Industrial metals, machines, implements, conveyances	2,653	29,593	73,563	130,862	5,671	135,985	272,518	148,647
5. Precious metals, jewellery, plate	91	275	466	336	76	1,016	1,428	894
6. Textiles and textile goods (inclusive of knitted goods)	35	824	1,600	5,711	148	2,923	8,782	2,958
7. Skins and leather (not clothing or footwear)	23	555	1,219	1,984	151	1,982	4,117	1,615
8. Clothing (except knitted)	333	3,162	4,299	4,657	184	7,296	12,136	5,644
9. Food, drink and tobacco	633	8,919	20,047	95,558	2,794	48,615	146,967	53,897
10. Sawmilling, woodworking and basketware	469	5,814	13,692	25,699	826	25,692	52,217	14,267
11. Furniture of wood, bedding, etc.	196	1,654	3,245	7,567	74	6,289	13,929	3,872
12. Paper, stationery, printing, book-binding, etc.	170	3,657	9,017	14,715	762	16,793	32,269	24,254
13. Rubber, etc.	56	499	1,288	2,891	149	2,520	5,559	3,095
14. Musical instruments	6	26	52	14	1	75	89	85
15. Miscellaneous products	123	912	1,774	2,839	101	3,437	6,377	3,487
Total, Classes 1 to 15	5,081	62,509	149,537	397,088	19,506	319,640	736,234	343,595
16. Heat, light and power	86	1,248	4,060	2,318	10,525	16,148	28,991	77,572
TOTAL, ALL CLASSES	5,167	63,757	153,597	399,406	30,031	335,788	765,224	421,166

(a) Average number employed over the whole year, including working proprietors. (b) Excludes amounts drawn by working proprietors. (c) Includes containers and repairs to buildings, plant, etc. (d) Includes lubricating oil and water. (e) See *Explanatory Notes and Definitions* on page 368. (f) Book values at end of year; includes estimated value of rented premises and plant.

Location of Secondary Industry

Two-thirds of the State's factories, including those situated in the rapidly developing complex at Kwinana, are located in the Perth Statistical Division, which contains the greatest population, both in number and density. The adjoining South-West Statistical Division ranks next to the Perth Division in total population and number of factories.

PRINCIPAL ITEMS ACCORDING TO STATISTICAL DIVISIONS, 1966-67

Statistical Division	Number of factories	Persons employed (a)	Salaries and wages (b)	Value of—				
				Materials used (c)	Power, fuel and light (d)	Net production (e)	Output (e)	Land, buildings, plant and machinery (f)
			\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Perth	3,472	52,567	128,055	327,696	19,464	272,041	619,201	314,853
South-West	520	4,814	11,268	25,806	5,672	30,867	62,346	59,333
Southern Agricultural	288	1,961	4,139	13,779	465	8,669	22,913	10,153
Central Agricultural	344	1,649	3,335	7,800	1,389	6,855	16,044	7,480
Northern Agricultural	244	1,132	2,388	13,424	457	6,001	19,882	5,676
Eastern Goldfields	178	889	1,970	4,018	1,476	4,422	9,916	8,413
Central	13	41	115	146	189	251	585	288
North-West	32	212	540	1,324	118	1,258	2,699	1,200
Pilbara	30	139	586	938	382	1,768	3,089	5,746
Kimberley	46	353	1,201	4,476	418	3,656	8,550	8,025
WESTERN AUSTRALIA	5,167	63,757	153,597	399,406	30,031	335,788	765,224	421,166

(a) Average number employed over the whole year, including working proprietors. (b) Excludes amounts drawn by working proprietors. (c) Includes containers and repairs to buildings, plant, etc. (d) Includes lubricating oil and water. (e) See *Explanatory Notes and Definitions* on page 368. (f) Book values at end of year; includes estimated value of rented premises and plant.

The Perth and South-West Divisions together contain approximately three-quarters of the total population of the State. Other factors influencing the concentration of manufacturing industry in the area are the easier availability of raw materials and the provision of adequate power and fuel supplies and transport facilities. Electric power is distributed over most of the area through a grid system established by the State Electricity Commission, and a map showing the distribution of supplies by the Commission as at 30 June 1966 appeared in the *Western Australian Year Book*, No. 6—1967. The only coal deposits in the State at present being worked are in the South-West Division near Collie, some 120 miles to the south of Perth. These Divisions also contain well-developed road and railway systems, the State's principal port at Fremantle and other ports at Bunbury and Busselton.

Reference to manufacturing activity in the several Statistical Divisions of the State is also made in the section *Geographical Distribution of Industry* which appears at the beginning of this Chapter. The boundaries of each Statistical Division are shown on the map of the State following the Index. Details of the individual local government areas of which each Statistical Division is composed are given in a list preceding the Index.

Number of Factories and Persons Employed

The major increase in both the number of factories and employment in the last ten years has occurred in Class 4—Industrial metals, machines, implements and conveyances. Other large increases in employment have also occurred in Class 9—Food, drink and tobacco, and Class 12—Paper, stationery, printing, bookbinding, etc.

Variations in the number of Western Australian factories in each class of secondary industry over the last five-year period are shown in the following table.

NUMBER OF FACTORIES ACCORDING TO CLASS OF INDUSTRY

Class of industry	1962-63	1963-64	1964-65	1965-66	1966-67
1. Treatment of non-metalliferous mine and quarry products	151	149	148	156	157
2. Bricks, pottery, glass, etc.	50	49	48	49	47
3. Chemicals, dyes, explosives, paints, oils, grease	74	76	80	87	89
4. Industrial metals, machines, implements, conveyances	2,060	2,160	2,305	2,449	2,653
5. Precious metals, jewellery, plate	74	86	90	93	91
6. Textiles and textile goods (inclusive of knitted goods)	39	42	36	34	35
7. Skins and leather (not clothing or footwear)	24	23	24	24	23
8. Clothing (except knitted)	390	368	359	338	333
9. Food, drink and tobacco	624	621	626	623	633
10. Sawmilling, woodworking and basketware	451	454	443	449	469
11. Furniture of wood, bedding, etc.	170	181	178	190	196
12. Paper, stationery, printing, bookbinding, etc.	146	148	155	160	170
13. Rubber	51	58	61	60	56
14. Musical instruments	8	7	7	6	6
15. Miscellaneous products	85	90	86	100	123
Total, Classes 1 to 15	4,397	4,512	4,646	4,818	5,081
16. Heat, light and power	95	97	88	88	86
TOTAL, ALL CLASSES	4,492	4,609	4,734	4,906	5,167

The following table shows the number of factories classified according to the number of persons employed and the total employment in each size group of factories. Although there were 5,167 factories operating in 1966-67, only 89 or less than 2 per cent had an average employment in excess of 100 persons, while 4,008 factories, or nearly 78 per cent of the total, employed ten persons or less.

In 1966-67 the five largest factories were responsible for almost 9 per cent of total factory employment. By contrast, however, the 2,503 factories employing under four persons, while constituting over 48 per cent of the total number of factories in the State, accounted for little more than 7 per cent of employment, including a considerable number of working proprietors.

FACTORIES CLASSIFIED ACCORDING TO NUMBER OF PERSONS EMPLOYED

Year	Factories employing on the average (a)							Total
	Less than 4 persons	4 to 10 persons	11 to 20 persons	21 to 50 persons	51 to 100 persons	101 to 500 persons	Over 500 persons	
NUMBER OF FACTORIES								
1962-63	2,235	1,305	440	328	111	70	3	4,492
1963-64	2,298	1,325	447	342	115	79	3	4,609
1964-65	2,308	1,394	460	368	124	75	5	4,734
1965-66	2,421	1,397	494	381	123	84	6	4,906
1966-67	2,503	1,505	525	411	134	84	5	5,167
PERSONS EMPLOYED (a)								
1962-63	4,130	7,873	6,333	10,317	7,653	13,619	4,399	54,324
1963-64	4,222	8,001	6,473	10,737	7,968	14,806	4,656	56,863
1964-65	4,173	8,405	6,607	11,485	8,796	13,958	5,785	59,209
1965-66	4,440	8,495	7,092	11,930	8,525	15,036	6,076	61,594
1966-67	4,643	9,126	7,659	13,002	9,325	15,501	5,659	64,915

(a) Average over period of operation, including working proprietors.

The size structure of Western Australian factories, and the employment in those factories, is compared with that of the other Australian States and Territories in the following table.

Of the 278 factories in Australia employing over 500 persons on the average over the period of operation, 120 were located in New South Wales and 97 in Victoria. The number in Western Australia was five.

More persons were engaged in factories in Western Australia employing 101 to 500 workers than any other size category.

FACTORIES AND PERSONS EMPLOYED—AUSTRALIA, 1966-67

States and Territories	Factories employing on the average (a)							Total
	Less than 4 persons	4 to 10 persons	11 to 20 persons	21 to 50 persons	51 to 100 persons	101 to 500 persons	Over 500 persons	
NUMBER OF FACTORIES								
New South Wales	10,363	7,578	3,120	2,153	830	685	120	24,849
Victoria	5,920	5,894	2,604	2,011	808	719	97	18,053
Queensland	2,036	2,160	810	578	219	188	22	6,013
South Australia	3,013	1,692	687	476	189	140	25	6,222
Western Australia	2,503	1,505	525	411	134	84	5	5,167
Tasmania	730	576	218	150	48	41	8	1,771
Northern Territory	69	94	9	13	2	.....	.....	187
Australian Capital Territory	70	92	45	22	3	..... 5	..... 1	238
AUSTRALIA	24,704	19,591	8,018	5,814	2,233	1,862	278	62,500
PERSONS EMPLOYED (a)								
New South Wales	19,022	46,675	45,443	68,102	57,501	139,751	150,672	527,166
Victoria	11,705	36,523	38,076	63,176	56,970	144,328	97,177	447,955
Queensland	4,169	13,298	11,896	18,252	15,296	37,650	18,325	118,886
South Australia	5,377	10,277	10,060	15,138	13,530	28,761	35,676	118,819
Western Australia	4,643	9,126	7,659	13,002	9,325	15,501	5,659	64,915
Tasmania	1,398	3,599	3,198	4,734	3,430	7,975	10,797	35,131
Northern Territory	142	595	114	437	158	.....	.....	1,446
Australian Capital Territory	149	560	676	641	197	..... 855	..... 664	3,742
AUSTRALIA	46,605	120,653	117,122	183,482	156,407	374,821	318,970	1,318,060

(a) Average over period of operation, including working proprietors.

FACTORIES ACCORDING TO CLASS OF INDUSTRY AND PERSONS EMPLOYED, 1966-67

Class of industry	Factories employing on the average (a)							Total
	Less than 4 persons	4 to 10 persons	11 to 20 persons	21 to 50 persons	51 to 100 persons	101 to 500 persons	Over 500 persons	
NUMBER OF FACTORIES								
1. Treatment of non-metalliferous mine and quarry products	53	64	19	14	4	3	....	157
2. Bricks, pottery, glass, etc.	12	9	7	8	7	4	....	47
3. Chemicals, dyes, explosives, paints, oils, grease	27	28	10	11	5	7	1	89
4. Industrial metals, machines, implements, conveyances	1,425	743	233	164	51	34	3	2,653
5. Precious metals, jewellery, plate	71	17	2	1	....	....	....	91
6. Textiles and textile goods (inclusive of knitted goods)	12	9	6	3	2	3	....	35
7. Skins and leather (not clothing or footwear)	5	5	4	7	1	1	....	23
8. Clothing (except knitted)	176	90	29	24	11	3	....	333
9. Food, drink and tobacco	283	179	75	60	24	12	....	633
10. Sawmilling, woodworking and basketware	170	166	56	54	17	6	....	469
11. Furniture of wood, bedding, etc.	91	63	21	18	2	1	....	196
12. Paper, stationery, printing, bookbinding, etc.	40	57	31	30	7	4	1	170
13. Rubber	33	13	3	5	1	1	....	56
14. Musical instruments	3	3	....	....	....	....	....	6
15. Miscellaneous products	53	41	20	7	2	....	....	123
Total, Classes 1 to 15	2,454	1,487	516	406	134	79	5	5,081
16. Heat, light and power	49	18	9	5	....	5	....	86
TOTAL, ALL CLASSES	2,503	1,505	525	411	134	84	5	5,167

PERSONS EMPLOYED (a)

1. Treatment of non-metalliferous mine and quarry products	110	390	267	452	253	571	....	2,043
2. Bricks, pottery, glass, etc.	25	60	100	262	498	646	....	1,591
3. Chemicals, dyes, explosives, paints, oils, grease	49	191	137	363	350	1,112	815	3,017
4. Industrial metals, machines, implements, conveyances	2,656	4,380	3,395	5,119	3,552	6,436	4,307	29,845
5. Precious metals, jewellery, plate	108	108	31	28	....	....	....	275
6. Textiles and textile goods (inclusive of knitted goods)	22	57	93	73	121	460	....	826
7. Skins and leather (not clothing or footwear)	9	25	63	264	72	122	....	555
8. Clothing (except knitted)	301	552	422	762	802	325	....	3,164
9. Food, drink and tobacco	526	1,111	1,117	1,995	1,647	3,131	....	9,527
10. Sawmilling, woodworking and basketware	339	1,049	807	1,722	1,137	873	....	5,927
11. Furniture of wood, bedding, etc.	179	392	317	496	156	122	....	1,662
12. Paper, stationery, printing, bookbinding, etc.	77	366	455	944	556	763	537	3,698
13. Rubber	66	66	47	184	62	121	....	546
14. Musical instruments	5	21	....	....	....	....	....	26
15. Miscellaneous products	97	247	271	206	119	....	....	940
Total, Classes 1 to 15	4,569	9,015	7,522	12,870	9,325	14,682	5,659	63,642
16. Heat, light and power	74	111	137	132	....	819	....	1,273
TOTAL, ALL CLASSES	4,643	9,126	7,659	13,002	9,325	15,501	5,659	64,915

(a) Average over period of operation, including working proprietors.

The following table shows employment in Western Australian factories, classified according to class of industry. The largest volume of employment is provided in Class 4—Industrial metals, machines, implements and conveyances. In 1966-67 the industries which comprise this class employed an average over the whole year of 29,593 persons, including 2,997 in government workshops engaged in constructing and repairing railway rolling stock. The next largest employer of labour was the class Food, drink and tobacco with 8,919 persons, of whom 2,717 were engaged in meat and fish preserving and 1,337 in bakeries. In the class Sawmilling, woodworking and basketware, 3,372 persons were employed in sawmills and 1,803 in joinery works. Paper, stationery, printing, bookbinding, etc. accounted for 3,657 persons, of whom 1,475 were employed in general printing and 919 in the printing of newspapers and periodicals. Persons employed in the manufacture of clothing numbered 3,162. In chemical fertiliser works, within the class Chemicals, dyes, explosives, paints, oils and grease, 929 workers were employed.

PERSONS EMPLOYED (a) ACCORDING TO CLASS OF INDUSTRY

Class of industry	1962-63	1963-64	1964-65	1965-66	1966-67		
					Males	Females	Persons
1. Treatment of non-metalliferous mine and quarry products	1,776	1,786	1,916	1,949	1,894	129	2,023
2. Bricks, pottery, glass, etc.	1,518	1,580	1,556	1,592	1,455	138	1,593
3. Chemicals, dyes, explosives, paints, oils, grease	2,692	2,761	2,920	2,923	2,730	273	3,003
4. Industrial metals, machines, implements, conveyances	23,249	24,924	26,403	27,722	27,723	1,870	29,593
5. Precious metals, jewellery, plate	209	229	239	252	241	34	275
6. Textiles and textile goods (inclusive of knitted goods)	871	882	828	857	386	438	824
7. Skins and leather (not clothing or footwear)	625	590	587	585	429	126	555
8. Clothing (except knitted)	2,992	2,984	3,047	3,063	826	2,336	3,162
9. Food, drink and tobacco	7,560	7,793	7,957	8,163	6,361	2,558	8,919
10. Sawmilling, woodworking and basketware	5,347	5,403	5,567	5,732	5,516	298	5,814
11. Furniture of wood, bedding, etc.	1,372	1,386	1,503	1,552	1,361	293	1,654
12. Paper, stationery, printing, bookbinding, etc.	3,006	3,105	3,200	3,371	2,771	886	3,657
13. Rubber	348	413	526	557	418	81	499
14. Musical instruments	34	34	29	23	26	....	26
15. Miscellaneous products	619	670	666	732	609	303	912
Total, Classes 1 to 15	52,218	54,540	56,944	59,073	52,746	9,763	62,509
16. Heat, light and power	1,217	1,165	1,153	1,209	1,235	13	1,248
TOTAL, ALL CLASSES	53,435	55,705	58,097	60,282	53,981	9,776	63,757

(a) Average number employed over the whole year, including working proprietors.

In 1945, towards the end of the war, the ratio of male to female employment was 3·3 : 1. Within the next five years it increased to 4·6 : 1 and by June 1955, it had risen to 6·1 : 1. It then rose slowly to 6·4 : 1 in June 1961, but has since declined, the ratio in June 1967, being slightly less than 5·4 : 1.

FACTORY EMPLOYEES CLASSIFIED ACCORDING TO AGE

Month of June—	Males				Females			
	Under 16 years	16 years and under 21	21 years and over	Total	Under 16 years	16 years and under 21	21 years and over	Total
NUMBER								
1963	1,016	6,187	36,641	43,844	432	2,404	4,198	7,034
1964	919	6,746	38,048	45,713	397	2,613	4,377	7,387
1965	962	7,185	39,499	47,646	409	2,855	4,718	7,982
1966	944	7,508	40,372	48,824	430	2,951	5,445	8,826
1967	792	7,804	42,972	51,568	307	2,845	6,459	9,611
PERCENTAGE								
1963	2·32	14·11	83·57	100·00	6·14	34·18	59·68	100·00
1964	2·01	14·76	83·23	100·00	5·37	35·37	59·25	100·00
1965	2·02	15·08	82·90	100·00	5·12	35·77	59·11	100·00
1966	1·93	15·38	82·69	100·00	4·87	33·44	61·69	100·00
1967	1·54	15·13	83·33	100·00	3·19	29·60	67·20	100·00

The proportion of male employees aged under twenty-one years to total male employment fell consistently between 1945 and 1952. Since then it increased gradually until 1966 when it reached 17·3 per cent or slightly more than in 1948. In 1967 the proportion declined to 16·7. The trend in junior female employment followed a somewhat similar pattern apart from the abrupt increase which occurred in the proportion in 1946, immediately after the war. However, this was due to a considerable decrease in the number of adult female employees and not to an increase in the number of juniors. The proportion then fell substantially until 1955 but increased fairly consistently during the next ten years. In 1966 and 1967 the proportion of junior females employed fell, due mainly to substantial increases in numbers of adult female employees. The changes which have occurred

during the five years from 1963 to 1967 in the age grouping of employees in secondary industry are illustrated in the second table on page 378 where the numbers of males and females in each group are expressed as a percentage of total factory employment for each sex.

Salaries and Wages

The average amount of salary and wages paid to both male and female employees in secondary industry has increased each year since 1946-47. In the following table details of total salaries and wages paid in 1966-67 and the averages per employee are shown for each class of industry.

SALARIES AND WAGES PAID ACCORDING TO CLASS OF INDUSTRY, 1966-67
(Excluding working proprietors and amounts drawn by them)

Class of industry	Total			Average per employee		
	Males	Females	Persons	Males	Females	Persons
	\$'000	\$'000	\$'000	\$	\$	\$
1. Treatment of non-metalliferous mine and quarry products	5,254	192	5,446	2,874	1,539	2,789
2. Bricks, pottery, glass, etc.	4,273	230	4,503	2,967	1,681	2,855
3. Chemicals, dyes, explosives, paints, oils, grease	8,905	421	9,327	3,284	1,548	3,126
4. Industrial metals, machines, implements, conveyances	70,908	2,655	73,563	2,722	1,457	2,639
5. Precious metals, jewellery, plate	421	45	466	2,552	1,439	2,376
6. Textiles and textile goods (inclusive of knitted goods)	1,020	580	1,600	2,728	1,336	1,980
7. Skins and leather (not clothing or footwear)	1,059	160	1,219	2,521	1,289	2,240
8. Clothing (except knitted)	1,307	2,992	4,299	2,297	1,315	1,512
9. Food, drink and tobacco	16,288	3,758	20,047	2,717	1,494	2,355
10. Sawmilling, woodworking and basketware	13,271	420	13,692	2,528	1,439	2,471
11. Furniture of wood, bedding, etc.	2,831	414	3,245	2,403	1,469	2,223
12. Paper, stationery, printing, bookbinding, etc.	7,885	1,132	9,017	2,958	1,309	2,554
13. Rubber	1,182	107	1,289	2,889	1,334	2,635
14. Musical instruments	52	....	52	2,259	....	2,259
15. Miscellaneous products	1,415	359	1,774	2,568	1,233	2,107
Total, Classes 1 to 15	136,071	13,466	149,537	2,741	1,411	2,527
16. Heat, light and power	4,043	18	4,060	3,322	1,466	3,304
TOTAL, ALL CLASSES	140,114	13,483	153,597	2,755	1,411	2,543

The table below shows total salaries and wages paid in each class of industry from 1962-63 to 1966-67.

SALARIES AND WAGES PAID ACCORDING TO CLASS OF INDUSTRY
(Excluding amounts drawn by working proprietors)
(\$'000)

Class of industry	1962-63	1963-64	1964-65	1965-66	1966-67
1. Treatment of non-metalliferous mine and quarry products	3,738	3,966	4,472	4,846	5,446
2. Bricks, pottery, glass, etc.	3,133	3,460	3,645	3,919	4,503
3. Chemicals, dyes, explosives, paints, oils, grease	6,500	6,824	7,741	8,398	9,327
4. Industrial metals, machines, implements, conveyances	43,614	49,141	55,827	63,536	73,563
5. Precious metals, jewellery, plate	298	310	339	368	466
6. Textiles and textile goods (inclusive of knitted goods)	1,437	1,468	1,398	1,561	1,600
7. Skins and leather (not clothing or footwear)	1,186	1,128	1,204	1,286	1,219
8. Clothing (except knitted)	3,303	3,369	3,639	3,826	4,299
9. Food, drink and tobacco	14,258	15,065	15,916	17,447	20,047
10. Sawmilling, woodworking and basketware	9,596	10,268	11,130	12,492	13,692
11. Furniture of wood, bedding, etc.	2,115	2,213	2,550	2,829	3,245
12. Paper, stationery, printing, bookbinding, etc.	6,021	6,412	6,798	7,619	9,017
13. Rubber	612	767	1,088	1,188	1,288
14. Musical instruments	50	53	50	45	52
15. Miscellaneous products	953	1,040	1,091	1,286	1,774
Total, Classes 1 to 15	96,815	105,481	116,887	130,643	149,537
16. Heat, light and power	3,065	3,034	3,090	3,528	4,060
TOTAL, ALL CLASSES	99,880	108,515	119,978	134,171	153,597

Materials Used

The cost of goods consumed in the process of production (excluding fuel, power and light, lubricating oil and water) in each class of industry is shown in the following table for each of the years 1962-63 to 1966-67.

MATERIALS USED (a) CLASSIFIED ACCORDING TO CLASS OF INDUSTRY
(\$'000)

Class of industry	1962-63	1963-64	1964-65	1965-66	1966-67
1. Treatment of non-metalliferous mine and quarry products	8,198	8,740	10,131	11,936	13,342
2. Bricks, pottery, glass, etc.	2,071	2,087	2,334	2,625	3,165
3. Chemicals, dyes, explosives, paints, oils, grease	72,068	75,510	76,920	83,476	87,749
4. Industrial metals, machines, implements, conveyances	77,933	85,677	100,247	114,566	130,862
5. Precious metals, jewellery, plate	165	194	233	261	336
6. Textiles and textile goods (inclusive of knitted goods)	5,966	7,724	5,577	5,934	5,711
7. Skins and leather (not clothing or footwear)	1,498	1,543	1,702	2,098	1,984
8. Clothing (except knitted)	3,898	4,119	4,100	4,354	4,657
9. Food, drink and tobacco	71,961	76,138	83,937	88,180	95,558
10. Sawmilling, woodworking and basketware	16,807	18,572	20,483	22,743	25,699
11. Furniture of wood, bedding, etc.	5,131	5,480	6,537	6,747	7,567
12. Paper, stationery, printing, bookbinding, etc.	9,307	10,031	11,065	12,400	14,715
13. Rubber	1,443	1,446	2,887	3,347	2,891
14. Musical instruments	28	18	12	12	14
15. Miscellaneous products	1,562	1,725	1,795	1,994	2,839
Total, Classes 1 to 15	278,036	299,002	327,960	360,673	397,088
16. Heat, light and power	1,720	1,795	1,780	1,962	2,318
TOTAL, ALL CLASSES	279,756	300,798	329,740	362,634	399,406

(a) Includes containers, tools replaced and repairs to plant and buildings.

Motive Power

Electricity is the most economical and convenient source of power in the principal manufacturing areas of the State and most factories have plants designed for its use. This position has become more pronounced as the installation of new major generating stations has extended the area in which adequate electric power is available. Electric motors are consequently the main source of motive power in factories. Oil engines are next in order of total horsepower produced and are still used in those country districts which are not yet supplied with power from the central generating stations.

The following table shows the various types of motive power used during the five years from 1962-63 to 1966-67.

RATED HORSEPOWER OF ENGINES (a) EMPLOYED TO DRIVE MACHINERY

Year	Steam		Internal combustion			Motors driven by—		Total (b)
	Reciprocating	Turbine	Gas	Light oil	Heavy oil	Electricity purchased	Electricity of own generation	
1962-63	9,645	13,444	3,395	21,674	5,699	238,568	5,957	292,425
1963-64	9,734	13,559	3,395	23,088	4,205	273,444	7,470	327,425
1964-65	9,680	13,559	3,395	22,300	5,883	290,769	8,651	345,586
1965-66	8,230	13,599	(c) 32,843			317,216	7,941	371,888
1966-67	8,174	13,604	(c) 29,038			346,697	8,982	397,513

(a) Excludes engines held in reserve or idle and engines used in electricity generating stations.

(c) Separate details not available.

(b) Excludes horsepower of motors driven by electricity of own generation.

Fuel Consumed

The quantity and cost of fuels used by secondary industry are shown in the following table. The fuels consumed are used for heating purposes in foundries, brick kilns and bakers' ovens as well as for steam generation, lighting and the operation of engines.

POWER, FUEL AND LIGHT USED IN FACTORIES (a)

Year	Coal		Coke		Wood		Fuel oil		Elec- tricity	Other (gas, tar fuel, etc.)
	tons	\$	tons	\$	tons	\$	'000 gal	\$		
1962-63	673,726	5,178,534	17,463	438,168	238,927	768,354	99,177	7,957,038	5,009,674	1,116,256
1963-64	670,025	5,172,560	13,390	358,876	226,337	744,748	118,139	9,059,414	5,658,426	1,452,132
1964-65	732,424	5,709,288	12,394	349,326	211,554	681,938	132,347	9,701,472	6,352,482	1,826,012
1965-66	827,399	6,041,156	12,247	393,454	190,264	599,982	133,929	9,732,284	6,861,210	2,096,130
1966-67	857,702	5,728,796	11,789	387,547	176,871	576,950	159,877	11,093,862	7,952,305	2,438,980

(a) Excludes coal, coke and fuel oil used in gas works as materials in gas making, electricity generated and used in generating stations, and gas produced and used in own works.

Value of Output and Net Production

The basis on which each of these values is computed is defined in the section *Explanatory Notes and Definitions* on page 368.

VALUE OF OUTPUT (a)
(\$'000)

Class of industry	1962-63	1963-64	1964-65	1965-66	1966-67
1. Treatment of non-metalliferous mine and quarry products	18,664	20,188	23,402	26,185	30,712
2. Bricks, pottery, glass, etc.	9,096	10,180	10,912	11,488	13,487
3. Chemicals, dyes, explosives, paints, oils, grease	109,840	113,829	119,292	127,638	135,646
4. Industrial metals, machines, implements, conveyances	157,612	173,906	204,381	232,532	272,518
5. Precious metals, jewellery, plate	827	934	1,041	1,155	1,428
6. Textiles and textile goods (inclusive of knitted goods)	8,745	10,292	7,919	9,115	8,782
7. Skins and leather (not clothing or footwear)	3,701	3,545	3,901	4,285	4,117
8. Clothing (except knitted)	9,710	10,044	10,437	11,300	12,136
9. Food, drink and tobacco	107,025	113,316	123,432	132,750	146,967
10. Sawmilling, woodworking and basketware	34,852	37,714	42,359	46,757	52,217
11. Furniture of wood, bedding, etc.	9,177	9,768	11,520	12,434	13,929
12. Paper, stationery, printing, bookbinding, etc.	21,899	23,664	25,716	27,537	32,269
13. Rubber	3,059	3,214	5,088	5,906	5,559
14. Musical instruments	103	96	88	77	89
15. Miscellaneous products	3,404	3,701	3,956	4,559	6,377
Total, Classes 1 to 15	497,713	534,391	593,442	653,719	736,234
16. Heat, light and power	20,186	20,667	22,979	25,032	28,991
TOTAL, ALL CLASSES	517,899	555,058	616,422	678,751	765,224

(a) See *Explanatory Notes and Definitions* on page 368.

VALUE OF NET PRODUCTION (a)
(\$'000)

Class of industry	1962-63	1963-64	1964-65	1965-66	1966-67
1. Treatment of non-metalliferous mine and quarry products	9,208	10,230	11,774	12,727	15,691
2. Bricks, pottery, glass, etc.	5,889	6,736	7,128	7,446	8,728
3. Chemicals, dyes, explosives, paints, oils, grease	33,174	33,129	36,966	38,913	42,601
4. Industrial metals, machines, implements, conveyances	76,605	84,465	99,673	112,922	135,985
5. Precious metals, jewellery, plate	637	715	773	854	1,016
6. Textiles and textile goods (inclusive of knitted goods)	2,677	2,459	2,242	3,065	2,923
7. Skins and leather (not clothing or footwear)	2,067	1,863	2,048	2,034	1,982
8. Clothing (except knitted)	5,651	5,758	6,164	6,766	7,296
9. Food, drink and tobacco	32,748	34,730	36,969	41,936	48,615
10. Sawmilling, woodworking and basketware	17,389	18,470	21,114	23,245	25,692
11. Furniture of wood, bedding, etc.	3,989	4,233	4,923	5,620	6,289
12. Paper, stationery, printing, bookbinding, etc.	12,328	13,355	14,361	14,821	16,793
13. Rubber	1,551	1,681	2,053	2,401	2,520
14. Musical instruments	74	77	75	64	75
15. Miscellaneous products	1,788	1,913	2,093	2,489	3,437
Total, Classes 1 to 15	205,745	219,816	248,355	275,302	319,640
16. Heat, light and power	10,677	10,695	12,282	13,501	16,148
TOTAL, ALL CLASSES	216,422	230,511	260,637	288,803	335,788

(a) See *Explanatory Notes and Definitions* on page 368.

The annual values of net production per person employed are shown in the table below for each class of industry for the years 1962-63 to 1966-67. Net production per person employed was highest in Class 3—Chemicals, dyes, explosives, paints, oils, grease and lowest in Class 8—Clothing (except knitted).

NET PRODUCTION PER PERSON EMPLOYED (a)

Class of industry	1962-63	1963-64	1964-65	1965-66	1966-67
	\$	\$	\$	\$	\$
1. Treatment of non-metalliferous mine and quarry products	5,184	5,728	6,145	6,530	7,756
2. Bricks, pottery, glass, etc.	3,880	4,264	4,581	4,677	5,479
3. Chemicals, dyes, explosives, paints, oils, grease	12,324	11,998	12,659	13,313	14,186
4. Industrial metals, machines, implements and conveyances	3,296	3,388	3,775	4,073	4,595
5. Precious metals, jewellery, plate	3,046	3,122	3,234	3,388	3,696
6. Textiles and textile goods (inclusive of knitted goods)	3,074	2,788	2,708	3,576	3,547
7. Skins and leather (not clothing or footwear)	3,306	3,158	3,489	3,477	3,570
8. Clothing (except knitted)	1,888	1,930	2,023	2,209	2,307
9. Food, drink and tobacco	4,332	4,456	4,646	5,137	5,451
10. Sawmilling, woodworking and basketware	3,246	3,418	3,795	4,055	4,419
11. Furniture of wood, bedding, etc.	2,908	3,054	3,275	3,621	3,802
12. Paper, stationery, printing, bookbinding, etc.	4,102	4,302	4,488	4,397	4,592
13. Rubber	4,456	4,070	3,903	4,310	5,049
14. Musical instruments	2,190	2,262	2,577	2,769	2,865
15. Miscellaneous products	2,890	2,854	3,143	3,401	3,768
Classes 1 to 15	3,940	4,030	4,361	4,660	5,114
16. Heat, light and power	8,774	9,180	10,652	11,167	12,939
ALL CLASSES	4,050	4,138	4,486	4,791	5,267

(a) Based on average employment (including working proprietors) over the whole year.

Land and Buildings, Plant and Machinery

The book values of the premises and plant used for manufacturing purposes in Western Australia are given in the following table. The amounts shown are depreciated values and do not represent the actual amount of capital invested in the items specified.

BOOK VALUES AND RENTALS OF LAND AND BUILDINGS, PLANT AND MACHINERY (\$'000)

Year	Land and buildings				Plant and machinery			
	Owned by user (a)	Rented		Total value	Owned by user (a)	Rented		Total value
		Annual rental	Estimated capital value			Annual rental	Estimated capital value	
1962-63	80,400	1,497	22,456	102,856	130,036	260	2,599	132,635
1963-64	93,758	1,670	25,055	118,813	152,741	277	2,773	155,514
1964-65	102,946	1,920	28,793	131,739	160,166	336	3,360	163,526
1965-66	119,068	2,132	31,979	151,047	193,611	360	3,599	197,210
1966-67	132,236	2,538	38,072	170,308	246,756	410	4,103	250,858

(a) Book values at end of year.

A summary of the activities of factories operated by the Commonwealth and State Governments and by government instrumentalities appears on page 391.

ARTICLES PRODUCED

The following table lists some of the principal products of secondary industry in the State and shows the quantities produced in each of the five years from 1962-63 to 1966-67. Production of many items is confidential (see note *Confidential Information* on pages 368-9) and consequently the list is incomplete and should not be regarded as an assessment of factory development as a whole. As production is expressed in terms of physical units, individual items listed may be compared over the years reviewed without considering price changes.

PRODUCTION OF SELECTED COMMODITIES (a)

Commodity (b)	Unit	1962-63	1963-64	1964-65	1965-66	1966-67
Aerated waters	gal	5,690,530	6,462,323	6,917,932	8,796,448	10,323,851
Bacon and ham	lb	8,594,473	8,468,073	8,921,238	9,604,695	10,258,913
Bath heaters—solid fuel	number	5,018	4,717	4,621	4,498	4,312
Batteries—automotive (c)—						
6 volt	number	9,774	‡	8,086	8,456	9,020
12 volt	number	8,607	‡	21,486	23,041	27,649
Boots, shoes and sandals (d)	pair	729,999	748,992	850,548	847,907	875,341
Bran	ton (2,000 lb)	26,474	27,502	25,452	21,524	19,366
Bread (2 lb loaf) (e)	'000	56,522	58,172	57,731	57,333	58,777
Bricks (f)	'000	131,176	155,792	146,057	140,611	163,166
Butter	'000 lb	15,596	15,491	17,387	18,133	14,394
Cardigans, pullovers (all types)	dozen	9,935	11,323	‡	‡	‡
Cases—fruit, vegetable, etc. (including shooks)	number	2,031,319	1,986,555	1,795,209	1,946,971	1,905,457
Cheese	lb	3,223,011	3,372,811	4,051,243	2,711,774	3,806,781
Coats—sports—men's and youths'	number	827	1,057	877	792	775
Coke (including coke breeze)	ton	19,130	13,928	12,822	14,036	16,461
Cordials and syrups	gal	277,269	281,730	337,629	428,007	510,823
Electricity (g)	'000 kWh	1,219,492	1,318,199	1,474,277	1,639,114	1,902,973
Fibrous plaster sheets	sq yd	1,578,030	1,641,742	1,596,687	1,715,597	1,742,856
Flour—						
Plain (h)	ton (2,000 lb)	135,911	143,296	134,378	113,665	101,109
Self-raising	cwt	78,952	82,548	74,206	70,515	62,548
Gas (town) (i)	'000 cu ft	1,400,705	1,435,478	1,458,064	1,483,455	1,560,212
Hot water systems—domestic (j)—						
Electric	number	3,565	4,188	4,824	4,135	6,081
Other	number	3,954	5,881	7,507	9,016	9,370
Iron—pig-iron	ton	45,095	46,769	47,355	45,864	‡
Jelly crystals	lb	939,231	867,317	992,212	972,828	954,926
Lime (quicklime)	ton	30,387	30,024	41,280	‡	‡
Macaroni, spaghetti, vermicelli	cwt	18,252	17,289	15,437	15,654	14,550
Mattresses—soft-filled (k)	number	37,249	47,855	59,491	66,755	62,735
Paints and enamels (l)	gal	458,212	521,590	546,549	585,137	633,715
Pickles and chutneys	pint	297,652	271,486	438,066	518,540	422,080
Plaster of paris	ton	20,469	20,929	22,263	20,994	21,573
Pollard	ton (2,000 lb)	22,007	21,732	18,975	16,210	14,187
Pyjama suits—men's and boys' (m)	dozen	11,029	13,063	12,555	10,582	10,054
Sauce (all types)	pint	657,457	488,120	483,594	316,818	297,144
Shirts (all types)—men's and boys'	dozen	55,515	58,952	66,489	64,905	64,070
Sleepers, railway—sawn	'000 sup. ft	46,606	46,489	53,189	58,817	53,392
Slippers	pair	122,106	143,471	109,818	140,034	176,207
Soap and soap substitutes (n)	cwt	59,713	65,488	54,231	65,413	71,512
Steel, constructional—fabricated	ton	32,380	34,348	39,995	52,357	58,368
Stock and poultry foods—meat and bone meal	cwt	253,148	218,832	191,662	246,040	259,713
Suits—men's and youths'—2 and 3 piece	number	10,886	10,570	10,869	9,932	9,961
Sulphuric acid	ton	262,538	306,889	326,103	404,848	455,705
Superphosphate	ton	751,574	863,628	867,205	1,070,455	1,201,433
Tallow (raw and refined) (o)	cwt	217,702	223,081	242,347	234,099	274,236
Tiles (acoustic)—plaster	sq yd	21,846	30,140	32,052	24,595	24,024
Timber (from local logs)—sawn (p)	'000 sup. ft	185,809	195,724	207,304	211,638	204,505
Trousers—men's and youths'—						
Sports	number	106,313	126,243	150,910	131,860	91,186
Work	number	124,445	130,022	124,454	134,924	122,808
Tyres (retreaded and recapped)	number	195,085	193,872	218,146	225,168	221,359
Vinegar (including bulk)	gal	132,973	152,920	158,457	144,597	137,296
Wire, barbed	ton	1,533	1,615	1,559	1,615	1,983
Wool—scoured	'000 lb	29,348	27,478	26,543	26,690	26,781

(a) Some major items of production are not available for publication. (b) Includes quantities produced and used in own works. (c) Includes rebuilt batteries. (d) Excludes sandshoes, rubber thongs and other footwear wholly of rubber. (e) Includes loaves other than 2 lb size, and bread rolls, etc. in terms of 2 lb loaf equivalent. (f) For 1962-63 and 1963-64, figures include all types of standard size bricks. For later years figures represent clay bricks only (all sizes). (g) Total generated—see page 389 for electricity distributed. (h) Includes quantities used for making self-raising flour. (i) Total made, not the amount of gas distributed. (j) Excludes solar absorber units. (k) Includes rubber, plastic foam and sponge. (l) Ready-mixed, excluding water paints. (m) Woven fabric. (n) Includes detergents. (o) Includes dripping. (p) Includes plywood veneers in terms of superficial feet and railway sleepers (see separate item above). ‡ Not available for publication.

INDIVIDUAL INDUSTRIES

The text and tables in this section deal with factory activity in selected industries for each of the five years from 1962-63 to 1966-67. When considering employment, salaries and wages, value of output and net production, reference should be made to the section *Explanatory Notes and Definitions* on page 368.

Lime, Plaster and Plaster Sheets

Although a decrease has occurred over recent years in the number of establishments engaged in the industry, the 1966-67 value of net production represents an increase of more than 70 per cent over the corresponding figure of ten years ago. Production of

fibrous plaster sheets, including small amounts manufactured by factories classified to other industries, has risen from just over 1.5 million square yards in 1957-58 to over 1.7 million square yards in 1966-67, an increase of 15 per cent for the period. Production data for quicklime have been unavailable for publication in recent years, but from 1957-58 to 1964-65 output increased 48 per cent from 27,900 tons to 41,280 tons.

Most of the factories in this industry are situated in the Perth Statistical Division but some smaller plasterboard manufacturers operate in major country centres such as Bunbury, Geraldton, Kalgoorlie and Esperance.

LIME, PLASTER AND PLASTER SHEETS

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		\$	rated hp		\$	\$	\$	\$	\$
1962-63	57	1,532,986	3,392	476	915,602	237,362	1,907,050	4,032,242	1,887,830
1963-64	53	1,690,084	3,851	460	946,842	247,660	2,054,546	4,291,584	1,989,378
1964-65	51	1,775,360	3,895	457	964,484	267,982	2,080,668	4,481,738	2,133,088
1965-66	50	1,850,935	4,320	458	1,005,270	285,712	2,425,729	4,969,962	2,258,521
1966-67	45	1,817,126	4,203	465	1,089,803	321,814	2,413,387	5,180,745	2,445,544

(a) Book values at end of year. and lubricants.

(b) Excludes motors driven by electricity of own generation.

(c) Includes water

Cement and Cement Goods (including Asbestos Cement Sheets)

There are two producers of cement in the State and one producer of asbestos cement products including sheets, pipes and mouldings. A large number of establishments producing other cement products such as concrete bricks, blocks, tiles, pipes, culverts and curbing are also classified to the industry. Ready-mixed concrete is produced in large quantities in country areas as well as in the Perth Statistical Division.

Production data for this industry are limited by confidentiality requirements but details of usage of cement provide some indication of activity in a number of the factories classified to the industry. Cement used, excluding that used in production of asbestos cement sheets, increased from 31,881 tons (\$772.7 thousand) in 1957-58 to 152,507 tons (\$3,883.6 thousand) in 1966-67.

CEMENT AND CEMENT GOODS (INCLUDING ASBESTOS CEMENT SHEETS)

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		\$	rated hp		\$	\$	\$	\$	\$
1962-63	75	6,877,480	15,638	1,099	2,424,252	966,836	5,734,346	13,279,216	6,578,034
1963-64	76	7,101,090	16,509	1,113	2,568,494	909,792	6,128,996	14,429,454	7,390,666
1964-65	76	11,777,638	21,689	1,246	3,035,750	1,157,640	7,261,960	16,829,356	8,409,756
1965-66	84	13,354,484	22,163	1,256	3,275,777	1,163,465	8,617,914	19,068,102	9,286,621
1966-67	91	13,961,008	22,153	1,314	3,748,352	1,279,349	10,108,692	23,189,469	11,801,428

(a) Book values at end of year. and lubricants.

(b) Excludes motors driven by electricity of own generation.

(c) Includes water

Bricks, Tiles, Earthenware, Porcelain, etc.

Western Australia produces more clay bricks per capita than any other State and production is increasing. In 1966-67 production was 163,166 thousand clay bricks, valued at \$6.3 million, an increase in quantity of 16 per cent over the previous year. The recent installation of an additional brick-making plant has enabled this upward trend in the number of clay bricks produced to be maintained.



Block by courtesy of Hamersley Iron Pty. Limited

IRON ORE PELLET PLANT, DAMPIER

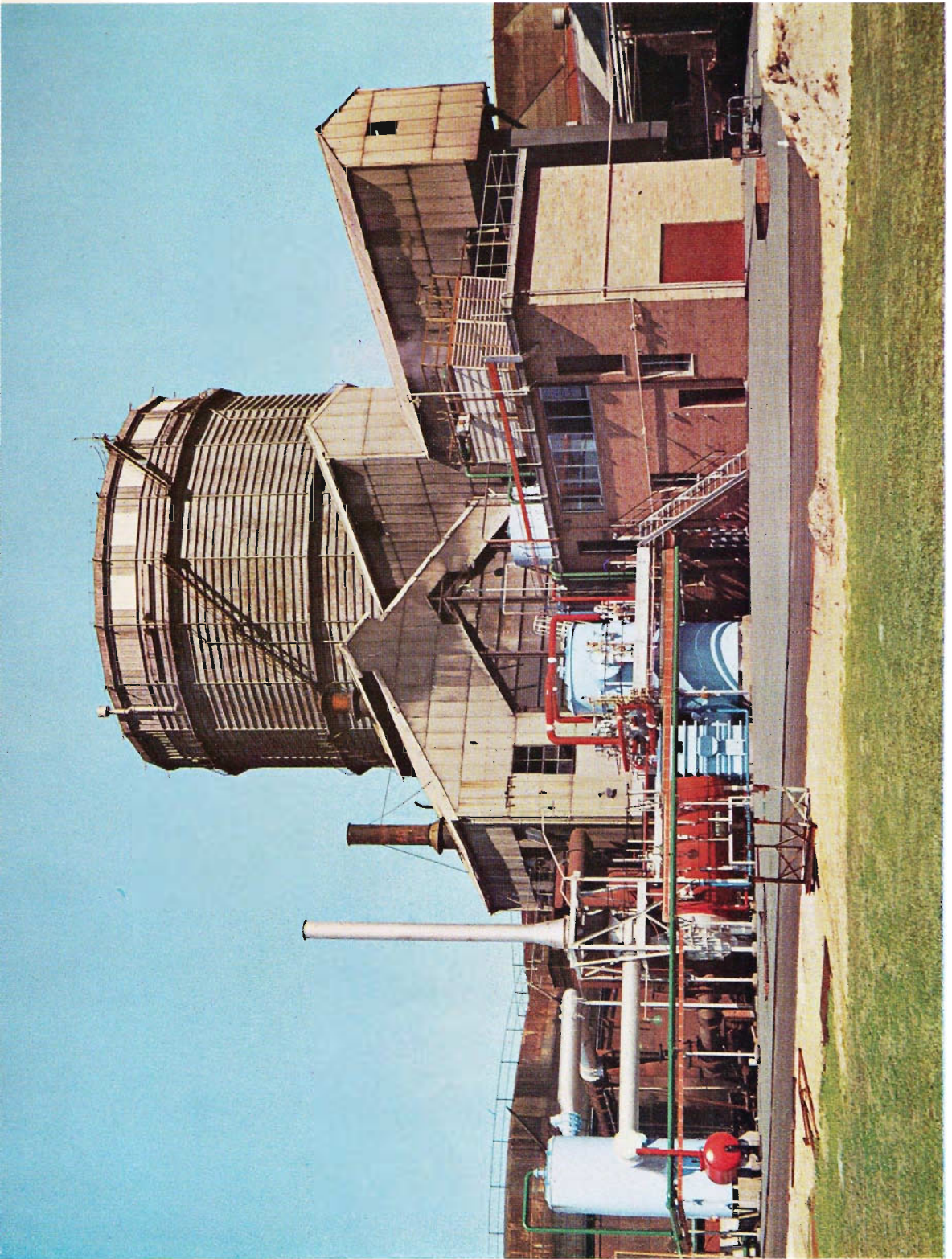
Completed in December 1967, the plant has an annual production capacity of two million tons of iron ore pellets. Illustrated, is part of the complex ductwork, located above the pelletising machine, through which heated air is conveyed for the drying and firing of the 'green' pellets which are produced from iron ore fines. The size of the plant can be gauged by the workman in the left foreground.



Block by courtesy of The Broken Hill Proprietary Company Limited

BLAST FURNACE AT KWINANA

Commissioned in May 1968, the blast furnace at the works of Australian Iron and Steel Pty. Ltd. represents the first stage in the development of an integrated iron and steel industry at Kwinana in terms of the Broken Hill Proprietary Company's Integrated Steel Works Agreement Act of 1960. Iron ore for use in the furnace is transported by standard gauge railway from Koolyanobbing, 312 miles distant.



GAS WORKS, EAST PERTH

The unit shown, which is a micro simplex cyclic catalytic reforming plant designed to produce 3·32 million cubic feet per day of town gas from a light naptha fuel, represents a major departure from the previous method of gas manufacture. Supplying about two-thirds of the daily gas demand, the unit with small modification can reform natural gas to town gas.

The works at East Perth achieved a record daily output of 5,146,000 cubic feet of gas in June 1968.

Other items of production in the industry include terracotta tiles, earthenware pipes, sanitary ware, refractory bricks and tableware.

BRICKS, TILES, EARTHENWARE, PORCELAIN, ETC. (a)

Year	Number of factories	Land, buildings, plant and machinery (b)	Engines and electric motors used (c)	Persons employed	Salaries and wages	Power, fuel, and light used (d)	Repairs, containers and materials used	Value of output	Net production
		\$	rated hp		\$	\$	\$	\$	\$
1962-63	28	3,586,258	11,805	1,058	2,200,430	913,348	970,900	6,116,996	4,232,748
1963-64	26	4,464,798	12,349	1,139	2,519,736	1,137,066	1,092,698	7,064,832	4,835,068
1964-65	26	4,525,030	13,287	1,110	2,668,804	1,232,638	1,250,728	7,707,748	5,224,382
1965-66	25	4,926,310	13,495	1,078	2,727,190	1,201,748	1,382,875	7,987,491	5,402,868
1966-67	23	5,373,827	13,731	1,083	3,078,895	1,337,107	1,650,021	9,377,720	6,390,592

(a) Excludes cement bricks and cement roofing tiles; see preceding table. (b) Book values at end of year. (c) Excludes motors driven by electricity of own generation. (d) Includes water and lubricants.

Chemical Fertilisers

Superphosphate production in Western Australia is increasing rapidly. In 1957-58, 579 thousand tons valued at over \$15.5 million were produced while in 1966-67 the corresponding figures were 1,201 thousand tons and \$32.1 million. After a decline in 1958-59, an increase occurred in the quantity of production in each of the succeeding eight years.

Chemical fertiliser factories are established in country centres as well as the Perth Statistical Division, plants being operated at Picton Junction, Albany, Geraldton and Esperance to meet the requirements of surrounding farm regions.

The industry produces all of the sulphuric acid required for superphosphate manufacture and smaller amounts of hydrochloric and nitric acids. Substantial quantities of mixed chemical fertilisers are also produced.

CHEMICAL FERTILISERS

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		\$	rated hp		\$	\$	\$	\$	\$
1962-63	8	8,569,364	11,412	1,008	2,214,846	327,078	14,002,776	20,173,624	5,843,770
1963-64	8	11,397,686	11,512	977	2,258,700	364,218	15,335,390	21,513,696	5,814,088
1964-65	8	14,022,720	12,207	958	2,438,288	367,162	17,023,898	23,076,058	5,684,998
1965-66	8	13,407,596	13,475	901	2,520,944	397,815	21,527,476	29,272,117	7,346,826
1966-67	8	16,016,248	15,156	929	2,841,156	455,475	27,569,580	36,528,165	8,503,110

(a) Book values at end of year. (b) Excludes motors driven by electricity of own generation. (c) Includes water and lubricants.

Engineering, Metal Working, Construction of Machines, etc.

Factories engaged in the production of metals and metal products, and in the repair of such products are classified to the class of industry entitled 'Industrial metals, machines, implements and conveyances'. This class includes over 50 per cent of the factories in Western Australia and, in 1966-67, it contributed almost \$136 million, or more than 40 per cent of the total value of net production in the State. Goods produced by these factories range from basic metal products such as pig-iron, rolled steel products and wire to electrical consumer goods such as refrigerators. Tractors, agricultural machinery and railway rolling stock are also produced.

Factories in this class are located principally in the Perth Statistical Division, the Kwinana area becoming increasingly important. Almost 90 per cent of the value of net production for the class was produced by factories in this Division.

ENGINEERING, METAL WORKING, CONSTRUCTION AND REPAIR OF VEHICLES AND MACHINES

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		\$	rated hp		\$	\$	\$	\$	\$
1962-63	2,060	56,100,058	80,185	23,249	43,613,956	3,072,982	77,933,202	157,611,656	76,605,472
1963-64	2,160	77,506,884	99,737	24,924	49,140,626	3,764,446	85,676,644	173,906,418	84,465,328
1964-65	2,305	86,692,270	104,111	26,403	55,826,532	4,461,360	100,246,860	204,381,018	99,672,798
1965-66	2,449	107,125,821	107,044	27,722	63,536,292	5,043,334	114,566,410	232,531,730	112,921,986
1966-67	2,653	148,647,353	118,821	29,593	73,562,723	5,670,951	130,862,283	272,518,074	135,984,840

(a) Book values at end of year. and lubricants.

(b) Excludes motors driven by electricity of own generation.

(c) Includes water

Flour Milling

There has been an overall decline in activity in the flour milling industry over recent years due mainly to a decrease in export demand. In 1957-58 production of flour, including quantities used to make self-raising flour, amounted to over 148 thousand short tons valued at \$9.5 million, whereas in 1966-67 only 101 thousand short tons were produced with a value of \$8.0 million. A production peak for the ten-year period of 168 thousand short tons was achieved in 1960-61 but thereafter production declined in all years except 1963-64, when it recovered slightly. Production data for bran and pollard show similar trends. Consumption of wheat by the industry in 1966-67 was slightly less than five million bushels.

FLOUR MILLING

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		\$	rated hp		\$	\$	\$	\$	\$
1962-63	15	2,044,288	4,596	345	736,474	179,500	10,444,892	12,184,124	1,559,732
1963-64	15	1,884,538	4,758	354	736,492	174,878	10,172,280	11,936,198	1,589,040
1964-65	13	1,819,468	4,401	332	812,322	163,084	9,633,108	11,520,638	1,724,446
1965-66	13	1,811,173	4,122	291	739,355	142,667	8,472,107	10,346,538	1,731,764
1966-67	11	1,777,966	3,562	264	710,061	137,154	7,808,120	9,729,594	1,784,320

(a) Book values at end of year. and lubricants.

(b) Excludes motors driven by electricity of own generation.

(c) Includes water

Jams, Pickles, Sauces and Vinegar

Factories classified to this industry also produce fruit juices, canned fruit and canned and quick-frozen vegetables. With the exception of one establishment processing vegetables at Albany, production is confined to the Perth Statistical Division.

JAMS, PICKLES, SAUCES AND VINEGAR

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		\$	rated hp		\$	\$	\$	\$	\$
1962-63	9	513,998	439	150	234,552	21,536	944,972	1,470,588	504,080
1963-64	9	958,358	754	122	213,024	21,996	859,044	1,305,262	424,222
1964-65	8	1,089,824	1,125	149	249,588	27,438	791,574	1,312,648	493,636
1965-66	8	1,186,458	1,148	142	251,278	32,677	854,479	1,563,553	676,397
1966-67	8	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)

(a) Book values at end of year. and lubricants.

(b) Excludes motors driven by electricity of own generation.

(c) Includes water

(d) Not available for publication.

Bacon Curing

As well as producing bacon and ham, factories classified to this industry also manufacture substantial quantities of smallgoods and, as by-products, smaller quantities of meat and bone meal, lard and tallow. Bacon and ham production, including small amounts produced by factories classified to other industries, has risen from 6.6 million lb valued at \$2.7 million in 1957-58 to 10.3 million lb valued at \$5.5 million in 1966-67, an increase in quantity of 56 per cent.

BACON CURING

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		\$	rated hp		\$	\$	\$	\$	\$
1962-63	4	668,538	1,339	332	643,266	83,142	6,010,180	7,562,534	1,469,212
1963-64	4	696,922	1,416	329	664,064	84,076	6,151,098	7,500,566	1,265,392
1964-65	4	797,506	1,439	343	717,352	91,326	6,259,328	8,041,612	1,690,958
1965-66	4	1,021,134	1,488	329	744,848	87,489	6,633,157	8,227,738	1,507,092
1966-67	3	1,090,724	1,341	352	907,767	93,913	6,928,228	8,558,440	1,536,299

(a) Book values at end of year. (b) Excludes motors driven by electricity of own generation. (c) Includes water and lubricants.

All of the factories classified to this industry are situated in the Perth Statistical Division.

Butter, Cheese and Condensed and Processed Milk

With the exception of one medium-sized establishment, the factories in this industry are situated in the dairying districts of the South-West and Southern Agricultural Statistical Divisions.

A decline in butter production occurred in 1966-67, the production figure of 14.4 million lb, valued at \$5.2 million, being lower than that for any year since 1958-59. On the other hand, cheese production for 1966-67 reached 3.8 million lb, valued at \$1.1 million, which was higher than all previous years except 1964-65 when a record quantity of 4.1 million lb was produced.

BUTTER, CHEESE AND CONDENSED AND PROCESSED MILK

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		\$	rated hp		\$	\$	\$	\$	\$
1962-63	18	2,286,250	4,969	344	633,824	149,576	6,989,470	8,169,964	1,121,918
1963-64	17	2,213,064	4,267	344	674,196	151,402	7,091,374	8,587,302	1,344,526
1964-65	18	2,155,558	4,351	337	715,212	177,646	7,987,872	9,613,282	1,447,764
1965-66	19	2,257,863	4,611	321	742,380	193,339	7,802,093	9,571,931	1,576,499
1966-67	17	2,293,073	4,333	319	743,814	176,532	6,788,969	8,315,392	1,349,891

(a) Book values at end of year. (b) Excludes motors driven by electricity of own generation. (c) Includes water and lubricants.

Aerated Waters, Cordials, etc.

The major part of the production of aerated waters and cordials is carried out in the Perth Statistical Division, country factories accounting for less than 15 per cent of total production.

Production of aerated waters, including small amounts produced by factories classified to other industries, has risen from 4.3 million gallons (\$1.9 million) in 1957-58 to

10.3 million gallons (\$6.9 million) in 1966-67. Cordial and syrup production have also increased although fluctuations from year to year have been evident. In 1966-67, 520 thousand gallons were produced, valued at \$691 thousand.

AERATED WATERS, CORDIALS, ETC.

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		\$	rated hp		\$	\$	\$	\$	\$
1962-63	40	1,570,358	1,311	320	530,522	55,000	1,676,146	3,171,882	1,440,736
1963-64	39	1,798,800	1,427	335	558,898	59,948	2,245,510	3,590,128	1,284,670
1964-65	39	2,120,272	1,535	346	626,776	63,922	2,846,602	4,501,434	1,590,910
1965-66	39	2,179,622	1,611	412	839,681	70,781	3,999,272	5,835,706	1,765,653
1966-67	40	2,638,825	2,011	429	962,097	85,282	4,909,537	7,312,152	2,317,333

(a) Book values at end of year. (b) Excludes motors driven by electricity of own generation. (c) Includes water and lubricants.

Sawmilling

The following table shows details of mills which saw from the log; mills engaged only in resawing operations have been excluded. Although the majority of the log-sawing mills are located in the South-West Statistical Division many operate in the Perth Statistical Division, including some of relatively substantial size. There is also some activity in the Southern Agricultural and Central Agricultural Divisions but, in general, the mills in these areas are small in size.

SAWMILLING (MILLS OPERATING ON LOGS) (a)

Year	Number of sawmills	Land, buildings, plant and machinery (b)	Engines and electric motors used (c)	Persons employed	Salaries and wages	Power, fuel and light used (d)	Repairs, containers and materials used	Value of output	Net production
		\$	rated hp		\$	\$	\$	\$	\$
1962-63	181	3,726,554	37,487	2,885	5,143,870	461,812	7,739,896	18,116,684	9,914,976
1963-64	183	3,989,984	38,463	2,832	5,439,986	435,924	8,290,270	19,153,822	10,427,628
1964-65	168	4,020,522	39,415	2,822	5,691,488	472,896	8,867,726	21,209,490	11,868,868
1965-66	165	4,274,737	41,527	2,890	6,443,096	474,409	10,073,923	23,472,393	12,924,061
1966-67	160	5,303,999	44,553	2,728	6,553,260	469,877	10,016,766	23,467,685	12,981,042

(a) Excluding particulars of felling and hauling. (b) Book values at end of year. (c) Excludes motors driven by electricity of own generation. (d) Includes water and lubricants.

Production of sawn timber (including plywood veneers in terms of superficial feet and railway sleepers) has fluctuated over the last ten years. The 1966-67 production of 204.5 million superficial feet, valued at \$23.2 million was the lowest quantity produced since 1963-64 and comprised 195.3 million superficial feet from hardwoods and 9.2 million superficial feet from softwoods.

Cabinet and Furniture Making and Upholstery

With the exception of a few small establishments, this industry is concentrated in the Perth Statistical Division.

Factories classified to this industry produce small quantities of joinery, doors and metal furniture in addition to wooden furniture. The value of wooden furniture produced, including small quantities produced by factories classified to other industries, has risen from \$4.6 million in 1957-58 to \$10.7 million in 1966-67.

Details for the industry are shown in the next table for the years 1962-63 to 1966-67.

CABINET AND FURNITURE MAKING AND UPHOLSTERY

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		\$	rated hp		\$	\$	\$	\$	\$
1962-63	149	1,897,410	3,384	1,042	1,580,428	44,690	3,593,816	6,449,226	2,810,720
1963-64	162	1,756,944	3,509	1,048	1,652,008	42,202	3,806,184	6,898,838	3,050,452
1964-65	155	2,094,298	3,513	1,117	1,857,902	44,140	4,538,544	8,044,248	3,461,564
1965-66	167	2,624,885	3,860	1,152	2,075,902	50,818	4,664,493	8,773,078	4,057,767
1966-67	173	2,978,223	4,084	1,250	2,443,597	56,825	5,392,384	10,064,153	4,614,944

(a) Book values at end of year.
and lubricants.

(b) Excludes motors driven by electricity of own generation.

(c) Includes water

ELECTRICITY AND TOWN GAS UNDERTAKINGS

Electricity Generation and Transmission

Prior to the establishment of the State Electricity Commission in 1946, electricity was generated and distributed by a large number of independent power stations. A government-owned steam power station at East Perth supplied the metropolitan area, and small units of the same type, but privately-owned, operated in the major mining centres of Collie and Kalgoorlie. With other minor exceptions the country areas were dependent on internal combustion equipment, owned privately or by local government authorities and supplying either alternating or direct current at various voltages. Since 1946 a number of power stations have been absorbed into the Commission's network and, although there are still some independent operators generating electricity for sale or for their own industrial requirements, the Commission now supplies most of the electricity used in the State and all electricity sold in the metropolitan area. The Commission functions under the *State Electricity Commission Act, 1945-1966* and consists of nine members, including the Chairman, appointed by the Governor. Four of the Commissioners are representatives of consumers, one for the metropolitan area, two for the rest of the State and one representing commercial consumers. Of the remaining five, one is the Under Treasurer of the State or his deputy, one represents employees of the Commission and three are required to be qualified engineers.

In Western Australia, electricity is now supplied principally by steam power stations, with internal combustion equipment next in importance and a small quantity provided by a hydro-electric installation. Steam power stations accounted for 54 per cent of installed generator capacity in 1937-38 but by 1966-67 the proportion had risen to 80 per cent. In 1966-67 1,902,972 thousand kilowatts of electricity were generated, of which 1,595,904 thousand kilowatts were distributed to consumers. Coal and oil are the most important sources of energy for electricity generation, 840,707 tons of coal and 49,819,147 gallons of fuel oil being used for this purpose during 1966-67.

In the metropolitan area the Commission has modernised the 55,000 kilowatt plant at the East Perth power station and, in 1954, completed a new station at South Fremantle, with a capacity of 100,000 kilowatts. These are linked with a 120,000 kilowatt capacity power station at Bunbury, and a station being built at Muja, to which reference is made below.

One of the responsibilities undertaken by the State Electricity Commission was the administration of the *South-West State Power Scheme Act, 1945*, designed to develop electrification in the south-western portion of the State. As a first stage in this development, it acquired the Collie power station and increased its capacity from 5,000 to 12,500 kilowatts. In 1956 it installed at Wellington Dam, near Collie, a hydro-turbine which is connected to the Collie power station and operated from it by remote control. Completion of the raising of the wall of the dam in 1960 has made it possible to operate the unit at the head of water for which it was designed. A new power station is being constructed at Muja near Collie, adjacent to a source of open-cut coal. The first major contracts for this station were let in 1961, and the first unit of 60,000 kilowatts went on

load in July 1965. Other units of the same capacity were commissioned in January 1967 and May 1968. The station is expected to be on full load in January 1969, increasing the installed capacity of the interconnected system by 240,000 kilowatts.

The Commission is also constructing a major power station at Cockburn Sound. It will supply the rapidly growing industrial demand in the Kwinana and adjacent localities and will use a residual fuel from the nearby refinery. The first 120,000 kilowatt unit will be required in commercial operation late in 1969 and similar units are planned to be commissioned in 1970, 1971 and 1972.

The main interconnections are two 132,000 volt transmission lines from the Bunbury power station and two 132,000 volt lines from the Muja power station to terminal substations in the metropolitan area, and a 132,000 volt line from Muja to the Bunbury power station. A 132,000 volt transmission system linking substations is being provided to meet the increasing demand for power in the metropolitan area.

In December 1959 an amendment to the State Electricity Commission Act was passed to enable consumers to contribute towards the extension of mains beyond the distance that can be supplied economically by the Commission. Some 6,000 consumers have been connected in country and metropolitan areas under this Contributory Extension Scheme.

Minor systems which are privately-owned or controlled by local government authorities are being absorbed as the transmission lines extend into the country areas and when this work is completed all except the more sparsely-populated areas of the State will be provided with electric power of standard frequency and voltage.

ELECTRICITY GENERATING (a)

Year	Generating stations	Land, buildings, plant and machinery (b)	Engines used to drive generators	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs and materials used	Value of output	Net production
1962-63	92	39,702,854	556,167	1,053	2,691,318	7,560,452	747,364	18,227,744	9,919,928
1963-64	94	41,117,256	544,648	1,020	2,681,858	7,981,562	929,204	18,859,184	9,948,418
1964-65	85	38,124,562	544,546	1,015	2,750,002	8,709,100	878,556	21,104,654	11,516,998
1965-66	85	56,442,126	632,030	1,082	3,239,870	9,339,860	1,047,644	23,065,259	12,677,755
1966-67	83	74,109,803	762,438	1,120	3,707,062	10,272,763	1,399,080	27,105,860	15,434,017

(a) Excluding particulars of transmission and distribution.

(b) Book values at end of year.

(c) Includes water and lubricants.

Town Gas Production

Town gas production in Western Australia is now limited to three establishments. Two works, situated at Perth and Albany, are operated by the State Electricity Commission and the third, at Fremantle, is operated privately.

GAS WORKS (a)

Year	Gas works	Land, buildings, plant and machinery (b)	Engines and electric motors used (c)	Persons employed	Salaries and wages	Power, fuel and light used (d)	Repairs, containers and materials used	Value of output	Net production
1962-63	3	3,736,922	1,442	164	374,130	228,458	972,624	1,957,902	756,820
1963-64	3	3,374,072	1,432	145	352,066	194,254	866,244	1,807,482	746,984
1964-65	3	3,519,578	1,396	138	340,432	207,920	901,606	1,874,628	765,102
1965-66	3	3,362,491	1,396	127	287,860	229,906	913,989	1,966,809	822,914
1966-67	3	3,461,803	1,396	128	353,300	251,985	918,896	1,884,789	713,908

(a) Excluding particulars of distribution.

(b) Book values at end of year.

(c) Excludes motors driven by electricity of own generation.

(d) Includes water and lubricants.

During 1966-67 1,560,212 thousand cubic feet of town gas were produced from 41,451 tons of carbonised coal and 2,437,983 gallons of gas-making oil.

GOVERNMENT FACTORIES

The activities of factories operated by the Commonwealth and State Governments and by government instrumentalities, which are included in all tables appearing elsewhere in this Part, are shown in summary form in the following table. Factories operated by local government authorities are not regarded as 'Government' factories for the purpose of this table and are therefore excluded. They are, however, included in all other tables.

The figures shown relate to work done in the repair and maintenance of government plant and equipment; other factory activities associated with meat treatment, charcoal-iron production, printing and sawmilling; and the operations of the principal electricity and gas undertakings, which are conducted by the State Government.

SUMMARY OF GOVERNMENT FACTORY ACTIVITY

Year	Number of factories	Persons employed (a)	Salaries and wages paid	Value of—				
				Materials used (b)	Power, fuel and light (c)	Net production (d)	Output (d)	Land, buildings, plant and machinery (e)
			\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1962-63	129	7,471	15,337	12,401	6,703	25,041	44,145	50,467
1963-64	133	7,482	16,071	11,914	7,367	25,972	45,253	48,775
1964-65	135	7,549	16,882	12,189	8,046	28,288	48,523	45,589
1965-66	134	7,554	18,253	13,319	8,802	30,122	52,243	64,649
1966-67	139	7,514	19,634	15,851	8,716	34,008	58,576	68,169

(a) Average number employed over whole year. (b) Includes containers and repairs to buildings, plant, etc. (c) Includes lubricating oil and water. (d) See *Explanatory Notes and Definitions* on page 368. (e) Book values at end of year.

DEPARTMENT OF INDUSTRIAL DEVELOPMENT

At the end of the first World War the State Government, with the object of fostering secondary industry, established a Council of Industrial Development which has since been succeeded by the Department of Industrial Development.

The functions of this Department are to assist the expansion of existing industry, foster the establishment of new industries, encourage exports, organise exhibitions and publicise Western Australian trade and industry. The Department is continuously engaged in feasibility studies relating to import replacement. It also undertakes market research and conducts investigations into the commercial possibilities of using indigenous raw materials for industrial purposes.

In carrying out these functions the Department establishes and maintains a close liaison with industry and with Government Departments responsible for the provision of services, information and finance.

The Department, in certain circumstances, may recommend that financial assistance, by way of direct loan or guarantee of a loan, be granted under the *Industry (Advances) Act, 1947-1961* to industries which are unable to obtain sufficient capital from normal sources to commence or expand operations.

CHAPTER IX—TRADE, TRANSPORT AND COMMUNICATION

Part 1—External Trade⁽¹⁾

Constitutional Provisions and Legislation

By the Commonwealth of Australia Constitution Act, section 51 (1), the power to make laws with respect to trade and commerce with other countries was conferred on the Commonwealth Parliament. Under section 86 of the Constitution, the collection and control of customs and excise passed to the Executive Government of the Commonwealth on 1 January 1901.

Commonwealth legislation affecting overseas trade includes the Customs Act, the Customs Tariff and the Customs Tariff (Dumping and Subsidies) Act. The Customs Act is the administrative Act under which the Department of Customs and Excise operates. The Customs Tariff provides the statutory authority for imposing the actual rates of duty operative from time to time, while the Customs Tariff (Dumping and Subsidies) Act provides protection for Australian industry against various forms of unfair trading.

The Tariff Board Act constitutes a Tariff Board of eight members to advise the Government on matters relating to the protection and encouragement of Australian industry and on the general effect of the working of the Customs and Excise Tariffs. The Tariff Board conducts public hearings in connection with any revision of the Tariff, proposals concerning bounties, or complaints that a manufacturer is taking undue advantage of the protection afforded by the Tariff.

Sources of Statistics

Overseas trade statistics are compiled from documents obtained under the Customs Act and supplied to the Commonwealth Bureau of Census and Statistics by the Department of Customs and Excise. Particulars of Western Australia's overseas trade, as presented in this Chapter, have been prepared from tabulations furnished by the Commonwealth Bureau of Census and Statistics, Canberra.

Statistics of Western Australia's trade with other Australian States are compiled by the Western Australian Office of the Bureau of Census and Statistics from information contained in documents collected under authority of the *Census and Statistics Act 1905-1966* from importers, exporters, and other persons concerned with the distribution of goods.

Classification of Commodities

Overseas trade statistics for years up to and including 1964-65 were compiled according to a Statistical Classification of Imports and Exports which, in 1964-65, contained approximately 3,700 items of import and 1,300 items of export.

On 1 July 1965 a new Australian Customs Tariff was introduced. The nomenclature used in the Tariff is that of the Convention on Nomenclature for the Classification of Goods in Customs Tariffs, an international agreement signed at Brussels on 15 December 1950. The system of naming established by the Convention has come to be known as the 'Brussels Nomenclature'.

From 1 July 1965, imports into Australia have been classified according to an *Australian Import Commodity Classification* of some 5,000 items based on the *United Nations Standard International Trade Classification, Revised*, which closely follows the Brussels tariff nomenclature.

⁽¹⁾ A brief account of the historical development of the external trade of Western Australia from 1829 is given in the *Western Australian Year Book*, No. 6—1967 and in all issues of the *Official Year Book of Western Australia*, No. 1—1957 (*New Series*) to No. 5—1965.

Although the basis of the classification of exports remained unchanged for 1965-66, the export section of the Statistical Classification of Imports and Exports was published separately, with some minor revisions, as the *Australian Export Commodity Classification*. A new Australian Export Commodity Classification of some 2,000 items, based on the Standard International Trade Classification, was introduced on 1 July 1966.

The Standard International Trade Classification consists of 10 broad commodity categories designated 'Sections' and comprising 56 commodity 'Divisions' which are further divided into 177 commodity 'Groups'. The structure of the classification serves to provide a summary of data relating to 1,312 basic items of international trade.

For the purpose of recording details of Western Australia's trade with other Australian States, a revised Interstate Trade Classification based on the new Australian Commodity Classifications, has been prepared in the Western Australian Office of the Bureau. In compiling this document, the basic items of the Australian Classifications have been compressed or expanded, according to their significance in Western Australia's trade. The Interstate Trade Classification comprises some 860 items of import and 370 items of export within the structure of commodity Sections, Divisions and Groups referred to previously. The revised Interstate Trade Classification was first used in compiling details of Western Australia's trade with other Australian States in respect of the year 1965-66.

The commodity descriptions appearing in some of the tables in this Part are, in some cases, abbreviations of the full text, which is available in the *Australian Import Commodity Classification* and the *Australian Export Commodity Classification*.

Valuation of Items of Trade

All values are recorded in Australian currency. The basis of valuation used, except in the case of imports from other Australian States, is *f.o.b.*, or its equivalent, at the port of shipment. Statistics of imports from other Australian States are recorded in terms of landed cost.

Direction of Trade

The term *Country of Origin*, as used in recording statistics of overseas trade, means the country of production; *Country of Destination* means the country to which goods were consigned at the time of export. In compiling statistics of Western Australia's interstate imports and exports, goods are classified according to the State or Territory from which or to which they were consigned.

SUMMARY OF TRADE

Statistics of Western Australia's external trade are presented in the following series of tables. Particulars relate, in all cases, to the year ended 30 June. The figures shown for exports do not include ships' stores, details of which are given in the table on page 405.

The following table shows the value of Western Australia's interstate and overseas imports and exports during each year from 1962-63 to 1966-67.

VALUE OF INTERSTATE AND OVERSEAS TRADE OF WESTERN AUSTRALIA
(\$'000)

Direction of trade	1962-63	1963-64	1964-65	1965-66	1966-67
INTERSTATE—					
Imports	313,712	323,176	343,899	403,054	*474,852
Exports	91,021	101,229	119,954	119,619	116,030
Excess of—					
Imports over exports	222,691	221,948	223,945	283,435	*358,822
OVERSEAS—					
Imports	112,640	121,677	153,540	175,690	159,390
Exports	247,438	286,714	243,078	314,404	421,325
Excess of—					
Exports over imports	134,799	165,037	89,538	138,714	261,935
TOTAL—					
Imports	426,351	444,854	497,439	578,744	*634,242
Exports	338,459	387,943	363,033	434,023	537,355
Excess of—					
Imports over exports	87,892	56,911	134,407	144,721	*96,887

* Revised.

DIRECTION OF TRADE

 VALUE OF IMPORTS INTO AND EXPORTS FROM WESTERN AUSTRALIA
 CLASSIFIED ACCORDING TO ORIGIN OR DESTINATION
 (\$'000)

Origin or destination	Imports			Exports		
	1964-65	1965-66	1966-67	1964-65	1965-66	1966-67
INTERSTATE (a)—						
New South Wales (a)	145,648	167,363	195,133	46,225	54,061	46,170
Victoria	137,185	162,573	*196,801	38,655	36,531	35,741
Queensland	12,192	14,464	16,607	4,875	2,795	3,573
South Australia	43,978	52,703	59,259	24,529	19,655	23,240
Tasmania	4,657	5,649	6,707	2,629	3,385	3,199
Northern Territory	239	302	343	3,041	3,193	4,107
Total, Interstate	343,899	403,054	*474,852	119,954	119,619	116,030
OVERSEAS—						
Belgium-Luxembourg	1,744	824	991	3,364	3,694	5,376
Canada	3,364	3,886	6,042	1,336	1,202	1,569
Ceylon	1,320	1,461	1,264	1,764	1,792	944
China (mainland)	464	518	616	22,329	30,549	46,100
China, Republic of (Formosa)	90	99	100	58	926	1,370
Christmas Island (Indian Ocean)	1,266	1,811	1,711	1,154	1,199	1,265
Czechoslovakia	222	204	238	1,992	987	3,369
Fiji	3	28	7	14	822	708
France	1,654	1,654	1,481	9,133	12,086	12,666
Germany (East)	57	60	61	889	357	923
Germany, Federal Republic of	4,378	6,185	5,577	13,144	19,424	16,217
Gilbert and Ellice Islands	161	450	822	14	102	....
Greece	55	54	60	761	434	348
Hong Kong	890	769	4,330	3,415	3,952	6,074
Hungary	71	68	57	175	148	800
India	3,416	2,882	2,793	7,202	6,153	17,206
Indonesia	1,726	859	157	772	246	119
Iran	14,486	13,507	6,773	848	3,402	534
Iraq	1,102	964	2,873	267	157	45
Ireland	59	67	115	117	1,755	2,411
Italy	1,810	1,825	2,528	8,157	12,029	14,095
Japan	13,101	21,717	16,605	52,471	67,981	115,893
Jordan ....	....	....	1	17	11	1,531
Korea (North) ....	....	....	....	6	1,590	2,865
Kuwait	12,287	13,128	8,950	1,325	1,144	1,126
Lebanon	9	12	4	4	553	2,177
Malaysia (b)	3,760	2,421	1,891	11,607	5,479	4,464
Mauritius	31	14	9	597	526	703
Mexico	457	119	1,415	1,262	1,501	2,067
Mozambique	5	80	42	769	763	885
Nauru	1,922	1,361	2,759	1	....	10
Netherlands	1,136	1,588	1,226	1,136	2,106	6,373
New Caledonia ....	....	....	....	1,440	2,020	1,897
New Zealand	1,109	1,938	1,761	4,470	3,817	4,699
Nigeria ....	....	3	799	474	62	57
Norway	403	1,027	703	92	760	119
Pakistan	1,517	2,685	2,309	276	521	16,133
Poland	45	50	48	705	2,483	2,228
Qatar	8,683	8,888	8,657	243	232	249
Saudi Arabia ....	....	(c)	....	562	666	624
Singapore (d)	(d)	756	2,194	(d)	5,886	9,904
South Africa	799	999	823	4,668	2,651	3,480
South Arabia, Federation of	2,741	3,693	3,026	857	1,505	1,232
Spain	284	1,027	322	524	548	1,117
Sweden	1,669	2,346	1,726	1,544	1,288	555
Switzerland	451	1,247	1,363	202	136	95
Syria	1	1	1	3	....	1,102
Thailand	74	56	83	617	445	517
Togo ....	....	1,416	1,379	....	....	....
Trucial States, Muscat and Oman	....	....	2,314	863	932	1,266
Turkey	13	8	9	504	1,057	1,252
Union of Soviet Socialist Republics	3	5	7	10,524	16,194	7,467
United Arab Republic	2	2	....	597	1,963	1,551
United Kingdom	36,918	37,719	35,383	33,456	47,460	46,290
United States of America	23,794	29,787	20,729	30,266	36,310	41,852
Yugoslavia	107	45	22	216	751	747
Zambia ....	....	....	....	....	329	1,061
Other	3,883	3,378	4,233	3,873	3,316	5,596
Total, Overseas	153,540	175,690	159,390	243,078	314,404	421,325
GRAND TOTAL	497,439	578,744	*634,242	363,033	434,023	537,355

(a) Statistics relating to trade with the Australian Capital Territory are included with those of New South Wales. (b) To 30 September 1965, includes Singapore. (c) Less than \$500. (d) Included with Malaysia to 30 September 1965.

* Revised.

The following table shows the proportional distribution of Western Australia's trade with overseas countries and with Australian States and Territories during each of the years 1964-65 to 1966-67.

VALUE OF IMPORTS INTO AND EXPORTS FROM WESTERN AUSTRALIA
PROPORTIONS ACCORDING TO ORIGIN OR DESTINATION
(Per cent of total)

Origin or destination	Imports			Exports		
	1964-65	1965-66	1966-67	1964-65	1965-66	1966-67
INTERSTATE (a)—						
New South Wales (a)	42.35	41.52	*41.09	38.54	45.19	39.79
Victoria	39.89	40.34	*41.45	32.22	30.54	30.80
Queensland	3.55	3.59	* 3.50	4.06	2.34	3.08
South Australia	12.79	13.08	*12.48	20.45	16.43	20.03
Tasmania	1.35	1.40	* 1.41	2.19	2.83	2.76
Northern Territory	0.07	0.07	0.07	2.54	2.67	3.54
Total, Interstate	100.00	100.00	100.00	100.00	100.00	100.00
OVERSEAS—						
Belgium-Luxembourg	1.14	0.47	0.62	1.38	1.18	1.28
Canada	2.19	2.21	3.79	0.55	0.38	0.37
Ceylon	0.86	0.83	0.79	0.73	0.57	0.22
China (mainland)	0.30	0.29	0.39	9.19	9.72	10.94
China, Republic of (Formosa)	0.06	0.06	0.06	0.02	0.29	0.33
Christmas Island (Indian Ocean)	0.82	1.03	1.07	0.47	0.38	0.30
Czechoslovakia	0.14	0.12	0.15	0.82	0.31	0.80
Fiji .....	.....	0.02	.....	0.01	0.26	0.17
France	1.08	0.94	0.93	3.76	3.84	3.01
Germany (East)	0.04	0.03	0.04	0.37	0.11	0.22
Germany, Federal Republic of	2.85	3.52	3.50	5.41	6.18	3.85
Gilbert and Ellice Islands	0.10	0.26	0.52	0.01	0.03	.....
Greece	0.04	0.03	0.04	0.31	0.14	0.08
Hong Kong	0.58	0.44	2.72	1.40	1.26	1.44
Hungary	0.05	0.04	0.04	0.07	0.05	0.19
India	2.22	1.64	1.75	2.96	1.96	4.08
Indonesia	1.12	0.49	0.10	0.32	0.08	0.03
Iran	9.43	7.69	4.25	0.35	1.08	0.13
Iraq	0.72	0.55	1.80	0.11	0.05	0.01
Ireland	0.04	0.04	0.07	0.05	0.56	0.57
Italy	1.18	1.04	1.59	3.36	3.83	3.35
Japan	8.53	12.36	10.42	21.59	21.62	27.51
Jordan .....	.....	.....	.....	0.01	.....	0.36
Korea (North) .....	.....	.....	.....	.....	0.51	0.68
Kuwait	8.00	7.47	5.62	0.55	0.36	0.27
Lebanon	0.01	0.01	.....	.....	0.18	0.52
Malaysia (b)	2.45	1.38	1.19	4.78	1.74	1.06
Mauritius	0.02	0.01	0.01	0.25	0.17	0.17
Mexico	0.30	0.07	0.89	0.52	0.48	0.49
Mozambique .....	.....	0.05	0.03	0.32	0.24	0.21
Nauru	1.25	0.77	1.73	.....	.....	.....
Netherlands	0.74	0.90	0.77	0.47	0.67	1.51
New Caledonia .....	.....	.....	.....	0.59	0.64	0.45
New Zealand	0.72	1.10	1.10	1.84	1.21	1.12
Nigeria .....	.....	.....	0.50	0.20	0.02	0.01
Norway	0.26	0.58	0.44	0.04	0.24	0.03
Pakistan	0.99	1.53	1.45	0.11	0.17	3.83
Poland	0.03	0.03	0.03	0.29	0.79	0.53
Qatar	5.65	5.06	5.43	0.10	0.07	0.06
Saudi Arabia .....	.....	.....	.....	0.23	0.21	0.15
Singapore (c)	(c)	0.43	1.38	(c)	1.87	2.35
South Africa	0.52	0.57	0.52	1.92	0.84	0.83
South Arabia, Federation of	1.79	2.10	1.90	0.35	0.48	0.29
Spain	0.19	0.58	0.20	0.22	0.17	0.27
Sweden	1.09	1.34	1.08	0.64	0.41	0.13
Switzerland	0.29	0.71	0.86	0.08	0.04	0.02
Syria .....	.....	.....	.....	.....	.....	0.26
Thailand	0.05	0.03	0.05	0.25	0.14	0.12
Togo .....	.....	0.81	0.87	.....	.....	.....
Trucial States, Muscat and Oman .....	.....	.....	1.45	0.36	0.30	0.30
Turkey	0.01	.....	0.01	0.21	0.34	0.30
Union of Soviet Socialist Republics .....	.....	.....	.....	4.33	5.15	1.77
United Arab Republic .....	.....	.....	.....	0.25	0.62	0.37
United Kingdom	24.04	21.47	22.20	13.76	15.10	10.99
United States of America	15.50	16.95	13.01	12.45	11.55	9.93
Yugoslavia	0.07	0.03	0.01	0.09	0.24	0.18
Zambia .....	.....	.....	.....	.....	0.10	0.25
Other	2.53	1.92	2.66	1.59	1.05	1.33
Total, Overseas	100.00	100.00	100.00	100.00	100.00	100.00

(a) Statistics relating to trade with the Australian Capital Territory are included with those of New South Wales. (b) To 30 September 1965, includes Singapore. (c) Included with Malaysia to 30 September 1965. * Revised.

IMPORTS

The following table shows the value of the principal items of interstate and overseas imports into Western Australia during 1965-66 and 1966-67.

VALUE OF PRINCIPAL IMPORTS INTO WESTERN AUSTRALIA—SELECTED COMMODITIES
(\$'000)

Division	Commodity	1965-66			1966-67		
		Interstate	Overseas	Total	Interstate	Overseas	Total
00	Sheep, live	3,484	....	3,484	3,885	....	3,885
	Food—						
01	Meat and meat preparations	1,203	27	1,229	2,155	25	2,180
02	Milk and cream	1,932	....	1,932	3,464	2	3,467
03	Fish and fish preparations	422	1,936	2,358	653	1,685	2,338
04	Cereals and cereal preparations	3,156	172	3,328	4,068	243	4,311
05	Fruit and vegetables—						
	Fruit—						
	Fresh	559	2	561	907	3	910
	Other	2,901	63	2,965	3,231	78	3,309
	Vegetables, fresh or preserved	1,970	326	2,297	3,395	338	3,733
06, 07	Confectionery	3,511	77	3,588	5,591	127	5,718
	Other food	17,915	3,140	21,054	*23,152	3,253	*26,404
11	Beverages, alcoholic	2,733	564	3,297	3,702	598	4,300
12	Tobacco and tobacco manufactures	10,037	170	10,207	11,742	212	11,954
27	Fertilisers, crude	1	5,344	5,345	32	7,330	7,362
33	Petroleum and petroleum products	2,773	43,388	46,161	3,026	36,200	39,226
51	Chemical elements and compounds	2,948	3,432	6,380	4,034	5,392	9,426
54	Medicinal and pharmaceutical products	9,161	479	9,640	11,010	436	11,446
55	Essential oils and perfume materials, toilet, polishing and cleansing preparations—						
	Soap and cleansing preparations	3,620	116	3,736	4,430	111	4,541
	Toilet preparations (except soaps)	4,546	39	4,585	5,416	41	5,457
58	Plastic materials, regenerated cellulose and artificial resins	3,428	1,577	5,005	4,654	1,083	5,737
59	Insecticides, fungicides and similar products	1,852	317	2,168	3,056	415	3,472
62	Tyres and tubes	9,101	2,629	11,731	10,750	1,933	12,683
64	Paper, paperboard and manufactures thereof	10,620	3,124	13,744	9,471	2,951	12,422
65	Textile yarn, fabrics, made-up articles and related products	16,000	9,597	25,597	18,616	9,500	28,115
	Metals—						
67	Iron and steel—						
	Pig, ingot and other primary forms	13,460	182	13,642	10,349	98	10,448
	Other	27,367	10,147	37,514	34,678	3,113	37,791
68	Non-ferrous	8,373	159	8,533	9,744	138	9,882
69	Manufactures of metal, n.e.i.—						
	Household equipment of base metals	2,019	195	2,214	2,993	216	3,208
	Tools	3,082	1,571	4,652	4,111	1,349	5,460
	Other	15,057	2,302	17,359	15,838	2,211	18,048
	Machinery—						
71	Other than electric—						
	Agricultural, except tractors	10,047	824	10,871	11,776	703	12,479
	Excavating, levelling, tamping and boring, for earth, minerals or ores	4,745	7,220	11,965	5,619	3,954	9,574
	Internal combustion engines	2,505	4,938	7,444	2,009	3,968	5,978
	Tractors	2,311	6,767	9,079	2,069	5,063	7,132
	Other	20,119	15,461	35,580	22,255	13,280	35,535
72	Electrical machinery, apparatus and appliances—						
	Domestic electrical—						
	Cooking and heating	2,783	35	2,818	3,536	23	3,559
	Refrigerators and parts	3,265	76	3,341	4,315	58	4,373
	Washing machines and parts	2,636	9	2,645	2,927	24	2,950
	Other	2,091	106	2,197	1,980	238	2,218
	Electric power machinery and switchgear	4,732	2,885	7,617	4,951	2,861	7,811
	Telecommunication apparatus	9,453	1,141	10,594	10,611	1,426	12,037
	Wire and cable, insulated	2,747	317	3,064	4,702	197	4,900
	Other	5,020	1,799	6,819	6,125	1,286	7,411
73	Transport equipment—						
	Road motor vehicles and components	59,679	9,312	68,991	61,188	10,200	71,387
	Other	3,397	6,706	10,103	8,956	4,256	13,211
82	Furniture	2,073	158	2,230	2,682	202	2,883
84	Clothing and clothing accessories and articles of knitted or crocheted fabric	31,164	405	31,569	37,546	471	38,017
85	Footwear, gaiters and similar articles and parts therefor	6,516	185	6,701	8,003	319	8,323
86	Scientific, medical, optical and photographic equipment	2,624	2,104	4,728	5,102	1,631	6,732
89	Plastic articles, n.e.i.	3,812	181	3,992	4,856	209	5,065
	All other commodities	38,101	23,987	62,088	45,491	29,942	75,433
	TOTAL	403,054	175,690	578,744	*474,852	159,390	*634,242

* Revised.

The principal imports from each of the Australian States and the Northern Territory are given in the following table.

VALUE OF PRINCIPAL IMPORTS FROM AUSTRALIAN STATES—SELECTED COMMODITIES (\$'000)

Division	Commodity	1965-66	1966-67						Total
		Total	N.S.W.	Vic.	Qld	S.A.	Tas.	N.T.	
00	Sheep, live	3,484	430	265	....	3,085	106	....	3,885
	Food—								
01	Meat and meat preparations	1,203	592	1,233	137	130	32	31	2,155
02	Milk and cream	1,932	600	2,858	....	7	....	....	3,464
04	Cereals and cereal preparations	3,156	2,229	1,484	175	178	(a)	1	4,068
05	Fruit—								
	Dried	657	27	81	....	688	8	....	804
	Fresh	559	769	(a)	13	123	2	....	907
	Other	2,244	185	802	841	521	79	....	2,427
06, 07	Confectionery	3,511	1,999	1,880	....	187	1,524	....	5,591
	Other food	19,377	6,300	*11,953	6,221	1,912	799	15	*27,200
11	Beverages, alcoholic	2,734	577	805	16	2,293	10	2	3,702
12	Tobacco and tobacco manufactures	10,037	3,477	8,260	....	6	....	....	11,742
33	Petroleum and petroleum products	2,773	248	2,636	4	135	....	3	3,026
51	Chemical elements and compounds	2,948	1,783	1,081	53	757	361	....	4,034
53	Pigments, paints, varnishes, etc.	2,813	2,018	799	66	314	(a)	....	3,197
54	Medicinal and pharmaceutical products	9,161	8,127	2,408	17	458	1	(a)	11,010
55	Essential oils and perfume materials, toilet, polishing and cleansing preparations—								
	Soap and cleansing preparations	3,620	3,027	1,362	1	40	....	....	4,430
	Toilet preparations (except soaps)	4,546	3,943	1,322	16	135	....	....	5,416
58	Plastic materials, regenerated cellulose and artificial resins	3,428	1,963	2,442	169	80	(a)	....	4,654
59	Insecticides, fungicides and similar products	1,852	2,385	547	73	51	(a)	....	3,056
62	Tyres and tubes	9,101	3,304	7,146	2	298	....	....	10,750
64	Paper, paperboard and manufactures thereof	10,620	3,386	3,060	276	664	2,085	....	9,471
65	Textile yarn, fabrics, made-up articles and related products—								
	Fabrics	7,895	2,653	4,595	93	533	193	....	8,067
	Floor coverings and the like	3,842	1,204	2,764	4	14	26	....	4,012
	Other	4,263	2,147	3,343	6	983	58	....	6,537
66	Glass and glassware	1,672	855	1,257	6	69	(a)	....	2,186
	Metals—								
	Iron and steel—								
	Pig, ingot and other primary forms	13,460	5,067	2	....	5,281	....	....	10,349
	Other	27,367	29,805	1,929	36	2,908	(a)	....	34,678
68	Non-ferrous	8,373	6,789	1,961	40	258	696	(a)	9,744
69	Tools	3,082	2,002	1,885	27	89	108	....	4,111
	Machinery—								
	Other than electric—								
	Agricultural, except tractors	10,047	1,240	7,640	123	2,773	....	....	11,776
	Excavating, levelling, tamping and boring, for earth, minerals or ores	4,745	2,326	2,812	65	417	....	....	5,619
	Tractors	2,311	375	1,599	37	58	....	....	2,069
	Other	22,625	10,224	10,334	893	2,790	24	....	24,264
72	Electrical machinery, apparatus and appliances—								
	Batteries	1,325	1,599	481	(a)	60	....	....	2,140
	Domestic electrical—								
	Cooking and heating	2,783	1,830	1,313	6	386	(a)	....	3,536
	Refrigerators and parts	3,265	2,067	1,152	....	1,096	....	....	4,315
	Washing machines and parts	2,636	1,608	200	....	1,119	....	....	2,927
	Electric power machinery and switchgear	4,732	1,911	1,866	385	788	1	....	4,951
	Telecommunication apparatus—								
	Radio broadcast receivers	1,454	1,097	359	6	263	....	....	1,724
	Television receivers	3,977	2,206	1,327	....	424	....	....	3,957
	Other	4,023	2,844	1,426	9	651	....	....	4,930
	Wire and cable, insulated	2,747	1,715	2,678	22	287	....	....	4,702
	Other	5,786	3,297	2,432	4	208	24	....	5,964
73	Transport equipment—								
	Road motor vehicles and components	59,679	13,019	29,049	248	18,762	109	(a)	61,188
	Other	3,397	3,676	1,223	3,540	515	2	....	8,956
82	Furniture	2,073	886	831	(a)	953	11	....	2,682
84	Clothing and clothing accessories and articles of knitted, etc., fabric	31,164	13,663	22,413	804	626	40	....	37,546
85	Footwear, gaiters and similar articles and parts therefor	6,516	2,179	5,144	168	507	6	....	8,003
86	Scientific, medical, optical and photographic equipment	2,624	2,251	2,709	25	112	6	....	5,102
	All other commodities	55,436	27,230	29,655	1,981	4,271	399	290	63,827
	TOTAL	403,054	195,133 (b)	*196,801	16,607	59,259	6,707	343	*474,852

(a) Less than \$500.

(b) Includes the value of imports from the Australian Capital Territory.

* Revised.

The value of overseas imports of selected commodities from the principal countries of origin is given in the table below for 1966-67.

VALUE OF OVERSEAS IMPORTS FROM PRINCIPAL COUNTRIES OF ORIGIN
SELECTED COMMODITIES, 1966-67
(\$'000)

Division	Commodity	Canada	Germany, Federal Republic of	India	Japan	United Kingdom	United States of America	Other	Total
03	Fish, fresh, chilled, or frozen	24	62	(a)	50	303	1	426	866
07	Tea .....	.....	.....	447	(a)	1	1	1,246	1,695
11	Beverages, alcoholic	2	2	.....	1	495	20	79	598
24	Timber	13	1	.....	.....	2	165	1,377	1,558
25	Pulp and waste paper	138	.....	.....	.....	.....	20	374	531
27	Crude fertilisers and crude minerals—	.....	.....	.....	.....	.....	181	7,149	7,330
	Fertilisers .....	.....	.....	.....	.....	.....	605	1,411	4,308
	Sulphur and unroasted iron pyrites	2,292	.....	.....	.....	.....	187	(b)35,896	36,200
33	Petroleum and petroleum products .....	.....	7	32	4	73	.....	.....	.....
51	Chemical elements and compounds—	.....	.....	.....	.....	.....	.....	.....	.....
	Inorganic	133	144	.....	939	794	34	537	2,582
	Organic	48	158	.....	1,501	652	127	314	2,800
56	Fertilisers, manufactured	2	202	.....	478	367	391	40	1,481
57	Explosives and pyrotechnic products .....	.....	3	.....	(a)	12	596	19	631
58	Plastic materials, regenerated cellulose and artificial resins	83	140	.....	104	524	120	112	1,083
62	Tyres and tubes	(a)	10	58	137	901	323	504	1,933
64	Paper and paperboard—	.....	.....	.....	.....	.....	.....	1,361	2,040
	Newsprint	679	.....	.....	.....	.....	.....	288	694
	Other	76	30	.....	76	162	62	.....	.....
65	Textile yarn, fabrics, made-up articles and related products—	.....	.....	.....	.....	.....	.....	.....	.....
	Fabrics.....	13	132	701	1,352	709	100	989	3,995
	Floor coverings and the like	89	1	87	53	434	378	237	1,278
	Sacks and bags .....	.....	.....	1,074	229	.....	(a)	2,260	3,563
66	Glass and glassware	7	55	.....	84	271	82	324	822
67	Iron and steel—	.....	.....	.....	.....	.....	.....	.....	.....
	Bars, rods, angles, shapes and sections	1	1	31	61	383	4	30	511
	Tubes, pipes and fittings	9	73	45	1,272	355	186	52	1,992
69	Manufactures of metal, n.e.i.—	.....	.....	.....	.....	.....	.....	.....	.....
	Cutlery	111	26	(a)	115	121	6	18	398
	Tools	18	95	(a)	68	428	318	423	1,349
71	Machinery—	.....	.....	.....	.....	.....	.....	.....	.....
	Other than electric—	.....	.....	.....	.....	.....	.....	.....	.....
	Excavating, levelling, tamping and boring, for earth, minerals or ores	91	40	.....	855	626	2,154	187	3,954
	Lifting, handling, loading or un- loading	3	23	.....	271	210	316	115	939
	Metal working .....	.....	142	.....	150	586	14	114	1,005
	Office	8	402	1	63	458	223	176	1,330
	Power generating machinery—	.....	.....	.....	.....	.....	.....	.....	.....
	Internal combustion engines	71	20	.....	66	3,266	441	104	3,968
	Other	275	5	.....	.....	1,165	16	341	1,803
	Taps, cocks, valves and similar appli- cances	1	19	.....	6	424	136	38	624
	Textile and leather .....	.....	71	.....	53	147	161	118	550
	Tractors .....	.....	78	.....	194	1,423	2,835	533	5,063
72	Electrical machinery, apparatus and appliances—	.....	.....	.....	.....	.....	.....	.....	.....
	Electric power machinery and switch- gear—	.....	.....	.....	.....	.....	.....	.....	.....
	Generators	(a)	291	.....	36	426	120	337	1,210
	Motors	(a)	15	.....	9	431	81	3	538
	Other	2	28	.....	26	759	72	226	1,113
	Telecommunication apparatus .....	.....	163	.....	121	497	495	151	1,426
73	Transport equipment—	.....	.....	.....	.....	.....	.....	.....	.....
	Aircraft and parts, n.e.i.	(a)	.....	.....	.....	610	95	48	754
	Railway and tramway vehicles .....	.....	19	.....	1,577	113	644	3	2,356
	Road motor vehicles	187	760	.....	3,100	4,312	1,259	581	10,200
	Road vehicles, other than motor vehicles	456	34	(a)	64	72	72	24	722
84	Clothing and clothing accessories and articles of knitted or crocheted fabric....	(a)	5	(a)	63	220	37	144	471
86	Scientific, medical, optical and photo- graphic equipment	12	112	2	151	782	313	259	1,631
89	Miscellaneous manufactured articles, n.e.i.—	.....	.....	.....	.....	.....	.....	.....	.....
	Books, newspapers, journals and the like	(a)	24	1	9	1,197	275	148	1,655
	Toys	4	7	(a)	153	186	16	158	524
93	Outside packages, n.e.i.	60	126	22	393	807	602	4,121	6,132
	All other commodities	1,132	2,050	291	2,721	9,678	6,446	8,870	31,187
	TOTAL	6,042	5,577	2,793	16,605	35,383	20,729	(b)72,261	159,390

(a) Less than \$500. (b) Includes an amount of \$24.35 million, representing the value of imports of petroleum and petroleum products from Iran (\$6.74 million), Kuwait (\$8.95 million) and Qatar (\$8.66 million).

EXPORTS

QUANTITY AND VALUE OF PRINCIPAL EXPORTS FROM WESTERN AUSTRALIA
SELECTED COMMODITIES: 1964-65 AND 1965-66

Commodity	Unit of quantity	1964-65			1965-66		
		Quantity	Value		Quantity	Value	
			\$'000	Per cent of total		\$'000	Per cent of total
Animals—							
Cattle	number	8,419	427	0.12	4,781	283	0.07
Sheep	number	170,772	1,376	0.38	205,302	1,633	0.38
Apparel—							
Footwear	n.a.	n.a.	964	0.27	n.a.	1,105	0.25
Other	n.a.	n.a.	910	0.25	n.a.	914	0.21
Foodstuffs—							
Barley	'000 bush	1,729	1,821	0.50	3,780	4,436	1.02
Confectionery, excluding chocolate	'000 lb	1,697	417	0.11	1,636	417	0.10
Fish—							
Crayfish tails	'000 lb	5,891	10,592	2.92	7,040	13,821	3.18
Other	'000 lb	3,536	1,762	0.49	3,450	2,220	0.51
Flour, wheaten	sh. ton (a)	92,402	5,926	1.63	54,157	3,378	0.78
Fruit, fresh—							
Apples	'000 bush	1,277	4,453	1.23	1,187	4,235	0.98
Other	n.a.	n.a.	711	0.20	n.a.	603	0.14
Fruit, dried (currants)	'000 lb	2,422	348	0.10	3,077	455	0.10
Honey	'000 lb	5,979	612	0.17	7,121	739	0.17
Meats—							
Preserved by cold process—							
Beef and veal	'000 lb	42,682	11,730	3.23	39,937	12,108	2.79
Lamb	'000 lb	4,141	815	0.22	5,319	1,165	0.27
Mutton	'000 lb	6,970	1,166	0.32	17,430	3,192	0.74
Pork	'000 lb	1,259	516	0.14	926	376	0.09
Other (b)	'000 lb	9,420	1,875	0.52	8,828	1,840	0.42
Otherwise prepared	'000 lb	729	267	0.07	676	285	0.07
Oats—							
Grain	'000 bush	7,116	5,803	1.60	9,602	8,267	1.93
Unkilned	ton	6,675	438	0.12	(c) 10,409	(c) 733	0.17
Vegetables, fresh—							
Beans (d)	cental (e)	35,819	358	0.10	31,540	315	0.07
Onions	cwt	69,846	188	0.05	26,639	94	0.02
Potatoes	cwt	254,622	841	0.23	420,497	1,393	0.32
Tomatoes	cental (e)	44,283	252	0.07	26,423	186	0.04
Other (f)	cental (e)	68,148	456	0.13	80,622	630	0.15
Wheat	'000 bush	40,507	56,955	15.69	69,372	96,515	22.24
Other foodstuffs	n.a.	n.a.	2,964	0.82	n.a.	5,996	1.38
Gold bullion	'000 fine oz	513	16,127	4.44	833	26,147	6.02
Iron and steel (g)	'000 tons	217	17,933	4.94	170	12,606	2.90
Leather	n.a.	n.a.	531	0.15	n.a.	639	0.15
Machines and machinery—							
Agricultural, other than tractors	n.a.	n.a.	2,237	0.62	n.a.	1,074	0.25
Tractors and parts	n.a.	n.a.	5,549	1.53	n.a.	3,582	0.83
Other	n.a.	n.a.	5,168	1.42	n.a.	6,157	1.42
Ores, concentrates and mineral earths—							
Metallic—							
Copper	'000 cwt	56	382	0.11	106	776	0.18
Ilmenite	'000 tons	325	3,194	0.88	423	4,181	0.96
Iron	'000 tons	1,537	3,040	0.84	2,615	6,967	1.61
Lead and zinc	'000 cwt	158	606	0.17	18	124	0.03
Manganese	'000 tons	76	1,747	0.48	104	2,404	0.55
Tin	'000 cwt	12	1,229	0.34	16	1,521	0.35
Other	n.a.	n.a.	900	0.25	n.a.	961	0.22
Non-metallic—Asbestos fibre	ton	10,956	2,210	0.61	7,937	1,702	0.39
Petroleum oils and spirits	'000 gal	452,257	43,615	12.01	n.a.	37,911	8.73
Skins and hides—							
Bovine	'000 lb	8,700	1,124	0.31	8,194	1,393	0.32
Sheep and lamb	'000 lb	8,772	2,893	0.80	12,322	3,933	0.91
Other	n.a.	n.a.	159	0.04	n.a.	121	0.03
Tallow	'000 cwt	177	1,435	0.40	200	1,775	0.41
Tanning substances	n.a.	n.a.	652	0.18	n.a.	692	0.16
Timber—							
Sleepers	'000 sup. ft	14,817	1,527	0.42	8,018	1,012	0.23
Other	'000 sup. ft	41,693	4,752	1.31	21,167	2,682	0.62
Wool—							
Greasy	'000 lb	151,812	83,030	22.87	193,682	101,905	23.48
Scoured and carbonised	'000 lb	22,586	15,264	4.20	21,705	13,223	3.05
Noils, tops and waste	'000 lb	2,481	2,514	0.69	3,581	3,305	0.76
All other commodities	n.a.	n.a.	30,267	8.34	n.a.	29,796	6.87
TOTAL	n.a.	n.a.	363,033	100.00	n.a.	434,023	100.00

n.a. denotes 'not applicable' or 'not available'.

(a) Short ton = 2,000 lb.

(b) Includes edible offals, poultry and rabbits.

(c) Overseas only; interstate exports not

recorded separately.

(d) Interstate only; overseas exports (not recorded separately) included under *Other fresh vegetables*.

(e) Cental = 100 lb.

(f) Includes overseas exports of beans; see note (d).

(g) Principally manufactured products.

QUANTITY AND VALUE OF PRINCIPAL EXPORTS FROM WESTERN AUSTRALIA
SELECTED COMMODITIES
1966-67

Division	Commodity	Unit of quantity	Interstate		Overseas		Total	
			Quantity	Value	Quantity	Value	Quantity	Value
				\$'000		\$'000		\$'000
00	Live animals—							
	Cattle	number	4,561	312	574	69	5,135	381
	Sheep	number	2,687	21	198,793	1,750	201,480	1,771
	Food—							
01	Meat, fresh, chilled or frozen—							
	Beef and veal	'000 lb	104	38	37,180	11,949	37,284	11,987
	Lamb	'000 lb	484	127	2,398	482	2,883	609
	Mutton	'000 lb	132	22	18,263	3,093	18,395	3,114
	Pigmeat	'000 lb	843	325	402	145	1,245	470
	Other (a)	'000 lb	370	147	6,226	1,274	6,596	1,422
03	Fish, fresh, chilled or frozen—							
	Crayfish tails	'000 lb	1	2	8,031	13,871	8,032	13,873
	Other	'000 lb	654	373	2,770	2,624	3,424	2,997
04	Cereals and cereal preparations—							
	Barley, unmilled	'000 bush	(b)	(b)	4,886	5,464	4,886	5,464
	Flour of wheat	sh. ton (c)	1,342	111	37,022	2,396	38,364	2,507
	Oats, unmilled	'000 bush	3	2	10,510	8,606	10,513	8,608
	Wheat, unmilled	'000 bush	2	4	84,978	126,914	84,980	126,918
	Other	cental (d)	36,815	257	386,954	1,462	423,768	1,719
05	Fruit and vegetables—							
	Fruit, fresh—							
	Apples	'000 bush	4	11	1,514	4,992	1,517	5,003
	Other	n.a.	n.a.	11	n.a.	690	n.a.	701
	Vegetables, fresh	n.a.	n.a.	685	n.a.	1,324	n.a.	2,009
	Other food	n.a.	n.a.	2,571	n.a.	2,236	n.a.	4,807
21	Hides, skins and fur skins, undressed—							
	Bovine	'000 lb	2,623	491	5,133	883	7,755	1,374
	Sheep and lamb	'000 lb	148	29	12,478	3,733	12,626	3,762
	Other	n.a.	n.a.	58	n.a.	184	n.a.	242
24	Timber—							
	Sleepers, railway	'000 sup. ft	6,922	871	24,875	3,114	31,796	3,985
	Other	'000 sup. ft	20,382	2,475	6,781	1,015	27,163	3,490
26	Textile fibres and their waste—							
	Wool—							
	Degreased (washed, scoured, etc.)	'000 lb	1,507	1,056	20,071	11,887	21,578	12,943
	Greasy (including slip)	'000 lb	8,172	4,993	205,892	109,058	214,064	114,052
	Other	'000 lb	413	326	2,644	2,668	3,057	2,994
	Cotton fibre	'000 lb	6,288	1,572	....	....	6,288	1,572
27	Asbestos, crude	ton	2,780	584	3,110	645	5,890	1,229
28	Metalliferous ores and metal scrap—							
	Ores, metalliferous—							
	Ilmenite	'000 tons	54	523	382	3,916	436	4,440
	Iron	'000 tons	3,062	6,063	5,333	44,827	8,395	50,890
	Manganese	'000 tons	18	428	172	3,733	190	4,161
	Tin	'000 cwt	11	980	13	1,234	24	2,214
	Other	'000 cwt	9	31	707	2,083	716	2,114
	Metal waste and scrap—							
	Ferrous	'000 cwt	154	196	391	468	545	664
	Non-ferrous	'000 cwt	79	1,710	11	270	90	1,979
33	Petroleum and petroleum products	n.a.	n.a.	24,302	n.a.	12,251	n.a.	36,553
41	Tallow	'000 cwt	5	35	201	1,509	206	1,544
51	Chemical elements and compounds	n.a.	n.a.	8,716	n.a.	9,403	n.a.	18,119
53	Pigments, paints, varnishes, etc.	n.a.	n.a.	259	n.a.	1,575	n.a.	1,834
62	Rubber manufactures, n.e.i.	n.a.	n.a.	1,050	n.a.	34	n.a.	1,084
63	Veneers, plywood boards and reconstituted wood	n.a.	n.a.	1,133	n.a.	21	n.a.	1,154
67	Iron and steel (e)	'000 tons	130	12,499	60	3,160	190	15,658
	Machinery—							
71	Other than electric—							
	Agricultural, except tractors	n.a.	n.a.	2,198	n.a.	59	n.a.	2,257
	Sorting, screening, crushing, mixing, for earth, stone, ores or other mineral substances	n.a.	n.a.	598	n.a.	566	n.a.	1,164
	Tractors	n.a.	n.a.	4,482	n.a.	141	n.a.	4,623
	Other	n.a.	n.a.	3,021	n.a.	1,464	n.a.	4,485
72	Electric power machinery and switchgear	n.a.	n.a.	404	n.a.	49	n.a.	452
73	Transport equipment	n.a.	n.a.	1,502	n.a.	795	n.a.	2,297
82	Furniture	n.a.	n.a.	1,171	n.a.	93	n.a.	1,264
84	Clothing and clothing accessories and articles of knitted or crocheted fabric	n.a.	n.a.	1,014	n.a.	23	n.a.	1,036
85	Footwear, gaiters and similar articles	n.a.	n.a.	1,395	n.a.	1	n.a.	1,396
99	Gold bullion	'000 fine oz	480	15,107	....	....	480	15,107
	All other commodities	n.a.	n.a.	9,739	n.a.	11,123	n.a.	20,863
	TOTAL	n.a.	n.a.	116,030	n.a.	421,325	n.a.	537,355

n.a. denotes 'not applicable' or 'not available'.

(a) Includes edible offals, poultry and rabbits. (b) Less than 500. (c) Short ton = 2,000 lb. (d) Cental = 100 lb. (e) Principally manufactured products.

The following table shows the value and proportion of the principal items exported overseas and interstate during 1966-67.

VALUE OF PRINCIPAL EXPORTS FROM WESTERN AUSTRALIA
SELECTED COMMODITIES: 1966-67

Division	Commodity	Value (\$'000)			Proportion of total (per cent)		
		Interstate	Overseas	Total	Interstate	Overseas	Total
00	Live animals—						
	Cattle	312	69	381	0.27	0.02	0.07
	Sheep	21	1,750	1,771	0.02	0.42	0.33
	Food—						
01	Meat, fresh, chilled, or frozen—						
	Beef and veal	38	11,949	11,987	0.03	2.84	2.23
	Lamb	127	482	609	0.11	0.11	0.11
	Mutton	22	3,093	3,114	0.02	0.73	0.58
	Pigmeat	325	145	470	0.28	0.03	0.09
	Other	147	1,274	1,422	0.13	0.30	0.26
03	Fish, fresh, chilled, or frozen—						
	Crayfish tails.....	2	13,871	13,873	0.00	3.29	2.58
	Other	373	2,624	2,997	0.32	0.62	0.56
04	Cereals and cereal preparations—						
	Barley, unmilled	(a)	5,464	5,464	0.00	1.30	1.02
	Flour of wheat	111	2,396	2,507	0.10	0.57	0.47
	Oats, unmilled	2	8,606	8,608	0.00	2.04	1.60
	Wheat, unmilled	4	126,914	126,918	0.00	30.12	23.62
	Other	257	1,462	1,719	0.22	0.35	0.32
05	Fruit and vegetables—						
	Fruit, fresh—						
	Apples	11	4,992	5,003	0.01	1.18	0.93
	Other	11	690	701	0.01	0.16	0.13
	Vegetables, fresh	685	1,324	2,009	0.59	0.31	0.37
	Other food	2,571	2,236	4,807	2.22	0.53	0.89
21	Hides, skins and fur skins, undressed—						
	Bovine	491	883	1,374	0.42	0.21	0.26
	Sheep and lamb	29	3,733	3,762	0.02	0.89	0.70
	Other	58	184	242	0.05	0.04	0.05
24	Timber—						
	Sleepers, railway	871	3,114	3,985	0.75	0.74	0.74
	Other	2,475	1,015	3,490	2.13	0.24	0.65
26	Textile fibres and their waste—						
	Wool—						
	Degreased (washed, scoured, etc.)	1,056	11,887	12,943	0.91	2.82	2.41
	Greasy (including slipe)	4,993	109,058	114,052	4.30	25.88	21.22
	Other	326	2,668	2,994	0.28	0.63	0.56
	Cotton fibre	1,572	.....	1,572	1.35	.....	0.29
27	Asbestos, crude	584	645	1,229	0.50	0.15	0.23
28	Metalliferous ores and metal scrap—						
	Ores, metalliferous—						
	Ilmenite	523	3,916	4,440	0.45	0.93	0.83
	Iron	6,063	44,827	50,890	5.23	10.64	9.47
	Manganese	428	3,733	4,161	0.37	0.89	0.77
	Tin	980	1,234	2,214	0.84	0.29	0.41
	Other	31	2,083	2,114	0.03	0.49	0.39
	Metal waste and scrap—						
	Ferrous	196	468	664	0.17	0.11	0.12
	Non-ferrous	1,710	270	1,979	1.47	0.06	0.37
33	Petroleum and petroleum products	24,302	12,251	36,553	20.94	2.91	6.80
41	Tallow	35	1,509	1,544	0.03	0.36	0.29
51	Chemical elements and compounds	8,716	9,403	18,119	7.51	2.23	3.37
53	Pigments, paints, varnishes and related materials	259	1,575	1,834	0.22	0.37	0.34
62	Rubber manufactures, n.e.i.	1,050	34	1,084	0.90	0.01	0.20
63	Veneers, plywood boards and reconstituted wood	1,133	21	1,154	0.98	0.00	0.21
67	Iron and steel	12,499	3,160	15,658	10.77	0.75	2.91
71	Machinery—						
	Other than electric—						
	Agricultural, except tractors	2,198	59	2,257	1.89	0.01	0.42
	Sorting, screening, crushing, mixing, for earth, stone, ores or other mineral substances	598	566	1,164	0.52	0.13	0.22
	Tractors	4,482	141	4,623	3.86	0.03	0.86
	Other	3,021	1,464	4,485	2.60	0.35	0.83
72	Electric power machinery and switchgear	404	49	452	0.35	0.01	0.08
73	Transport equipment	1,502	795	2,297	1.29	0.19	0.43
82	Furniture	1,171	93	1,264	1.01	0.02	0.24
84	Clothing and clothing accessories and articles of knitted or crocheted fabric	1,014	23	1,036	0.87	0.01	0.19
85	Footwear, gaiters and similar articles	1,395	1	1,396	1.20	0.00	0.26
99	Gold bullion	15,107	.....	15,107	13.02	.....	2.81
	All other commodities	9,739	11,123	20,863	8.39	2.64	3.88
	TOTAL	116,030	421,325	537,355	100.00	100.00	100.00

(a) Less than \$500.

VALUE OF PRINCIPAL EXPORTS TO AUSTRALIAN STATES—SELECTED COMMODITIES
(S'000)

Division	Commodity	1965-66	1966-67						Total
		Total	N.S.W.	Vic.	Qld	S.A.	Tas.	N.T.	
00	Live animals—								
	Cattle	67	....	....	....	14	....	298	312
	Sheep	3	2	....	....	19	....	....	21
	Food—								
01	Meat and meat preparations—								
	Fresh, chilled, or frozen	623	206	67	....	18	....	367	659
	Other	242	....	15	....	14	....	158	187
02	Butter	195	....	....	....	....	....	186	186
03	Fish and fish preparations—								
	Fresh, chilled, or frozen	128	51	230	....	87	....	6	375
	Canned or bottled n.e.i., and fish preparations	323	322	304	39	168	..	11	843
05	Vegetables, fresh—								
	Beans	315	....	8	....	317	(a)	....	325
	Other	1,236	58	141	7	104	(a)	50	360
06	Confectionery, excluding chocolate	380	133	208	90	51	22	1	505
	Other food	998	268	257	7	299	3	414	1,247
21	Hides, skins and fur skins, undressed—								
	Bovine	669	208	199	....	85	....	....	491
	Sheep and lamb	25	....	29	....	....	....	....	29
	Other	8	46	4	....	8	....	....	58
24	Timber—								
	Sleepers, railway	465	....	....	....	841	....	29	871
	Other	1,831	183	316	3	1,840	....	133	2,475
26	Textile fibres and their waste—								
	Wool—								
	Degreased (washed, scoured, etc.)...	652	1	583	....	472	....	....	1,056
	Greasy (including slipe)	7,266	37	2,817	....	1,810	329	....	4,993
	Other	49	....	196	....	130	....	....	326
	Cotton fibre	456	834	611	....	126	....	....	1,572
27	Asbestos, crude	913	255	180	71	79	....	....	584
28	Metalliferous ores and metal scrap—								
	Ores, metalliferous—								
	Ilmenite	417	....	....	....	....	523	....	523
	Iron	4,984	6,063	....	....	....	....	....	6,063
	Manganese	812	(a)	....	....	....	428	....	428
	Tin	1,218	980	....	....	....	....	....	980
	Other .....	....	31	....	....	....	....	....	31
	Metal waste and scrap—								
	Ferrous	242	177	(a)	....	....	....	19	196
	Non-ferrous	1,076	1,028	433	1	248	....	....	1,710
29	Crude animal and vegetable materials, n.e.i.—								
	Animal casings (sausage), etc.	226	331	41	17	137	....	(a)	526
	Clover seed	336	83	164	....	236	....	....	483
33	Petroleum and petroleum products	29,289	7,981	7,230	(a)	6,418	1,417	1,256	24,302
51	Chemical elements and compounds	5,234	1,515	6,726	257	211	....	7	8,716
62	Rubber manufactures, n.e.i.	372	417	320	59	229	18	7	1,050
63	Wood and cork manufactures (b)—								
	Veneers, plywood boards, etc.	690	124	533	....	413	24	39	1,133
	Cork manufactures	483	192	191	89	8	....	1	482
	Metals—								
67	Iron and steel	12,362	535	7,207	158	4,279	43	276	12,499
68	Silver bullion	235	1,888	....	....	....	....	....	1,888
69	Manufactures of metal, n.e.i.—								
	Household equipment of base metals	480	42	256	91	47	22	(a)	458
	Other	881	140	85	30	596	2	329	1,183
	Machinery—								
71	Other than electric—								
	Agricultural, except tractors	1,058	933	441	476	348	1	(a)	2,198
	Sorting, screening, crushing, mixing, for earth, stone, ores or other mineral substances	579	271	130	94	29	41	33	598
	Tractors	2,934	1,798	1,117	794	773	....	....	4,482
	Other	4,149	958	730	314	849	98	72	3,021
72	Electrical machinery and apparatus—								
	Electric power machinery (c)	447	75	220	1	107	....	(a)	404
	Other	145	63	17	20	36	(a)	2	138
73	Transport equipment—								
	Road motor vehicles (d)	32	119	136	79	59	4	5	403
	Other	443	564	441	35	28	22	9	1,099
82	Furniture	1,223	315	327	227	217	32	53	1,171
84	Clothing and clothing accessories and articles of knitted, etc., fabric	899	200	350	45	336	31	50	1,014
85	Footwear, gaiters and similar articles	1,104	473	392	257	220	49	4	1,395
99	Gold bullion	26,147	15,107	....	....	....	....	....	15,107
	All other commodities	4,276	1,163	2,089	313	931	89	290	4,876
	TOTAL	119,619	(e)46,170	35,741	3,573	23,240	3,199	4,107	116,030

(a) Less than \$500. (b) Excluding furniture. (c) Including switchgear. (d) Including components. (e) Includes the value of exports to the Australian Capital Territory.

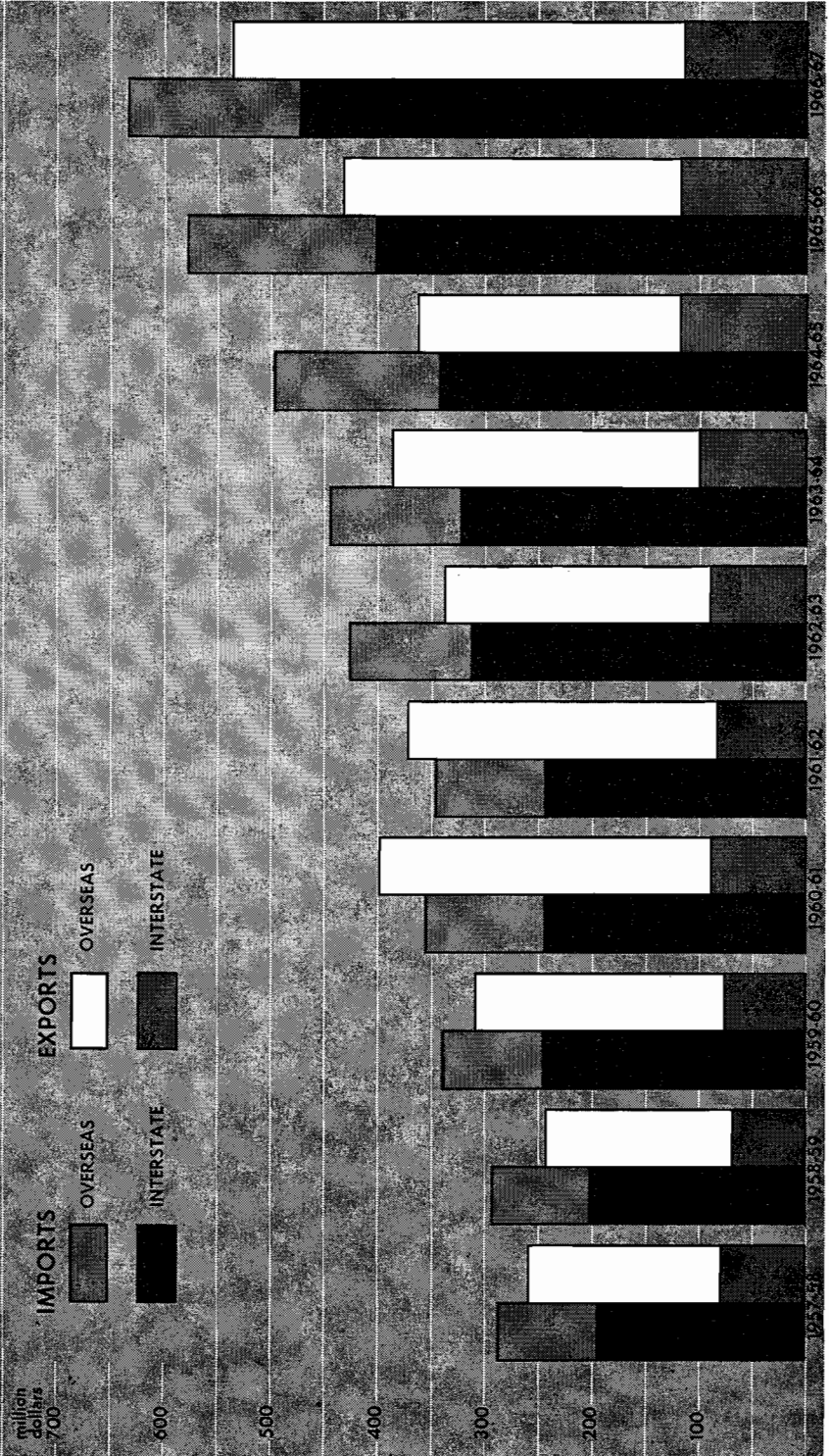
The following table shows the value of overseas exports during 1966-67, classified according to commodity and main countries of destination. For further analysis of Western Australia's exports of principal commodities according to destination the reader is referred to the annual mimeographed publication *External Trade* compiled and issued free of charge by the Western Australian Office of the Bureau of Census and Statistics.

VALUE OF OVERSEAS EXPORTS TO PRINCIPAL COUNTRIES OF DESTINATION
SELECTED COMMODITIES, 1966-67
(\$'000)

Division	Commodity	Germany, Federal Republic of	India	Italy	Japan	United Kingdom	United States of America	Other	Total
01	Meat, fresh, chilled, or frozen—								
	Beef and veal		2		133	1,410	8,839	1,566	11,949
	Lamb		1		2	136		343	482
	Mutton	9	10		856	145	277	1,795	3,093
	Other	3	(a)	18	42	539	10	807	1,419
02	Cheese and curd				155	68		1	224
03	Fish, fresh, chilled, or frozen—								
	Crayfish—								
	Whole	3		8	(a)	(a)	53	844	909
	Tails			(a)			13,684	187	13,871
	Prawns	1			1,346	4	78	240	1,668
04	Cereals and cereal preparations—								
	Barley, unmilled			1,940	1,668	520		1,336	5,464
	Cereal preparations				426		(a)	955	1,381
	Flour of wheat					2		2,393	2,396
	Oats, unmilled	3,952	15	1,728	39	629		2,242	8,606
	Wheat, unmilled		13,070		15,941	16,107		(b)81,796	126,914
05	Fruit—								
	Currants					120		159	279
	Fresh—								
	Apples	1,498				1,739		1,755	4,992
	Other					6		685	691
06	Honey		1		39	562	1	184	813
08	Feeding-stuff for animals	27			212	12	(a)	94	346
21	Hides, skins and fur skins, undressed—								
	Bovine	53	5	110	394	16		304	883
	Sheep and lamb	112		1,168	33	435		1,984	3,733
22	Oil-seeds, oil nuts and oil kernels				341				341
24	Sleepers, railway		50			331		2,733	3,114
26	Wool—								
	Degreased (washed, scoured, etc.)	1,882	104	740	195	2,226	3,175	3,566	11,887
	Greasy (including stipe)	7,904	3,109	6,987	40,143	14,384	5,710	30,820	109,058
	Other		19		5	258	741	1,645	2,668
27	Asbestos, crude	7	123	39	34	26		416	645
28	Metalliferous ores and metal scrap—								
	Ores, metalliferous—								
	Copper				322				322
	Ilmenite				497	2,016	422	882	3,916
	Iron	154		927	41,562	594		1,589	44,827
	Lead and zinc				123	53			176
	Manganese				3,703	(a)		30	3,733
	Tin				43	67	(a)	1,123	1,234
	Other	67		5	578	17	634	284	1,585
	Metal waste and scrap—								
	Ferrous				423	(a)		45	468
	Non-ferrous	1		4	35	185	2	43	270
29	Animal casings (sausage) and the like	4		15	26	89	77	73	283
33	Petroleum and petroleum products				170	1,987	(a)	10,094	12,251
41	Animal oils and fats—								
	Tallow		294		38	(a)		1,177	1,509
	Other	75				283	118	82	557
51	Inorganic elements and compounds				4,869		4,425	36	9,330
53	Dyeing and tanning materials	4	(a)	40		5	374	52	476
55	Essential oils, perfume and flavour materials	6	1	52	1	8	59	62	189
61	Leather					164		103	267
67	Iron and steel—								
	Bars, rods, angles, shapes and sections						1,067	204	1,271
	Pig, ingot and other primary forms	234		167	651	25		696	1,773
71	Machinery, other than electric—								
	Excavating, levelling, tamping and boring, for earth, minerals or ores					4	108	233	345
	Power generating		2		1	32	9	401	446
	Sorting, screening, crushing, mixing, for earth, stone, ores or other mineral substances		1			7	1	557	566
73	Road motor vehicles		3	(a)		7	58	323	392
	All other commodities	193	395	46	849	1,070	1,930	12,831	17,315
	TOTAL	16,217	17,206	14,095	115,893	46,290	41,852	169,772	421,325
								(b)	

(a) Less than \$500. (b) Includes an amount of \$61.28 million, representing exports of wheat to China (mainland) valued at \$46.10 million and to Pakistan, \$15.18 million.

Imports and Exports, 1957-58 to 1966-67



AVERAGE EXPORT VALUES

The following table shows the annual average export values, during the five years ended 30 June 1967, of a number of Western Australia's principal export commodities. The figures are based on *total* exports (interstate and overseas) and represent the value *f.o.b.* at the point of consignment.

ANNUAL AVERAGE EXPORT VALUES OF SPECIFIED COMMODITIES
(\$)

Commodity	Unit of quantity	1962-63	1963-64	1964-65	1965-66	1966-67
Apples, fresh	bushel	3.90	3.65	3.49	3.57	3.30
Cereals and cereal preparations—						
Barley	"	1.01	1.04	1.05	1.17	1.12
Oats	"	0.86	0.81	0.82	0.87	0.82
Wheat	"	1.42	1.42	1.41	1.39	1.49
Wheaten flour	cental (a)	3.12	3.18	3.21	3.12	3.27
Crayfish tails	lb	1.16	1.22	1.80	1.96	1.73
Meat, fresh, chilled or frozen—						
Beef	"	0.25	0.25	0.28	0.30	0.32
Lamb	"	0.17	0.18	0.20	0.22	0.21
Mutton	"	0.14	0.15	0.17	0.18	0.17
Pork	"	0.31	0.38	0.41	0.41	0.38
Minerals, crude—Asbestos	cental (a)	10.07	9.93	9.00	9.57	9.32
Ores, metalliferous—						
Ilmenite	ton	9.53	9.93	9.82	9.89	10.17
Iron	"	1.97	2.02	1.98	(b) 2.66	6.06
Manganese	"	26.67	25.62	22.96	23.13	21.95
Potatoes	cwt	2.28	1.81	3.30	3.31	2.01
Skins and hides—						
Bovine	lb	0.15	0.11	0.13	0.17	0.18
Sheep and lamb, with wool...	"	0.31	0.39	0.33	0.32	0.30
Timber—						
Railway sleepers	100 sup. ft	10.78	10.11	10.30	12.62	12.53
Other (c)	"	11.11	11.16	11.40	12.67	12.85
Wool—						
Greasy (including slipe)	lb	0.51	0.61	0.55	0.53	0.53
Degreased (washed, scoured, etc.)	"	0.62	0.75	0.68	0.61	0.60

(a) Cental = 100 lb. (b) Prior to 1965-66, when the first large-scale overseas shipments were made, exports of iron ore consisted almost entirely of consignments to New South Wales. (c) Excluding plywood and veneers.

SHIPS' STORES

The following table shows the quantity and value of ships' stores loaded on board vessels at Western Australian ports during the years 1964-65 to 1966-67. The value of ships' stores is excluded from all tables appearing elsewhere in this Chapter.

EXPORTS IN THE FORM OF SHIPS' STORES (a)

Commodity	Unit of quantity	1964-65		1965-66		1966-67	
		Quantity	Value	Quantity	Value	Quantity	Value
Beverages, alcoholic	'000 gallons	180	\$'000 212	212	\$'000 231	193	\$'000 231
Foodstuffs—							
Fresh, chilled or frozen—							
Eggs in shell	'000 dozen	241	134	270	170	246	155
Fish	'000 lb	320	217	301	191	437	278
Fruit	"	....	89	....	115	....	156
Meat	'000 lb	1,983	606	2,442	782	3,418	894
Vegetables	"	....	298	....	266	....	353
All other foodstuffs	"	....	282	....	451	....	424
Fuel for ships and aircraft—							
Coal	'000 tons	3	61	3	53	1	23
Other (bunker oil, etc.)	'000 gallons	80,238	6,320	87,562	6,700	96,784	7,380
Lubricants	"	....	146	....	272	....	195
All other ships' stores	"	....	643	....	826	....	849
Total (a)	....	....	9,009	....	10,058	....	10,936

(a) Includes interstate ships' stores valued at \$795,428 in 1964-65, \$1,052,259 in 1965-66 and \$931,492 in 1966-67. Where the value of overseas ships' stores recorded in any one entry is less than \$100, the stores concerned are not allocated according to commodity, but are included in the item *All other ships' stores*.

OVERSEAS TRADE OF PORTS

The following table shows the value of overseas imports and exports through Western Australian ports during each year from 1964-65 to 1966-67.

VALUE OF OVERSEAS TRADE OF WESTERN AUSTRALIAN PORTS
(\$'000)

Port	Imports			Exports		
	1964-65	1965-66	1966-67	1964-65	1965-66	1966-67
Port of Fremantle (a)	148,493	165,717	143,156	187,725	241,779	287,202
Other ports—						
Albany	1,464	1,874	2,238	20,962	26,359	30,048
Broome	21	6	216	3	1,809	2,166
Bunbury (b)	1,366	2,413	2,838	11,824	12,805	21,503
Dampier (c)	19	1,633	4,965	884	474	21,972
Derby (d)....	13	6	68	809	469	733
Esperance	524	371	889	2,297	1,652	5,634
Exmouth (e) ....	.....	.....	.....	.....	7	.....
Geraldton	1,498	1,751	3,193	13,694	24,514	27,437
Port Hedland (f)	2	1,819	1,587	1,422	2,084	21,806
Wyndham	140	99	240	3,458	2,451	2,824
Total	5,047	9,973	16,235	55,355	72,623	134,124
Total, all ports	153,540	175,690	159,390	243,078	314,404	421,325

(a) For the purpose of this table, the value of goods received from or consigned to overseas countries as air freight or by parcel post is included in the figures shown for the Port of Fremantle. (b) Includes Busselton. (c) Includes Point Samson. (d) Includes Yampi. (e) Includes Carnarvon and Onslow. (f) Includes Barrow Island.

The following table shows the total value of Australia's overseas imports and exports, together with the proportion handled at Western Australian ports, during each of the years 1962-63 to 1966-67.

EXTERNAL TRADE OF AUSTRALIA—TOTAL VALUE AND PROPORTION HANDLED
AT WESTERN AUSTRALIAN PORTS

Year	Value of Australian trade (\$'000)			Proportion handled at Western Australian ports (per cent)		
	Imports	Exports	Total	Imports	Exports	Total
1962-63	2,162,669	2,151,811	4,314,480	5·21	11·50	8·35
1963-64	2,372,658	2,782,460	5,155,118	5·13	10·30	7·92
1964-65	2,904,703	2,651,449	5,556,152	5·29	9·17	7·14
1965-66	2,939,492	2,720,953	5,660,445	5·98	11·55	8·66
1966-67	3,049,235	3,035,473	6,084,708	5·23	13·88	9·54

CUSTOMS AND EXCISE

The Customs Tariff

The first Commonwealth Customs Tariff was introduced on 8 October 1901, from which date uniform duties came into effect throughout Australia. The Australian Customs Tariff has been developed in conformity with the policy of protecting economic and efficient Australian industries and of granting preferential treatment to imports from certain countries. Duties are imposed on some goods, generally of a luxury nature, for revenue purposes. Customs collections are a major source of revenue, but in its protective character the tariff has an important influence on the Australian economy.

The particulars appearing in the tables in this section have been extracted from the bulletin *Overseas Trade* published annually by the Commonwealth Statistician, Canberra. The bulletin contains details showing, for each State and Territory, a dissection of customs revenue according to Customs Tariff Division, and excise revenue according to Excise Tariff Item and rate of duty.

CUSTOMS AND EXCISE DUTIES—NET COLLECTIONS IN WESTERN AUSTRALIA
(\$'000)

Tariff	1962-63	1963-64	1964-65	1965-66	1966-67
Customs duty	8,574	9,782	10,077	13,363	11,851
Excise duty—					
Petroleum products	9,004	9,763	13,185	17,848	20,222
Spirits, potable and non-potable	579	567	615	830	1,017
Tobacco, cigars and cigarettes	9,842	10,060	11,350	12,909	13,069
Other (a)	16,449	17,357	17,933	21,491	23,365
Total, excise (a)	35,874	37,746	43,083	53,077	57,673
TOTAL NET REVENUE (a)	44,448	47,528	53,160	66,441	69,524

(a) Includes excise on beer, details of which are not available for publication.

The following table shows the rates of excise duty applying to certain commodities during the period 1 July 1965 to 30 June 1967, the quantities of goods excised in Western Australia at those rates, and the gross amounts of revenue collected. For a more detailed analysis, including particulars for each State and Territory, the reader is referred to the annual bulletin *Overseas Trade* to which reference is made earlier in this section.

EXCISE DUTY—GROSS COLLECTIONS IN WESTERN AUSTRALIA

Commodity	Unit of quantity	Rate of duty	1965-66		1966-67	
			Quantity	Gross collections	Quantity	Gross collections
Beer (a)	gal	\$ 0.983 and 1.1375	(b)	\$'000 (b)	(b)	\$'000 (b)
Spirits (potable) (a)—						
Brandy	pf gal	4.90 and 8.00	55,761	388	56,746	454
Gin	pf gal	8.20 and 11.30	9,417	99	13,416	152
Whisky	pf gal	8.00 and 11.10	14,690	150	14,432	160
Rum	pf gal	8.20 and 11.30	10,081	100	10,747	121
Liqueurs	pf gal	8.10 and 11.20	2,107	22	2,867	32
Vodka	pf gal	8.10 and 11.20	2,953	32	4,879	55
Flavoured spirituous liquors	pf gal	8.10 and 11.20	369	4	466	5
Other	pf gal	12.20	....	(c)	77	1
Spirits (non-potable) for—						
Fortifying wine	pf gal	0.40	47,393	19	53,760	21
Industrial and scientific purposes	pf gal	2.50	4,837	12	4,754	12
Making vinegar	pf gal	0.20	6,068	1	12,432	2
Manufacture of—						
Essences	pf gal	1.00 to 1.20	2,889	3	3,173	3
Scents and toilet preparations	pf gal	1.40 to 1.60	51	(c)	45	(c)
Tobacco—Manufactured	lb	0.69	17,276	12	14,529	10
Cigarettes—Machine-made (a)	lb	(d) 2.04	123,497	252	....	....
Petrol (a)—		(e) 2.24	538,566	1,206	606,655	1,359
Aviation	gal	3.71 and 4.20	2,758,862	11,442	2,785,661	11,700
Other	gal	0.071 and 0.096	....	....	15,777	2
Aviation turbine fuel (a)	gal	0.098 and 0.123	132,915,683	15,689	146,017,542	17,960
Automotive diesel fuel (a)	gal	0.054 and 0.079	7,533,518	569	8,726,932	689
Cigarette papers and tubes	60 papers or tubes	0.100 and 0.125	13,289,194	1,590	12,583,678	1,573
Coal	ton	0.0145	5,305,110	77	5,374,576	78
Canned fruit (f)	dozen	0.0333	1,123,091	37	1,075,610	36
Other	n.a.	0.20 and 0.30	27,384	5	46,284	11
Total gross collections	n.a.	n.a.	n.a.	(g) 21,824	n.a.	(g) 23,739
				(g) 53,536	n.a.	(g) 58,176

n.a. denotes 'not applicable'.

(a) The higher rate of duty shown became operative from 18 August 1965. (b) Not available for publication. (c) Less than \$500. (d) Operative to 18 August 1965. (e) Operative from 18 August 1965. (f) The higher rate of duty shown became operative from 17 March 1967. (g) Includes excise duty paid on beer; see note (b).

Chapter IX—continued

Part 2—Internal Trade

CENSUS OF RETAIL ESTABLISHMENTS

Details of the structure and pattern of retail trade throughout Australia are obtained in periodic Censuses of Retail Establishments. To date, censuses have been taken covering the years 1947-48, 1948-49, 1952-53, 1956-57 and 1961-62 and a further census will be taken in respect of the year 1968-69 as part of a programme of Integrated Economic Censuses covering the mining, manufacturing, wholesaling and retailing fields.

Each census taken to date has covered the retail trading activities of establishments which normally sell goods to the general public from fixed premises such as shops, rooms, kiosks and yards. Retail activities of wholesalers and manufacturers were included, provided these establishments sold regularly by retail to the general public. Sales by itinerant vendors (*e.g.* hawkers, street sellers, etc.) and sales from casual stalls or booths were excluded. Organisations such as clubs and societies making sales to their own members were excluded from the main census collection, but a supplementary collection was made covering sales by *licensed* clubs. Supplementary collections were also made in respect of motion picture theatres, and laundries and dry cleaners. In general, establishments with total retail sales of less than \$1,000 in the census year were excluded.

The particulars of retail sales obtained from the censuses relate principally to sales to the final consumer of new and second-hand goods generally used for household and personal purposes. For this reason, sales of building materials, farm and industrial machinery and equipment, earth-moving equipment, etc. have been excluded from the censuses. For the same reason, and also because of difficulties in obtaining reliable and complete reporting, sales of builders' hardware and supplies, business machines and equipment, grain, feed, fertiliser and agricultural supplies, and tractors were excluded from the 1961-62 Census. Retail sales of motor vehicles, parts, etc. have been included, whether for industrial, commercial, farm, or private use.

For complete details of the tabulations relating to Western Australia from the 1961-62 Census, the reader is referred to the publication *Census of Retail Establishments and Other Services: Year ended 30 June 1962: Bulletin No. 6—Western Australia* published by the Commonwealth Statistician, Canberra. This bulletin is one of a series dealing separately with each of the Australian States and Territories.

The Census of Retail Establishments provides a framework for the quarterly sample surveys designed to measure variations in the value of retail sales throughout the inter-censal period—see following section.

SURVEY OF RETAIL ESTABLISHMENTS

During the period between censuses, estimates of the value of retail sales are derived from returns received from a representative sample of retailers throughout Australia. These establishments account for approximately 45 per cent of the total retail sales in Australia. From these sample returns, totals for all retail establishments in Australia are estimated by methods appropriate to a stratified sample, using data from the most recent census as a benchmark.

Annual revisions to the sample take account of the changing pattern of retail trade and ensure that new businesses entering the field are represented in the survey.

Quarterly estimates for each State and Territory and Australia as a whole in broad commodity groups are published by the Commonwealth Statistician in the bulletin *Retail Sales of Goods*. Preliminary monthly estimates of total retail sales in Australia (excluding motor vehicles, etc.), based on a sub-sample of the establishments used to provide the quarterly estimates, appear in *Retail Sales of Goods (Provisional)*.

In the following table, the estimated value of retail sales of goods in Western Australia is given by commodity groups for each of the years 1963-64 to 1967-68. The estimates shown are compiled on a basis comparable with the 1961-62 Census of Retail Establishments.

RETAIL SALES CLASSIFIED ACCORDING TO COMMODITY GROUPS
(\$ million)

Commodity group	Year ended 30 June—				
	1964	1965	1966	1967	1968
Groceries	74.2	81.1	89.3	95.3	103.9
Butchers' meat	31.3	34.0	36.8	40.5	44.0
Other food (a)	54.4	59.8	63.6	68.1	74.4
Total food and groceries	159.9	174.9	189.7	203.9	222.3
Beer, wine and spirits (b)	45.5	47.6	55.1	62.4	67.8
Clothing, drapery, soft furnishings	62.8	67.8	73.7	80.4	88.6
Footwear	11.0	11.9	12.8	13.5	15.0
Hardware, china and glassware (c)	11.3	11.6	12.7	13.3	15.1
Electrical goods (d)	23.7	25.2	28.7	31.5	36.9
Furniture, mattresses, floor coverings	18.9	21.4	22.8	24.6	28.4
Chemists' goods	19.1	21.7	24.3	26.7	28.9
Newspapers, books, stationery	11.6	12.5	13.9	14.8	16.1
Other goods (e)	37.9	42.2	46.7	51.8	55.6
Total (excluding motor vehicles, etc.)	401.7	436.8	480.4	522.9	574.7
New and used motor vehicles, parts, petrol, etc. (f)	168.1	168.0	179.6	215.8	243.5
GRAND TOTAL	569.8	604.8	660.0	738.7	818.2

(a) Includes fresh fruit and vegetables, confectionery, soft drinks, ice cream, cakes, pastry, fish, etc. but excludes most delivered milk and some delivered bread. (b) Excludes sales by licensed clubs. (c) Excludes basic building materials, builders' hardware and supplies (e.g. tools of trade, paint, etc.). (d) Includes radios, television and accessories, musical instruments, domestic refrigerators. (e) Includes tobacco, cigarettes, jewellery, sporting goods, etc. but excludes grain and produce, and business machines. (f) Excludes tractors, farm machinery and implements, earthmoving equipment, etc.

For purposes of comparison the following tables show, for each of the Australian States and Territories, the total value of retail sales excluding motor vehicles, etc. and of retail sales of new and used motor vehicles, parts, petrol, etc. in each of the years 1963-64 to 1967-68.

RETAIL SALES (EXCLUDING MOTOR VEHICLES, ETC.): STATES AND TERRITORIES
(\$ million)

State or Territory	Year ended 30 June—				
	1964	1965	1966	1967	1968
New South Wales	2,260.1	2,403.7	2,519.5	2,665.6	2,838.5
Victoria	1,693.2	1,821.0	1,916.4	2,036.8	2,161.8
Queensland	797.6	855.1	897.9	960.6	1,015.7
South Australia	525.3	574.5	602.0	627.0	663.0
Western Australia	401.7	437.0	480.9	524.0	576.3
Tasmania	180.2	191.0	198.3	215.0	227.4
Australian Capital Territory	45.2	51.7	56.9	65.7	74.6
Northern Territory	(a)	21.7	24.7	28.8	34.4
Australia	(b) 5,903.3	6,355.7	6,696.6	7,123.5	7,591.7

(a) Not collected.

(b) Excludes Northern Territory.

RETAIL SALES OF MOTOR VEHICLES, PARTS, PETROL, ETC.: STATES AND TERRITORIES
 (\$ million)

State or Territory	Year ended 30 June—				
	1964	1965	1966	1967	1968
New South Wales	842.3	891.5	885.6	960.3	1,064.6
Victoria	585.1	645.7	654.0	674.1	746.1
Queensland	326.9	353.0	345.9	352.2	393.7
South Australia	212.5	238.0	220.4	214.0	239.3
Western Australia	168.6	169.0	180.9	218.2	246.6
Tasmania	70.8	75.7	77.4	79.9	85.8
Australian Capital Territory	17.2	18.5	19.6	23.8	29.7
Northern Territory	(a)	9.0	9.6	11.2	16.5
Australia	(b) 2,223.4	2,400.4	2,393.4	2,533.7	2,822.3

(a) Not collected.

(b) Excludes Northern Territory.

DELIVERIES OF NEW AGRICULTURAL MACHINERY

The statistics in this section, which cover certain types of imported and Australian-made new agricultural machinery, have been derived from quarterly returns collected from principals marketing the equipment. Deliveries represent implements and machines sent to agents or dealers by the principals or by the State distributors, plus direct sales to final users by the principals or distributors. Additional information on receipts, deliveries and stocks is available in the quarterly bulletin *New Agricultural Machinery Statistics* issued by the Commonwealth Statistician, Canberra.

DELIVERIES OF NEW AGRICULTURAL MACHINERY (a)
 (Number)

Type of implement or machine	Year ended 30 June—				
	1964	1965	1966	1967	1968
New tillage implements—					
Disc ploughs	1,285	1,237	1,265	1,183	1,135
Agricultural rippers (sub-soilers)	n.a.	n.a.	n.a.	n.a.	113
Mouldboard ploughs	(b)	26	36	14	(b)
Tine cultivators and scarifiers	544	642	601	483	640
Tine harrows (number of leaves or sections)	7,050	7,044	6,373	8,219	12,099
Disc harrows (c)	n.a.	n.a.	n.a.	n.a.	155
Rotary cultivators	347	360	446	335	327
Disc implements, other than ploughs (c)	317	219	290	328	n.a.
New seeding and fertilising machinery—					
Drills and cultivating drills	980	875	886	932	1,184
Fertiliser spreaders, other than direct drop	402	197	300	518	660
New harvesting, haymaking and silage-making machinery—					
Pick-up balers	266	156	190	193	209
Forage harvesters	25	18	31	25	13
Headers (combine harvesters)	781	755	1,084	951	787
Agricultural mowers (4 ft cut and over) (d)	572	684	759	692	641
Rakes (buck and side delivery)	457	294	353	216	(b)
Pick-up bale loaders for baled hay	n.a.	n.a.	n.a.	n.a.	90
Bale elevators and stackers	n.a.	n.a.	n.a.	n.a.	102
Grain augers	n.a.	n.a.	n.a.	n.a.	691
Other new agricultural machinery—					
Post-hole diggers (auger type)	245	250	290	260	243
Hammer mills (farm type)	97	57	82	126	(b)

n.a. denotes 'not available'.

(a) See letterpress immediately preceding table.

(b) Not available for publication.

(c) Prior to 1967-68, disc harrows

were included in 'Disc implements, other than ploughs'.

(d) Excludes flail mowers and toppers.

SALES OF NEW TRACTORS

The following table has been derived from the quarterly collection of tractor statistics from businesses which distribute the various makes of new tractors throughout Australia. The figures for sales represent the number of new tractors delivered or in transit to end-users or to manufacturers of tractor attachments. For additional information, the reader is referred to the bulletin *New Tractors: Receipts, Sales and Stocks* issued quarterly by the Commonwealth Statistician, Canberra.

SALES OF NEW TRACTORS (a)

Horsepower and shipping weight	Agricultural (b)			Non-agricultural (b)		
	Year ended 30 June—			Year ended 30 June—		
	1966	1967	1968	1966	1967	1968
WHEELED TRACTORS (number)						
Maximum power take-off horsepower—						
Up to and including 15 hp	n.a.	n.a.	(c)	n.a.	n.a.	(c)
Over 15 hp and up to 25 hp	21	22	(c)	1	4	(c)
25 hp " " 35 hp	313	296	262	55	44	77
35 hp " " 45 hp	787	776	344	211	105	210
45 hp " " 60 hp	874	507	968	19	5	35
60 hp " " 80 hp	131	287	409	4	10	(c)
80 hp " " 100 hp	32	36	(c)	37	5	(c)
Total	2,158	1,924	2,072	340	173	438
CRAWLER TRACTORS (number)						
Shipping weight—						
Over 3,000 lb and up to 6,000 lb	2	1	....	2	....	(c)
6,000 lb " " 10,000 lb	10	6	(c)	6	....	(c)
10,000 lb " " 15,000 lb	26	40	(c)	44	16	(c)
15,000 lb " " 25,000 lb	3	5	(c)	46	50	(c)
25,000 lb " " 40,000 lb	....	1	4	39	35	65
40,000 lb " " " " " "	....	1	....	28	24	(c)
Total	41	54	40	165	127	201

n.a. denotes 'not available'

(a) See letterpress immediately preceding table. (b) For 1967-68 includes wheeled tractors which are operated from in front of the engine when the vehicle is in forward motion, and articulated tractors. Figures for 1965-66 include small numbers of specialised earth-moving equipment. (c) Not available for publication.

WHOLESALE SALES AND STOCKS OF WINE AND BRANDY

WINE AND BRANDY—WHOLESALE SALES AND STOCKS

Type	Wholesale sales (a) for year ended 30 June			Stocks held by wholesalers and winemakers at 30 June		
	1966	1967	1968	1966	1967	1968
Wine—	gallons	gallons	gallons	gallons	gallons	gallons
Sherry—						
Flor	167,508	37,258	40,804	98,869	328,609	19,547
Other dry	447,836	129,577	132,409	256,154	274,399	87,964
Sweet		498,256	480,475			249,341
Dessert wines—						
Sweet white (b)	189,792	156,243	165,580	185,207	113,166	147,254
Sweet red (c)	170,528	228,195	230,965	165,568	274,399	209,881
Table wines (still unfortified)—						
Dry white	83,509	94,846	126,849	117,549	140,684	131,144
Dry red	219,869	239,385	339,034	363,711	422,256	381,332
Sweet (d)	44,830	41,361	45,518	29,038	23,654	25,803
Rose		2,804	8,074		2,647	13,060
Sparkling wines (all types) (e)—						
White	100,345	120,675	143,686	13,629	19,496	26,459
Red	6,970	8,753	13,995	2,411	2,591	3,455
Wine cocktails, etc. (f)	19,410	28,337	37,516	3,225	3,350	5,246
Vermouth	16,013	17,950	25,396	4,110	5,357	7,591
Total, Wine	1,466,610	1,603,640	1,790,301	1,239,471	1,336,209	1,308,077
Brandy	proof gallons 68,592	proof gallons 74,109	proof gallons 88,374	proof gallons 22,474	proof gallons 23,707	proof gallons 20,144

(a) Comprises sales (both local and interstate) made by wholesalers and winemakers from stocks held in Western Australia. Excludes sales to wholesalers and winemakers for resale by them, overseas exports, and sales for ships' stores. (b) Includes White Muscat, Madeira, Tokay, Marsala, etc. and, in 1965-66, Brown Muscat. See also note (c). (c) Includes Frontignac and, in 1966-67 and 1967-68, Brown Muscat. See also note (b). (d) Includes Sauternes. (e) Includes carbonated and pearl-type wines, etc. (f) Includes aperitif and tonic wines.

Each year details are obtained from winemakers, wholesale merchants, and importers, of the the quantities of the various types of wine and brandy held in stock at 30 June or sold to retailers and consumers during the previous twelve months. The survey thus covers all sales of wine and brandy by wholesalers and manufacturers in the State except sales made to other wholesalers or manufacturers for resale by them, or to overseas purchasers. Although the figures for sales in the previous table are free of duplication, they should not be regarded as showing actual consumption in Western Australia as they include sales to retailers and consumers in other States and, conversely, exclude purchases from other States by Western Australian retailers and consumers.

Chapter IX—continued

Part 3—Transport

Western Australia's main transport systems are based generally on Perth, the capital, and the principal port, at Fremantle. Subsidiary systems are centred on a number of outports north and south of Fremantle and on some inland towns.

The railway system extends from Fremantle, Perth and Midland for hundreds of miles into the mining, agricultural, pastoral and forest areas in the southern half of the State. There is also a well-developed road system in this area, and the coastal towns in the north-west and the north are connected by road with the south and with the pastoral and mining areas of the hinterland. International flights operate through the airport at Perth, which is also the centre of a comprehensive network of services to towns in Western Australia and to the capital cities of other States.

In recent years important mineral developments in the north-west have led to the provision of deep-water port facilities and the construction of railways and roads connecting them with the extensive iron-ore deposits now being exploited.

Distances by road, rail, sea and air between Perth and the other Australian State capital cities, and Darwin are shown below.

DISTANCES BETWEEN PERTH AND OTHER CAPITAL CITIES
(Miles)

Method of travel	Canberra	Sydney	Melbourne	Brisbane	Adelaide	Hobart	Darwin
Road	2,457	(a) 2,594	(a) 2,168	(a) 3,222	1,704	....	2,564
Rail	2,628	2,701	2,105	3,314	1,622	....	....
Sea (b)	....	(c) 2,140	(c) 1,681	(c) 2,638	(c) 1,343	(c) 1,806	(c) 1,841
Air	1,991	(a) 2,120	(a) 1,784	(a) 2,599	1,377	2,176	1,868

(a) Via Adelaide.

(b) Distance in nautical miles.

(c) From Fremantle.

SHIPPING

Western Australia's sea-borne trade is conducted through the Port of Fremantle and a number of outports. The outports are Geraldton, Bunbury, Busselton, Albany and Esperance in the more highly-developed south-western and southern part of the State, and Carnarvon, Exmouth, Onslow, Dampier, Point Samson, Port Hedland, Broome, Derby, Yampi and Wyndham, which serve the less closely-settled areas of the north-west and the north.

The following table shows the number and net tonnage of vessels, excluding warships and, for 1966-67, certain other vessels, entered at each port, and the tonnage of cargo discharged at and shipped from each port, during the years 1965-66 and 1966-67. The net tonnage of a vessel, expressed in tons of 100 cubic feet, represents the volume of enclosed space that can be used for cargo and passengers. Most cargoes are recorded in terms of the ton weight of 2,240 lb but some cargo, consisting mainly of bulky commodities, is recorded on the basis of the ton measurement, a unit equivalent to 40 cubic feet of space. Statistics are compiled accordingly in terms of 'tons weight' or 'tons measurement.' In order to provide a ready comparison, as in the following table, of the volume of cargo handled at the several ports or in different years, the amounts recorded in the two categories have been aggregated. In the tables on page 414, details of cargo handled at each port during 1966-67 are presented separately on the basis of 'tons weight' and 'tons measurement.'

TONNAGE OF OVERSEAS, INTERSTATE AND INTRASTATE CARGO: 1966-67
(Tons)

Port	Overseas		Interstate		Intrastate		Total		
	Weight	Measurement	Weight	Measurement	Weight	Measurement	Weight	Measurement	
DISCHARGED									
Port of Fremantle	3,899,642	252,666	627,805	256,166	89,112	22,999	4,616,559	531,831	
Other ports—									
Albany	148,509	1,755	1,807	922	65,859	3,863	216,175	6,540	
Barrow Island	5,237	.....	1,293	6	6,443	5,268	12,973	5,274
Broome	1,018	379	16	248	10,799	6,519	11,833	7,146	
Bunbury	149,142	.....	.....	10	106,881	11	256,023	21
Busselton	.....	.....	.....	.....	.....	.....	.....	.....
Carnarvon	11,017	.....	.....	.....	7,588	.....	18,605	.....
Dampier	18,010	16,619	260	4,233	23,703	14,740	41,973	35,592	
Derby	5,799	24	3	217	6,922	14,988	12,724	15,229	
Esperance	71,296	.....	34,344	.....	42,992	.....	148,632	.....
Exmouth	15,036	4,265	.....	.....	3,763	2,839	18,799	7,104
Geraldton	107,909	433	94	.....	83,780	.....	191,783	433
Onslow	.....	.....	1	.....	1,837	.....	1,838	.....
Point Samson	1,539	.....	.....	.....	1,628	2,766	3,167	2,766
Port Hedland	38,509	.....	101	.....	33,365	.....	71,975	.....
Wyndham	8,924	2,399	953	235	9,912	15,138	19,789	17,772	
Yampi	.....	.....	30,531	.....	51,353	.....	81,884	.....
Total	581,945	25,874	69,403	5,871	456,825	66,132	1,108,173	97,877	
All ports	4,481,587	278,540	697,208	262,037	545,937	89,131	5,724,732	629,708	
SHIPPED									
Port of Fremantle	2,466,039	200,068	950,812	172,618	474,435	74,622	3,891,286	447,308	
Other ports—									
Albany	325,102	21,346	.....	8	14	11	325,116	21,365
Barrow Island	1,434	.....	65,297	.....	65,854	163	132,585	163
Broome	840	2,346	72	186	3,172	2,283	4,084	4,815	
Bunbury	604,957	70,740	40,615	.....	.....	4,397	645,572	75,137
Busselton	177	1,448	.....	6,945	.....	.....	177	8,393
Carnarvon	.....	.....	.....	.....	.....	.....	.....	.....
Dampier	2,526,569	.....	.....	.....	.....	.....	2,526,569	.....
Derby	1,439	103	9	158	10,300	3,241	11,748	3,502	
Esperance	109,713	.....	.....	.....	.....	.....	109,713	.....
Exmouth	.....	.....	.....	.....	40	430	40	430
Geraldton	1,103,407	.....	9,790	10	3,774	.....	1,116,971	10
Onslow	.....	.....	.....	.....	1,403	.....	1,403	.....
Point Samson	2,418	.....	1,627	.....	2,154	496	6,199	496
Port Hedland	2,401,803	.....	4,698	.....	6,082	.....	2,412,583	.....
Wyndham	8,789	.....	2,065	462	3,415	1,928	14,269	2,390
Yampi	70,945	.....	2,853,773	.....	217	.....	2,924,935	.....
Total	7,157,593	95,983	2,977,946	7,769	96,425	12,949	10,231,964	116,701	
All ports	9,623,632	296,051	3,928,758	180,387	570,860	87,571	14,123,250	564,009	

Apart from general cargo, overseas and interstate consignments discharged were principally petroleum products, iron and steel products, rock phosphate and sulphur. Outward cargoes, with the exception of refined petroleum products and steel products shipped from the Port of Fremantle (outer harbour), consisted largely of primary products, including minerals. Cargoes shipped from the ports of Albany and Esperance comprised mainly wheat, oats and barley. At Bunbury the principal cargo was ilmenite, followed next in importance by wheat. Iron ore and wheat were the main exports from Geraldton. Timber was the principal cargo shipped from Busselton. In the northern part of the State, Yampi, Dampier and Port Hedland are the major ports for shipment of iron ore, exports of which commenced from Yampi in July 1951, from Port Hedland in June 1966 and from Dampier in August 1966. The buoyed sea terminal at Barrow Island provides facilities for the loading of crude petroleum. From other ports in the area, exports consist mainly of primary products such as livestock, meat, wool and cotton.

The State Shipping Service, inaugurated by the State Government in 1912, operates principally along the north-west and northern coasts, calling regularly at ports between Fremantle and Darwin (Northern Territory). Some voyages extend beyond Darwin around the north of Australia to other States, returning to Fremantle by way of south coastal ports. Besides general cargo the freight discharged by ships of the Service at north-west and northern ports consists mainly of refined petroleum, building and construction materials, refrigerated cargo, vehicles and livestock. Cargoes carried south to Fremantle are mainly primary products, meat, livestock and minerals.

VESSELS ENTERED AND CARGO HANDLED AT PORTS

Port	Vessels entered				Cargo handled			
	Year ended 30 June—				Year ended 30 June—			
	1966		1967 (a)		1966		1967	
	Vessels	Net tons	Vessels	Net tons	Discharged	Shipped	Discharged	Shipped
Port of Fremantle	1,562	'000 8,383	1,391	'000 8,178	'000 tons 4,966	'000 tons 3,975	'000 tons 5,148	'000 tons 4,338
Other ports—								
Albany	151	800	159	798	215	371	231	347
Barrow Island (b)	2	3	56	155	4	(c)	20	133
Broome	98	164	97	211	15	8	19	9
Bunbury	168	727	157	757	204	694	256	721
Busselton	15	17	18	36		16		9
Carnarvon	41	43	15	22	20	1	18	
Dampier	91	208	120	881	131	(c)	78	2,527
Derby	109	192	101	189	28	16	28	15
Esperance	30	153	41	216	109	54	149	110
Exmouth	30	92	18	54	20	1	26	
Geraldton	138	566	159	688	179	616	192	1,118
Onslow	71	121	71	126	2	1	2	1
Point Samson	95	167	67	124	27	19	6	7
Port Hedland	173	236	214	980	101	151	72	2,413
Wyndham	92	194	99	214	44	11	38	17
Yampi	208	1,190	185	1,267	6	2,468	82	2,925
Total	1,512	4,874	1,577	6,718	1,104	4,425	1,217	10,352
All ports	3,074	13,257	2,968	14,896	6,070	8,400	6,365	14,690

(a) Figures are not comparable with previous years due to the exclusion of non-cargo vessels and cargo vessels of less than 200 gross tons. (b) Buoyed sea terminal. (c) Less than 500 tons.

VESSELS ENTERED AT EACH PORT: 1966-67

Port	From overseas countries			From other Australian States		From other Western Australian ports	Total	
	Direct	Via other Australian States	Via other Western Australian ports	Direct	Via other Western Australian ports		Vessels	Net tons '000
Port of Fremantle	538	85	79	421	56	212	1,391	8,178
Other ports—								
Albany	35	1	7	61	1	54	159	798
Barrow Island		2	7	3	1	43	56	155
Broome	3	2	3	3	3	83	97	211
Bunbury	24	2	16	35	1	79	157	757
Busselton				2		16	18	36
Carnarvon	1		9			5	15	22
Dampier	63	3	3	3	3	45	120	881
Derby	7		6	3		85	101	189
Esperance	24		2	6	1	8	41	216
Exmouth	3	1	3			11	18	54
Geraldton	84		8	2	2	63	159	688
Onslow					2	69	71	126
Point Samson			3		3	61	67	124
Port Hedland	99	4	7	7	6	91	214	980
Wyndham	8	5		28	7	51	99	214
Yampi	11			111	3	60	185	1,267

VESSELS CLEARED FROM EACH PORT: 1966-67

Port	To overseas countries			To other Australian States		To other Western Australian ports	Total	
	Direct	Via other Australian States	Via other Western Australian ports	Direct	Via other Western Australian ports		Vessels	Net tons '000
Port of Fremantle	662	52	36	394	81	171	1,396	8,225
Other ports—								
Albany	61	8	44	12	....	34	159	798
Barrow Island	4	....	1	4	....	48	57	157
Broome	2	3	3	2	14	71	95	207
Bunbury	29	2	84	8	....	30	153	740
Busselton	....	2	1	15	....	....	18	36
Carnarvon	8	....	....	1	....	6	15	22
Dampier	48	....	1	5	....	65	119	869
Derby	5	....	5	1	....	88	99	185
Esperance	6	....	7	6	....	22	41	216
Exmouth	....	....	....	1	....	16	17	48
Geraldton	46	....	38	3	23	53	163	705
Onslow	....	....	....	....	2	69	71	126
Point Samson	4	....	....	....	6	57	67	124
Port Hedland	103	....	....	....	19	91	213	977
Wyndham	4	1	3	34	18	39	99	214
Yampi	2	....	....	152	13	17	184	1,251

In the previous tables vessels entered at and cleared from each Western Australian port during 1966-67 are classified according to the direction of the voyage on which each vessel was engaged. 'Direction' is determined by reference to the port of commencement of the inward voyage or the port of termination of the outward voyage.

Administration of Ports

The Port of Fremantle is controlled and operated by the Fremantle Port Authority. The ports at Albany and Bunbury are administered by the Albany Port Authority and the Bunbury Port Authority, which are constituted as statutory authorities. Private organisations control the ports at Yampi, Dampier and Exmouth and the buoyed sea terminal at Barrow Island. The State Government is responsible for all other ports in Western Australia, their operations being under the direction of the Harbour and Light Department.

RAILWAYS

Railways open for general and passenger traffic in the southern part of the State are operated by the Western Australian Government Railways Commission. The system is linked with railways of other States by the Commonwealth Government Trans-Australian Railway between Kalgoorlie in Western Australia and Port Pirie in South Australia. There are, in addition, private railways for the haulage of iron ore in the northern part of the State and timber in the south-west.

A map showing the railway and road services provided by the Western Australian Government Railways Commission during 1965 appeared in the *Western Australian Year Book*, No. 6—1967, facing page 384.

Origin and Development

The first railway in the Colony, built in 1871 from Busselton into the nearby forest, was a private line constructed for the transport of timber. By the end of 1900, the Colony had a railway system for general and passenger traffic which comprised 1,355 miles of government line and 277 miles of privately-owned line. The State Government system reached a maximum of 4,381 miles in 1940 but this figure has been subsequently reduced, particularly over the last decade, by the closure of certain non-paying lines. A summary of the development of railways in Western Australia appeared in the *Western Australian Year Book*, No. 7—1968 and earlier issues.



DRILLING RIG IN FREMANTLE HARBOUR

Towed from Port Arthur, Texas, U.S.A. for offshore operations in Western Australia, the oil drilling rig 'Jubilee' is shown in the Port of Fremantle Inner Harbour after arrival on 16 August 1968. The rig has been used to drill two offshore wells in the Perth Basin—Quinns No. 1 some 20 miles north of Fremantle and Gage Roads No. 1 off Rottnest Island.

At 30 June 1968 there were 4,269 miles of railway open for general and passenger traffic in Western Australia. Of this, 3,815 miles were owned and operated by the State Government and 454 miles by the Commonwealth Government. In addition a further 13 miles of privately-owned line connecting the Koolanooka iron-ore deposits to the State Government line to Geraldton is operated by the Western Australian Government Railways Commission. Other private lines comprise 17 miles operated by timber-milling organisations, 70 miles of iron-ore railway between Goldsworthy and Port Hedland and 182 miles between iron-ore deposits at Tom Price and the port of Dampier. A further private line, the 265 mile iron-ore railway between Mount Newman and Port Hedland commenced operations in January 1969.

An agreement on a proposal to construct a standard gauge railway between Kwinana and Kalgoorlie, with connecting lines in the suburban area, was negotiated between the Commonwealth and State Governments and later ratified by the Parliaments in 1961. Further reference to this agreement and the associated legislation will be found later in this Part in the section *Railway Gauges*. An official ceremony to mark the commencement of construction of the standard gauge railway was held on 5 November 1962 at a site in the Avon valley 21 miles from Perth. The inauguration of 'through' freight services between Port Pirie and Perth commenced in November 1968 following the completion of the 417 route miles of standard gauge railway between Kwinana and Kalgoorlie.

The Western Australian Government Railways Commission

The *Government Railways Act, 1904-1967* constitutes a Commission, in the person of the Commissioner of Railways, who is responsible, subject to the Minister, for the administration of the Act.

Financial procedure for the Western Australian Government Railways is basically the same as for other Departments. Receipts from railway services are paid into the Consolidated Revenue Fund, and finance for railway operations and the servicing of debt is provided from the Fund by statutory appropriations. Loan moneys, for the construction and improvement of permanent way, for the purchase of traction units and rolling stock and for other capital outlay, are advanced by the Parliament from the General Loan Fund.

There has been a significant growth in rail traffic in recent years, resulting from improvements to permanent way, the acquisition of new rolling stock including diesel railcars and heavy diesel-electric locomotives, the introduction of modern machinery and improved techniques in the Commission's workshops, the provision of modern handling facilities, the simplification of freighting methods and the installation of new signalling and communications equipment. These developments have effected a marked improvement in the finances of the system and in 1960-61 operating revenues exceeded operating expenses (excluding depreciation and interest charges) for the first time since 1945-46. This excess, including surplus earnings of the Commission's road services (see later section *Road Services*), amounted to \$2,279,516 in 1962-63, \$2,939,172 in 1963-64, \$3,766,232 in 1964-65, \$7,684,414 in 1965-66, and \$8,950,169 in 1966-67. The improvement is attributable mainly to increased earnings from the haulage of timber, wheat, wool, fertilisers and particularly in recent years, iron ore and minerals. With the haulage of iron ore from Koolanooka and Koolyanobbing, bauxite from Jarrahdale and nickel concentrates from Widgiemooltha (from deposits at Kambalda), ores and minerals in 1968 outrivalled wheat as the largest single item of freight.

The railways operated by the Commission are shown on the map of the State appearing at the back of the Year Book.

Summary of Operations

The following table gives particulars of the financial transactions, railway operations and road service operations of the Western Australian Government Railways for each of the years 1962-63 to 1966-67. It should be noted that the financial details shown include those relating to road services (see following section *Road Services*).

WESTERN AUSTRALIAN GOVERNMENT RAILWAYS (a)

Particulars	Year ended 30 June—				
	1963	1964	1965	1966	1967
FINANCE (b)					
Capital investment at 30 June (c)	\$'000 117,428	\$'000 124,034	\$'000 127,449	\$'000 133,825	\$'000 139,393
Operating revenues—					
Passenger fares	2,609	2,684	2,937	3,001	3,217
Parcels and mails	1,125	1,192	1,259	1,379	1,483
Paying goods and livestock	28,182	29,873	31,036	37,708	42,772
Miscellaneous	1,513	1,441	1,454	1,582	1,649
Total operating revenues	33,429	35,190	36,686	43,669	49,120
Operating expenses	31,150	32,250	32,920	35,985	40,170
Excess of operating revenues over expenses	2,280	2,939	3,766	7,684	8,950
Depreciation	3,922	4,049	4,354	4,669	5,341
Interest charges	5,226	5,577	6,232	7,006	8,069
Total deficit	6,868	6,687	6,820	3,991	4,459

RAILWAY OPERATIONS

Route mileage at 30 June—					
3 ft 6 in gauge	3,797	3,677	3,733	3,682	(d) 3,694
4 ft 8½ in gauge ....	....	....	....	....	247
Dual gauge ....	....	....	....	65	66
Employees at 30 June	11,929	11,508	11,390	11,520	11,354
	'000	'000	'000	'000	'000
Number of—					
Train miles run (e)	8,359	8,332	8,324	8,823	9,124
Passengers carried—					
Suburban	10,936	10,298	9,911	9,748	9,468
Country	600	516	484	419	343
Total	11,536	10,814	10,395	10,168	9,811
Tons of freight—					
Paying goods and livestock	4,793	5,187	5,229	6,384	7,873
Departmental (f)	529	521	512	452	461
Total	5,322	5,708	5,741	6,836	8,334
Ton mileage—					
Paying goods and livestock	762,274	813,319	842,066	1,020,770	1,244,067
Departmental	55,665	46,390	46,796	46,122	43,095
Total	817,939	859,709	888,862	1,066,891	1,287,162

ROAD SERVICE OPERATIONS

Route mileage at 30 June—					
Omnibus	3,240	3,256	3,732	3,730	3,572
Freighter	820	1,112	1,314	1,352	1,426
Employees at 30 June	166	174	233	244	246
Number of—	'000	'000	'000	'000	'000
Miles run—					
Omnibus	1,649	1,671	1,949	2,061	1,945
Freighter	349	546	759	941	909
Total	1,998	2,217	2,708	3,002	2,854
Passengers carried	263	251	260	255	237

(a) The railway and road service operations of The Midland Railway Company of Western Australia Limited were transferred to Western Australian Government Railways control with effect from 1 August 1964. (b) Includes financial transactions in relation to road services. (c) Including Stores Funds. (d) Includes 192 miles of 3 ft 6 in gauge line which parallel the 4 ft 8½ in gauge line. (e) Revenue and non-revenue train miles. (f) Departmental freight comprises mainly coal, oil, water, ballast, timber and rails.

Road Services

In addition to its normal railway operations the Commission provides road services for the carriage of passengers and freight.

Road services were introduced in November 1941 when, under the stress of wartime conditions, great difficulty was being experienced in the transport of essential goods, and it was therefore decided to transfer some of the passenger traffic from rail to road. This enabled a greater concentration of locomotive power on goods traffic and the haulage of heavier loads than were possible with mixed passenger and goods trains. Congestion on overloaded sections of railway was reduced and greater flexibility in train schedules resulted in more effective use of locomotives and wagons.

The road passenger services expanded considerably after the war, reaching a peak in 1952-53, when 636,171 passengers were carried and the mileage travelled was 2,125,564. From that year until 1958-59, operations showed a continuous decline as country rail services improved with the increased use of diesel electric traction. Since 1958-59, operations have increased steadily as road freighter services have been developed and passenger services improved and extended to cover routes formerly served by rail.

Some of the omnibuses employed are dual-purpose vehicles equipped with a freight compartment. Passenger vehicle trailers are used on some services to carry up to two tons of luggage, small parcels and mails. In addition to passenger-freighter vehicles, there are vehicles which carry only freight. They are used to eliminate delays to important trains at sidings and to reduce shunting operations. Freight services also operate from rail-heads to provide services to points previously connected by rail and to areas which are being developed.

Goods and Livestock Carried

The table on page 418 shows that almost 90 per cent of the operating revenues of the Western Australian Government Railways is derived from the carriage of goods and livestock. As stated earlier, these railways were constructed primarily to assist the development of the agricultural, pastoral, forestry and mining industries. The continuing importance of the system to these industries will be readily appreciated from an examination of the following table, which shows the tonnage of paying goods and livestock carried during each year in the period from 1962-63 to 1966-67. The classification used in the table is that adopted by the Railways Commission in dissecting its freight transport statistics. The actual number of livestock carried in each of the five years is given in the second part of the table.

WESTERN AUSTRALIAN GOVERNMENT RAILWAYS
TONNAGE OF PAYING GOODS (a) CARRIED

Freight classification	Year ended 30 June—				
	1963	1964	1965	1966	1967
Wheat	1,480,307	1,473,981	1,187,758	1,966,892	2,338,140
Other grain	218,877	198,065	155,917	276,028	253,812
Grain products	64,291	77,430	71,337	54,281	43,757
Chaff	6,472	6,271	5,977	5,657	6,208
Fertilisers	500,407	521,910	539,718	587,486	664,357
Fruit and vegetables	112,800	96,838	112,154	102,994	98,790
Wool	75,517	89,871	86,018	100,182	109,258
Timber	311,908	363,069	359,387	367,536	363,545
Firewood	2,811	1,621	1,914	729	284
Coal, coke, shale and charcoal (b)	681,793	704,244	757,836	678,385	590,994
Ores and minerals	345,691	626,560	868,019	1,101,842	2,264,298
Oil in tank wagons	179,140	183,781	198,046	214,752	237,571
Other classifications	687,931	728,922	784,308	819,909	804,838
Livestock (†)	124,808	114,905	100,841	106,836	97,126
Total	4,792,753	5,187,468	5,229,230	6,383,509	7,872,978
(†) Number of livestock carried—					
Sheep	1,800,264	1,374,837	1,429,584	1,619,214	1,523,968
Cattle	105,571	120,043	88,292	85,007	73,081
Pigs	131,530	101,235	94,044	102,732	107,297
Horses	1,384	1,542	1,285	898	755

(a) Including livestock.

(b) Predominantly local coal.

Railways Rolling Stock

The following table shows the numbers of the various categories of rolling stock of the Western Australian Government Railways in service at 30 June of the years 1963 to 1967.

WESTERN AUSTRALIAN GOVERNMENT RAILWAYS
ROLLING STOCK IN SERVICE

Category	At 30 June—									
	1963	1964	1965	1966	1967	1963	1964	1965	1966	1967
	3 ft 6 in gauge					4 ft 8½ in gauge				
Locomotives—										
Steam	270	244	240	238	237	....	....	....	....	....
Diesel—										
Electric	75	75	89	90	90	....	....	5	8	19
Mechanical	4	4	4	4	4	....	....	....	....	....
Hydraulic	5	5	8	11	11	....	....	....	....	....
Total	354	328	341	343	342	....	....	5	8	19
Coaching stock—										
Passenger cars	169	160	119	117	94	....	....	....	....	....
Sleeping cars	60	59	62	59	59	....	....	....	....	....
Lounge, buffet, and dining cars	9	9	11	11	11	....	....	....	....	....
Rail motor cars	38	38	37	37	37	....	....	....	....	....
Rail motor trailers	22	22	25	27	26	....	....	....	....	....
Service vehicles (a)	12	12	12	12	12	....	....	....	....	....
Total	310	300	266	263	239	....	....	....	....	....
Goods stock (b)	11,722	11,704	12,100	11,994	11,842	....	....	45	124	447
Service stock (c)	917	922	915	922	933	....	....	106	106	108

(a) Includes inspection, track recorder and special cars. (b) Includes brake vans, goods wagons, livestock wagons, mineral wagons, etc. (c) Includes ballast wagons, workmen's vans, ash disposal wagons, water tanks, etc. Excludes service vehicles shown under *Coaching stock*; see note (a).

Commonwealth Government Railways

The Commonwealth Government Railways comprise four separate systems. These are the Trans-Australian Railway, operating partly in Western Australia and partly in South Australia; the Central Australia Railway, partly in South Australia and partly in the Northern Territory; the North Australia Railway, wholly in the Northern Territory; and the Australian Capital Territory Railway.

Construction of the Trans-Australian Railway was begun at Port Augusta, the original South Australian terminus of the line, in 1912 and work was completed in 1917. Of the total length of 1,108 miles between Kalgoorlie and Port Pirie (South Australia), 454 miles are in Western Australia. Although statistical details of activities on each of the four systems are available, it is not possible to give separate particulars of the operations in Western Australia of the Trans-Australian Railway. Some statistics relating to the Commonwealth Government Railways are shown in the next table.

Operations of Government Railways in Australia

The following table gives a summary of operations during the year ended 30 June 1967 on each of the railway systems owned by the State and Commonwealth Governments.

It will be noted that particulars of route miles shown for the New South Wales and Victorian systems differ from the details given for those States in the table in the next section *Railway Gauges*, which is compiled according to the State or Territory in which the several lengths of line are situated. The Victorian system includes lines extending into New South Wales, the aggregate length of such lines in New South Wales being 204 miles. The New South Wales system includes 69 miles of line situated in Queensland.

In 1962, the opening of a new uniform gauge (4 ft 8½ in) railway between Melbourne (Victoria) and Albury, on the border between Victoria and New South Wales, completed the standard gauge link between Melbourne and South Brisbane (Queensland). The

section between South Brisbane and Albury is operated by the New South Wales Government Railways, and the remainder of the route by the Victorian Government Railways. Standardisation projects (4 ft 8½ in gauge) now proceeding are designed to link Sydney with Perth and Fremantle through Broken Hill (New South Wales), Port Pirie (South Australia), and Kalgoorlie (Western Australia). The overall length of the Sydney-Perth railway, expected to be opened towards the end of 1969, is 2,442 miles.

GOVERNMENT RAILWAYS IN AUSTRALIA—SUMMARY OF OPERATIONS, 1966-67

Railway system of—	Route mileage at 30 June	Revenue train miles run	Passenger journeys	Goods and livestock carried	Gross earnings	Average number of employees (a)
New South Wales	6,055	'000 37,638	'000 255,284	'000 tons 29,275	\$'000 213,335	45,489
Victoria	4,231	20,035	146,268	12,075	104,477	(b) 27,595
Queensland	5,730	16,876	26,372	10,185	87,864	24,747
South Australia	2,480	6,584	15,432	4,876	30,220	8,127
Western Australia	3,815	8,316	9,811	7,873	48,008	11,419
Tasmania	500	1,275	1,197	1,079	6,588	2,240
Commonwealth—						
Trans-Australian	1,108	2,034	262	552	12,824	1,888
Central Australia	818	789	22	2,212	5,854	1,112
North Australia	317	120	....	129	584	169
Australian Capital Territory	5	15	87	228	167	55
Australia	25,059	93,682	454,735	68,484	509,920	122,841

(a) Excluding construction staff except for Victoria where construction staff are included.

(b) See footnote (a).

Railway Gauges

The following table shows the route mileage of government railways of each gauge in each of the Australian States and Territories at 30 June 1967. Except where otherwise indicated, the mileages shown relate to lines owned by the several State railway authorities.

GOVERNMENT RAILWAYS IN EACH STATE AND TERRITORY OF AUSTRALIA
ROUTE MILEAGE OPEN AT 30 JUNE 1967

State or Territory	Route miles of gauge—					Total route miles
	5 ft 3 in	4 ft 8½ in	3 ft 6 in	2 ft 6 in	2 ft 0 in	
State systems in—						
New South Wales	(a) 204	6,055	....	....	....	6,259
Victoria	(b) 3,816	202	....	9	....	4,027
Queensland ....	....	(c) 69	5,631	....	30	5,730
South Australia	1,651	....	829	....	....	2,480
Western Australia ....	....	313	(d) 3,502	....	....	3,815
Tasmania ....	....	....	500	....	....	500
Commonwealth systems in—						
South Australia ....	....	871	428	....	....	1,299
Western Australia ....	....	454	....	....	....	454
Northern Territory ....	....	....	490	....	....	490
Australian Capital Territory ....	....	5	....	....	....	5
Total route miles	5,671	7,969	11,380	9	30	25,059

(a) Part of the Victorian railway system.

(b) Excludes 202 miles of 5 ft 3 in gauge line which roughly parallel the uniform gauge line between Melbourne and Albury.

(c) Operated as part of the New South Wales railway system.

(d) Excludes 192 miles of 3 ft 6 in gauge line which parallel the 4 ft 8½ in gauge line and 66 miles of 3 ft 6 in/4 ft 8½ in dual gauge line which are included in the 4 ft 8½ in gauge line.

Standardisation of gauges on main trunk routes throughout Australia and on some other lines has been the subject of inquiries by the Commonwealth Government and of agreements between the Commonwealth and some States. The principle of standardisation was accepted at a Premiers' Conference in August 1945 following an investigation instituted by the Commonwealth Government in March 1944 and the submission of a favourable report in March 1945. The use of the 4 ft 8½ in gauge was recommended for adoption in a unification plan, one of the projects in which was to be the construction

of a line from the port of Fremantle through Perth to Kalgoorlie. Approval was given to the making of a survey for a route, and field work began in October 1945. The work was continued until December 1947, when it was abandoned pending agreement between the Governments of the Commonwealth and the State on the provision of finance for the unification scheme. In the years immediately following the second World War it became apparent that considerable expenditure would be necessary on the rehabilitation of the Western Australian Government Railways. The urgency and the magnitude of this undertaking were such that all the Department's available resources of money, labour and materials were absorbed in the programme and, in these circumstances, works associated with the unification plan could not be contemplated but, where possible, works connected with the restoration of the 3 ft 6 in system were so designed as to make provision for later conversion to the standard gauge.

In March 1956, a committee consisting of members of the Federal Parliament was appointed to re-examine the matter of standardisation. Among its recommendations, submitted in October 1956 was the provision of the standard gauge line between Fremantle and Kalgoorlie, but no immediate action was taken to carry out this work.

During the 1960 session, the Western Australian Parliament passed the Broken Hill Proprietary Company's Integrated Steel Works Agreement Act ratifying an agreement between the Government and the Company relating to the establishment of an integrated iron and steel industry at Kwinana on the coast south of Fremantle. The Act made the operation of the agreement contingent upon the passage of legislation by the State and Commonwealth Parliaments to provide for the financing, construction and completion before 31 December 1968 of a standard gauge railway between the works site at Kwinana and the terminus of the Trans-Australian Railway at Kalgoorlie. Accordingly the Commonwealth Parliament passed the *Railway Agreement (Western Australia) Act 1961* extending to the State financial assistance for the project. The State Parliament approved this agreement by the *Railway Standardisation Agreement Act, 1961* and gave authority for the construction of the railway by means of the *Railway (Standard Gauge) Construction Act, 1961*. Work on route surveys was begun in 1961 and the construction of earthworks commenced on 5 November 1962. Basic planning and all major surveys required for the project were completed during 1965. The 3 ft 6 in portion of the dual-gauge route between Midland and Northam along the Avon River valley was commissioned for general and passenger traffic on 13 February 1966. In October of the same year, haulage of grain on the standard gauge railway commenced between Merredin and the Port of Fremantle and the first train load of iron ore from Koolyanobbing to Kwinana was hauled in April 1967. The standard gauge line from Kwinana to Kalgoorlie was linked with the Trans-Australian Railway to Port Pirie (South Australia) on 3 August 1968, enabling 'through' freight services to commence in November 1968.

ROADS AND ROAD TRAFFIC

Work connected with road construction and maintenance and associated projects in Western Australia is undertaken by the State Government, through the Main Roads Department, and by local government authorities, comprising City Councils, Town Councils and Shire Councils.

Under the provisions of the Main Roads Act, the Main Roads Department was established in 1930 to replace the Main Roads Board originally constituted as a central road authority in 1926. The Department operates under the *Main Roads Act, 1930-1967* and is administered by a Commissioner of Main Roads responsible to the Minister for Works. The Act makes provision for public roads in the categories of 'main' roads, 'controlled-access' roads and 'developmental' roads. An additional category, that of 'important secondary' roads, is used by the Department in determining its works programme.

Main roads are those which provide communication between a large producing area, either actual or potential, and its market or nearest port or railway station; between two or more such areas; between large centres of population; or between the capital

city and a large producing area or a large centre of population. Controlled-access roads are those which do not permit direct access from abutting property and may be entered or departed from only at certain selected road connections located at points which are considered to serve best the traffic for which the controlled-access road was designed. Developmental roads are those which serve to develop an area or to increase its development. Important secondary roads are those which, though originally classified as developmental, have come to be used consistently by through traffic and therefore warrant a special allocation of funds by the Main Roads Department. The Act provides that, on the recommendation of the Commissioner, any road may be proclaimed a main road and any main road may cease to be a main road.

The construction and maintenance of main roads and controlled-access roads are the responsibility of the Main Roads Department. The Department also makes substantial financial provision for the construction and maintenance of important secondary roads and for the construction of developmental roads. The construction and maintenance of strategic roads and roads of access to Commonwealth property is undertaken by the Department for the Commonwealth Government.

Within its own district, each local government authority is responsible for the provision and upkeep of roads other than those provided by the Main Roads Department. In addition, the local authority is required by the Main Roads Act to maintain any developmental road situated in its district.

The following table shows the length of public roads of each type of surface, and of unsurfaced public roads, at 30 June 1967, classified according to Statistical Division (see map of Western Australia following Index). Included in the total are 3,428 miles of main roads, 7 miles of controlled-access road, 7,958 miles of important secondary roads and 43,930 miles of developmental roads.

ROADS OPEN FOR GENERAL TRAFFIC AT 30 JUNE 1967
MILEAGE CLASSIFIED ACCORDING TO STATISTICAL DIVISION

Statistical Division	Paved surface			Unpaved			Grand total
	Bitumen (a)	Gravel and other surfaces	Total	Formed (b)	Unformed (c)	Total	
Perth Statistical Division	3,386	711	4,097	156	579	735	4,832
Other Divisions—							
South-West	2,133	3,880	6,013	4,038	5,769	9,807	15,820
Southern Agricultural	1,628	3,455	5,083	6,787	2,444	9,231	14,314
Central Agricultural	2,967	6,372	9,339	8,984	(d) 3,604	12,588	(e) 21,927
Northern Agricultural	1,603	4,745	6,348	6,051	3,296	9,347	15,695
Eastern Goldfields	1,237	2,277	3,514	5,063	5,167	10,230	13,744
Central	221	348	569	6,490	(d) 1,642	8,132	(e) 8,701
North-West	220	164	384	3,471	(d) 1,361	4,832	(e) 5,216
Pilbara	90	526	616	2,190	(d) 640	2,830	(e) 3,446
Kimberley	321	715	1,036	2,516	1,860	4,376	5,412
Total	10,420	22,482	32,902	45,590	25,783	71,373	(e) 104,275
WESTERN AUSTRALIA	13,806	23,193	36,999	45,746	(d) 26,362	72,108	(e) 109,107

(a) Includes short lengths of concrete surface aggregating 5 miles, 33 chains. (b) Comprises roads, mainly of natural surfaces, formed but not metalled or otherwise prepared. (c) Roads unprepared except for certain clearing. (d) Particulars are incomplete as information for some Shires is not available. (e) See note (d).

Vehicle Registration, Licences and Traffic Control

The *Traffic Act, 1919-1968* provides for the registration of vehicles, the issue of licences and the regulation of traffic throughout the State, and prescribes the fees payable in respect of the several types of licences required.

In Western Australia there is no single authority responsible for the licensing of vehicles. The Traffic Branch of the Police Department licences vehicles in the Metropolitan Traffic Area, which at 31 December 1968 comprised the Cities of Perth, Fremantle, Melville, Nedlands, South Perth and Subiaco; the Towns of Claremont, Cottesloe, East

Fremantle, Midland and Mosman Park; the Shires of Armadale-Kelmscott, Bassendean, Bayswater, Belmont, Canning, Cockburn, Gosnells, Kwinana, Peppermint Grove, Perth and Rockingham; and parts of the Shires of Mundaring and Swan-Guildford. Outside the Metropolitan Traffic Area each local government authority is responsible for the licensing of vehicles in its own district. (From 1 January 1969 the licensing of vehicles in the Shires of Broome and West Kimberley became the responsibility of the Police Department; see further reference on page 426).

The Traffic Act provides that the issue of drivers' and riders' licences and used car dealers' licences throughout the State shall be the function of the Police Department.

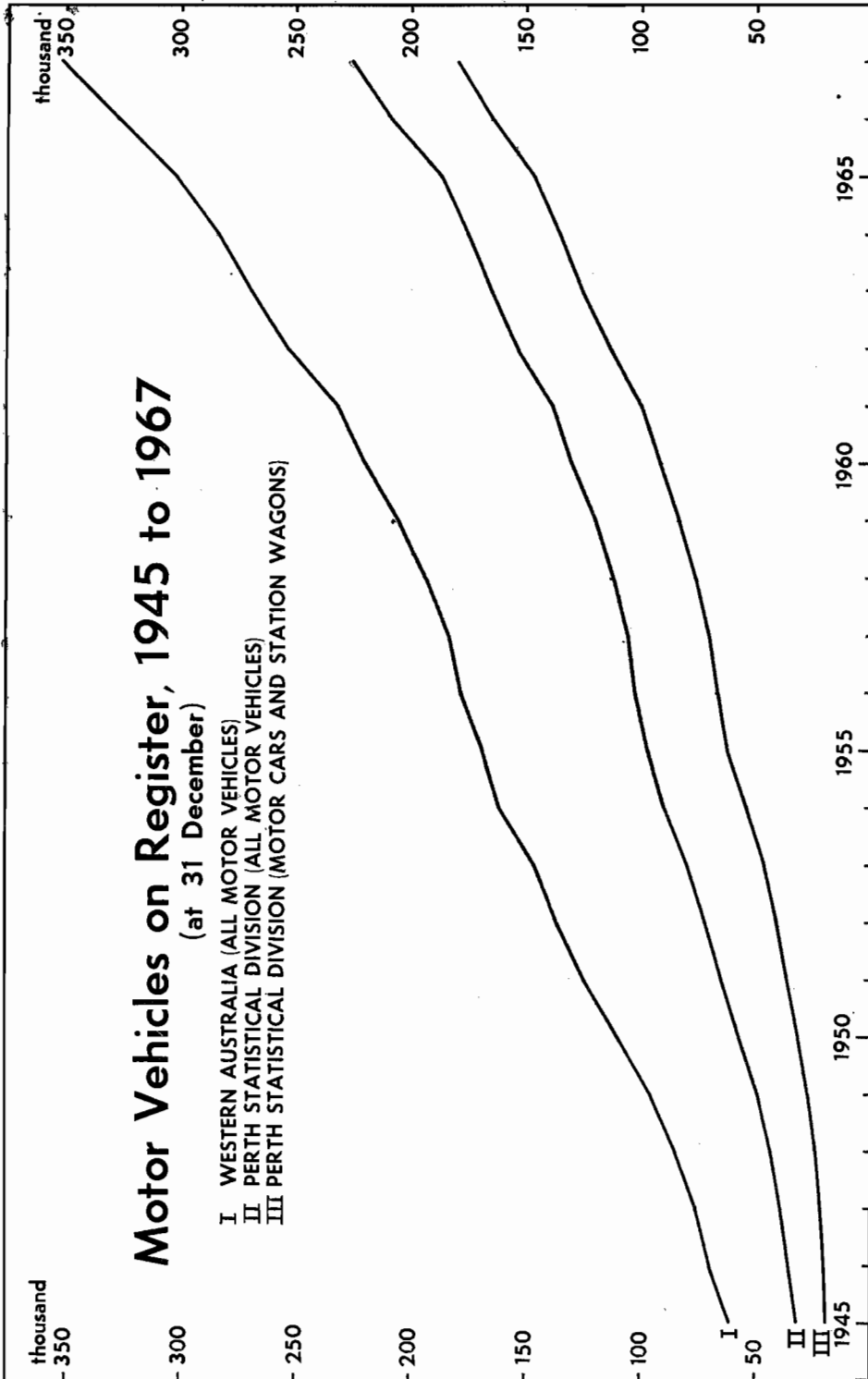
The following table contains particulars of the number of motor vehicles, classified according to type, on the register at 30 June in each of the years from 1963 to 1967. It also shows the net amounts collected from motor vehicle registrations and fees in the Metropolitan Traffic Area and in the rest of the State, as well as revenue from drivers', riders' and similar licences and fees throughout the State. Vehicles owned by the Commonwealth Government are not licensed under the Traffic Act and are excluded from the figures shown. At 30 June 1967 there were in Western Australia 1,712 Commonwealth Government-owned vehicles (other than those of the defence services) listed with the Commonwealth Registry, Canberra. They comprised 430 motor cars and station wagons, 1,247 utilities, vans and trucks, 16 omnibuses and 19 motor cycles.

MOTOR VEHICLES ON REGISTER AND NET FEES RECEIVED

Particulars	Year ended 30 June—				
	1963	1964	1965	1966	1967
METROPOLITAN TRAFFIC AREA					
Number on register at end of year (a)—					
Motor cars and station wagons	114,459	127,393	136,719	148,505	166,032
Utilities, vans, trucks and omnibuses	28,386	29,419	30,025	32,483	35,595
Motor cycles (including motor scooters)	8,205	7,403	6,388	6,030	6,194
Total	151,050	164,215	173,132	187,018	207,821
Revenue from registrations and fees \$'000	3,705	4,213	4,591	5,464	6,224
REST OF STATE					
Number on register at end of year (a)—					
Motor cars and station wagons	56,101	61,585	65,893	70,952	74,487
Utilities, vans, trucks and omnibuses	46,359	47,701	48,238	50,780	52,066
Motor cycles (including motor scooters)	3,437	3,041	2,844	2,731	2,687
Total	105,897	112,327	116,975	124,463	129,240
Revenue from registrations and fees \$'000	2,881	3,255	3,491	4,146	4,660
WESTERN AUSTRALIA					
Number on register at end of year (a)—					
Motor cars and station wagons	170,560	188,978	202,612	219,457	240,519
Utilities, vans, trucks and omnibuses	74,745	77,120	78,263	83,263	87,661
Motor cycles (including motor scooters)	11,642	10,444	9,232	8,761	8,881
Total	256,947	276,542	290,107	311,481	337,061
Revenue from—					
Motor vehicle registrations and fees (b) \$'000	6,586	7,467	8,081	9,610	10,884
Drivers, riders, etc. licences and fees \$'000	611	741	785	1,059	1,252

(a) Excludes vehicles owned by the Commonwealth Government. Excludes also such vehicles as tractors, trailers and industrial (on site) equipment. (b) For further details see table on page 251.

Traffic control in general is exercised by the Police Department in the Metropolitan Traffic Area, except for certain powers in relation to the parking of vehicles conferred on the Perth City Council by the *City of Perth Parking Facilities Act, 1956-1965*. Outside the Metropolitan Traffic Area, control is vested by the Traffic Act in the local government authorities, each of which is required by the Act to appoint at least one traffic inspector for its district.



In June 1965, a Departmental Committee was appointed by the State Government to investigate country traffic control, and to consider and report upon the necessity for the establishment of a single traffic authority throughout the State responsible for traffic control only; licensing of vehicles only; or both functions.

The majority of the committee, in a report which was presented in April 1966, recommended that 'the Police Department be established as the sole authority responsible for the enforcement of the Traffic Act throughout the State'. A further majority recommendation was to the effect that 'licensing of vehicles throughout the State be made the responsibility of a single authority and that the Commissioner of Police is the appropriate authority to assume this responsibility.' Although the recommendations were not adopted by the Government, it was decided that a local authority exercising vehicle licensing and traffic control powers in any territory outside the Metropolitan Traffic Area might voluntarily transfer these powers to the Police Department. Legislative authority for any such transfer was given in the *Traffic Act Amendment Act, 1967* which provides that if a local authority, by resolution of its Council, so requires, the Minister may, by notice in the *Government Gazette*, confer on the Commissioner of Police all the powers and duties imposed on the local authority by the Traffic Act, other than those relating to road construction. The Shire Councils of Broome and West Kimberley were the first local government authorities to avail themselves of this provision, and the transfer of powers became effective from 1 January 1969.

Finance for Roads

The principal source of revenue for road works in Western Australia is in the form of Commonwealth financial assistance authorised by a series of Acts, the first of which, the Main Roads Development Act, was passed in 1923.

Reference is made in earlier issues of the *Official Year Book of Western Australia* to the main provisions of the *Commonwealth Aid Roads Act 1954*, the *Commonwealth Aid Roads (Special Assistance) Act 1957* and the *Commonwealth Aid Roads Act 1959*. The legislation currently in operation for the provision of grants to the States for or in connection with roads is the *Commonwealth Aid Roads Act 1964*.

The *Commonwealth Aid Roads Act 1964*, which was assented to on 26 May 1964, became operative on 23 June 1964. It supersedes the *Commonwealth Aid Roads Act of 1959* and authorises the Commonwealth to grant financial assistance to the States in relation to roads during the period of five years commencing on 1 July 1964. This assistance takes the form of a basic grant aggregating \$660 million for the five-year period, with an additional grant of \$90 million. The basic grant increases uniformly each year from \$124 million in 1964-65 to \$140 million in 1968-69. After payment to Tasmania of 5 per cent of the basic grant for each year, the balance is allocated among the States in the proportion of one-third according to population, one-third according to area and one-third according to the number of motor vehicles registered. The additional grant, which increases uniformly from \$6 million in the first year to \$30 million in the fifth year, is a conditional one dependent on a State's expenditure on roads from its own resources. Where this expenditure in any year exceeds the corresponding amount spent in 1963-64 (\$5,373,834 in the case of Western Australia), the State is entitled to receive a grant equal to the amount of the excess, or its quota of the additional grant for that year, whichever is the less. A State's quota of the additional grant is determined on the same principle as that used in allocating the basic grant.

The Act continues the requirement of earlier legislation that not less than two-fifths of the moneys paid to a State in respect of any year shall be spent on the construction of rural roads or the purchase of road-making plant for use in connection with rural roads, which it defines as 'roads in rural areas . . . other than highways, trunk roads and main roads'.

The receipt and distribution by the State of moneys for roads and associated works are dealt with in a number of accounts, among the more important of which are the Metropolitan Traffic Trust Account, the Central Road Trust Fund, the Main Roads Trust Account, and the Roads Maintenance Trust Fund.

A Central Road Trust Fund account was opened at the Treasury on 1 January 1960, in accordance with the provisions of the Traffic Act, to record transactions in connection with the additional grant provided for in the Commonwealth Aid Roads legislation. The *Traffic Act, 1919-1968* requires the Commissioner of Police to pay into the Fund from the Metropolitan Traffic Trust Account the balance remaining in the latter after making, or providing for, specified payments. Other revenues accruing to the Fund are those derived from local government authorities outside the Metropolitan Traffic Area, which are required to contribute the amount of their collections of vehicle licence fees in excess of such receipts in 1958-59; portion of the revenue throughout the State from drivers' and riders' licences; and the State's quota of the additional grant from the Commonwealth.

The Central Road Trust Fund is administered by the Commissioner of Main Roads who is directed in terms of the Traffic Act to make payments from the Fund to local government authorities by way of monthly instalments. It is provided that the whole of the disbursements to local authorities from the Fund shall be spent on road construction which, for the purposes of the Act, includes the purchase of road-making plant. The balance of the moneys remaining in the Fund for any financial year is paid into the Main Roads Trust Account.

The revenue of the Metropolitan Traffic Trust Account consists of the amount received by the Commissioner of Police as fees for the issue, renewal and transfer of vehicle licences in the Metropolitan Traffic Area. The Act provides that the Commissioner of Police shall make payments from the Account to each local authority in the Metropolitan Traffic Area, the whole of such moneys to be spent by the authorities on road construction.

Other State moneys used for road purposes are the contributions paid to the Main Roads Trust Account by the Commissioner of Transport to meet the cost of maintaining and improving roads used by omnibuses and commercial vehicles licensed by the Department.

Additional finance for roads became available under the *Road Maintenance (Contribution) Act, 1965*, which came into operation on 1 April 1966. The Act provides that the owner of every vehicle carrying goods for hire or reward, or in connection with a trade or business, and having a load capacity in excess of 8 tons, shall submit a monthly return of mileage travelled and shall pay a charge to be applied to the maintenance of roads. The Act specifies the rate of the charge as five-eighteenthths of a cent per ton-mile, calculated on the basis of the tare weight plus two-fifths of the load capacity. Moneys received under the Act and paid into the Roads Maintenance Trust Fund to 30 June 1968 totalled \$5.81 million.

Local government expenditure on roads is financed from a number of sources. These comprise vehicle licence fees, Commonwealth and State moneys received by way of disbursements made by the Commissioner of Main Roads, amounts levied in the form of general rates, and the proceeds of local government loans raised for road purposes. Under the provisions of the *Traffic Act Amendment Act (No. 2), 1964*, each local government authority outside the Metropolitan Traffic Area continues to retain the fees collected for motor vehicle licences up to an amount equal to its collections in 1958-59 and is required to spend on road construction at least three-quarters of the amount so retained. Net revenues received by local government authorities from the Central Road Trust Fund, the Main Roads Trust Account and the Metropolitan Traffic Trust Account are shown in the table on page 259.

In addition to grants made under the Commonwealth Aid Roads legislation, the Commonwealth Government provided financial assistance, during the six-year period ended 30 June 1967, in terms of a series of Western Australian Grant (Beef Cattle Roads) Acts, the first of which was passed in 1961. The aim of this assistance was to improve the standard of roads used for the transport of beef cattle in the Kimberley. During the period of the programme almost \$17 million was spent, the State Government matching Commonwealth contributions on a dollar for dollar basis. An extension of Commonwealth financial assistance is authorised by the *States Grants (Beef Cattle Roads) Act*

1968. The Act provides for a contribution of up to \$9.5 million as Western Australia's share of funds for a further programme of construction during a period of seven years commencing on 1 July 1967. The grants are again conditional upon equal expenditure by the State.

ROAD PASSENGER TRANSPORT SERVICES

Motor omnibus and trolley-bus services (as well as a passenger ferry service) in the metropolitan area are operated by the Metropolitan (Perth) Passenger Transport Trust, constituted under the *Metropolitan (Perth) Passenger Transport Trust Act, 1957-1966*. For the purposes of the Act, the metropolitan area is defined by a proclamation of 1 May 1958 as being 'all the land within a circle having a radius of 30 miles from the Perth Town Hall' and, in addition, an area bounded by the South Western Highway and the ocean, extending southward to an east-west line one mile south of the town of Pinjarra.

Road transport outside the metropolitan area is provided by the railways road services (see pages 418-9), which cover long-distance routes between Perth and country centres; by the Eastern Goldfields Transport Board, which serves the Kalgoorlie-Boulder urban area under an agreement with the Kalgoorlie and Boulder Town Councils and the Kalgoorlie Shire Council; and by privately-owned omnibus services, which operate mainly in and around country centres.

OMNIBUS SERVICES (a)

Year ended 30 June—	Route miles operated	Omnibuses at end of year	Omnibus miles run '000	Passengers carried '000	Employees at end of year	Operating revenues (b) \$'000	Operating expenses \$'000	Depreciation \$'000	Interest \$'000
METROPOLITAN (PERTH) PASSENGER TRANSPORT TRUST (c)									
1963	522	560	15,693	50,983	1,541	4,752	5,049	379	370
1964	554	573	15,761	49,899	1,626	5,143	5,147	485	365
1965	575	590	16,519	49,967	1,685	5,169	5,386	584	386
1966	614	626	17,893	52,268	1,759	5,622	6,095	601	408
1967	626	653	18,708	53,126	1,764	6,676	6,529	581	426
WESTERN AUSTRALIAN GOVERNMENT RAILWAYS									
1963	3,240	52	1,649	263	128	348	414	31	12
1964	3,256	50	1,671	251	130	387	427	39	14
1965	3,732	65	1,949	260	140	491	495	52	23
1966	3,730	60	2,061	255	140	529	580	60	26
1967	3,572	64	1,945	237	137	542	597	75	33
EASTERN GOLDFIELDS TRANSPORT BOARD									
1963	20	12	222	900	16	62	58	8	....
1964	20	12	162	757	14	52	54	8	....
1965	14	12	171	675	13	52	54	8	....
1966	15	12	171	656	14	50	59	3	....
1967	15	12	185	684	14	57	60	5	....
PRIVATE									
1963	1,322	54	1,088	1,696	74	270	241	41	3
1964	1,080	54	978	1,425	67	236	242	39	4
1965	616	37	791	1,446	45	159	155	20	3
1966	628	37	752	1,379	48	148	155	15	1
1967	4,223	41	847	1,431	51	238	(d)	30	3

(a) Includes operations of trolley-buses. Excludes school transport services and tourist services. and subsidies only.

(c) For passenger ferry operations, see page 432.

(b) Passenger fares. (d) Not available.

In certain country areas, children are taken to and from school by motor bus at government expense. In 1967 the cost to the Government of school transport services was \$2,607,323. The number of omnibuses engaged was 673. They travelled a daily total of 44,848 miles and carried 23,641 children daily.

MOTOR VEHICLE USAGE

Some information on the usage of motor vehicles was obtained in a sample survey conducted throughout Australia by the Commonwealth Bureau of Census and Statistics in November 1963. The sample comprised 19,676 vehicles, of which 2,742 were cars or station wagons. Because the survey results are based on a sample, they are subject to sampling variability and may therefore differ somewhat from the results that would have been obtained from a complete enumeration of all registered motor vehicles. The principal figures relating to cars and station wagons are shown in the following table. They are quoted from a preliminary report on the survey and are subject to revision. Further details, including particulars relating to goods-carrying vehicles, appear in *Survey of Motor Vehicle Usage, 1963—Preliminary Bulletin: States and Territories* published by the Commonwealth Statistician, Canberra.

SURVEY OF MOTOR VEHICLE USAGE, 1963
CARS AND STATION WAGONS: STATES AND TERRITORIES
(Preliminary estimates)

	N.S.W. (a)	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	Aust.
All cars and station wagons on register (b)—								
Number on register (c)	880,600	707,200	304,400	246,700	170,800	78,400	6,000	2,394,100
Average annual mileage per vehicle miles	8,580	8,650	7,950	8,180	9,090	8,460	8,390	8,510
Business mileage—proportion of all mileage	32.5	29.8	28.1	25.0	26.6	31.4	24.4	29.9
Cars and station wagons, by business mileage (d)—								
Proportion with no business mileage per cent	67.4	66.8	71.3	73.1	73.3	70.2	78.2	68.9
Proportion with business mileage.... per cent	32.6	33.2	28.7	26.9	26.7	29.8	21.8	31.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cars and station wagons, by use for travel to and from work (d)—								
Proportion not used	25.6	28.0	31.5	28.6	24.3	23.0	28.9	27.2
Proportion used on most working days	58.8	57.0	52.8	53.3	62.2	62.4	55.6	57.3
Proportion used on occasional working days	15.6	15.0	15.7	18.1	13.5	14.6	15.5	15.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cars and station wagons in metropolitan and non-metropolitan areas (d) (e)—								
Proportions of totals—								
Metropolitan	54.8	67.0	45.3	61.0	71.5	38.8	61.9	58.5
Non-metropolitan	45.2	33.0	54.7	39.0	28.5	61.2	38.1	41.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Average annual mileage per vehicle—								
Metropolitan	9,070	8,600	9,050	7,760	9,150	8,930	9,130	8,770
Non-metropolitan	8,960	9,160	7,330	9,330	9,400	8,390	7,640	8,760
All vehicles	9,020	8,780	8,110	8,370	9,220	8,600	8,560	8,760
Business mileage, proportion of total—								
Metropolitan	30.4	27.9	34.6	25.5	25.6	38.3	23.9	29.2
Non-metropolitan	35.1	33.5	21.5	24.4	29.1	26.8	26.8	30.9
All vehicles	32.5	29.8	28.1	25.0	26.6	31.4	24.9	29.9

(a) Includes Australian Capital Territory. (b) Includes vehicles in dealers' ownership. (c) Average of the numbers on the register in each month of 1963. (d) Excludes vehicles in dealers' ownership. (e) Address at registration.

ROAD TRAFFIC ACCIDENTS

Statistics of road traffic accidents are prepared from information concerning accidents in public thoroughfares, as reported to officers of the Police Department in the Metropolitan Traffic Area and, outside that Area, to traffic inspectors employed by local government authorities and/or police officers. Accidents involving casualties are those which

result in the death of any person within a period of thirty days after the accident, or in which any person suffers bodily injury to an extent requiring surgical or medical treatment.

**ROAD TRAFFIC ACCIDENTS AND CASUALTIES
WESTERN AUSTRALIA AND AUSTRALIA**

Particulars	Year ended 31 December—				
	1963	1964	1965	1966	1967
WESTERN AUSTRALIA					
Accidents involving casualties	4,057	4,062	4,170	4,346	4,659
Number of persons killed—					
Total	198	222	252	253	256
Per 100,000 of mean population	25	27	30	30	29
Number of persons injured—					
Total	5,399	5,450	5,638	5,997	6,426
Per 100,000 of mean population	685	674	682	706	733
AUSTRALIA					
Accidents involving casualties	49,465	53,554	55,932	55,538	57,253
Number of persons killed—					
Total	2,598	2,966	3,164	3,242	3,166
Per 100,000 of mean population	24	27	28	28	27
Number of persons injured—					
Total	67,880	74,258	77,723	77,837	80,021
Per 100,000 of mean population	620	665	682	671	677

In the next table road traffic accident casualties which occurred in Western Australia during the five years ended 31 December 1967 are classified according to type of road user. The figures shown in the category 'Other' refer to such persons as riders of horses and drivers of animal-drawn vehicles.

ROAD TRAFFIC ACCIDENTS—CASUALTIES ACCORDING TO TYPE OF ROAD USER

Type of road user	Year ended 31 December—				
	1963	1964	1965	1966	1967
PERSONS KILLED					
Drivers of motor vehicles	71	91	97	101	113
Motor cyclists	19	9	12	4	6
Pedal cyclists	8	8	13	9	4
Passengers—					
Pillion	2	2	3	....	....
Other	48	69	76	88	75
Pedestrians	50	43	51	51	58
Other	....	....	....	....	....
Total	198	222	252	253	256
PERSONS INJURED					
Drivers of motor vehicles	1,853	1,968	2,092	2,351	2,680
Motor cyclists	503	415	371	342	329
Pedal cyclists	438	372	357	344	339
Passengers—					
Pillion	92	83	68	44	45
Other	1,862	1,927	1,996	2,196	2,263
Pedestrians	640	675	751	714	763
Other	11	10	3	6	7
Total	5,399	5,450	5,638	5,997	6,426

The following table gives a classification of casualties according to the ages of persons killed and persons injured during each year of the period from 1963 to 1967.

ROAD TRAFFIC ACCIDENTS—CASUALTIES CLASSIFIED ACCORDING TO AGE

Year ended 31 December—	Age last birthday (years)										Total
	0-4	5-6	7-16	17-20	21-29	30-39	40-49	50-59	60 and over	Not stated	
PERSONS KILLED											
1963	10	2	12	28	41	20	18	26	40	1	198
1964	6	7	21	34	34	21	34	30	34	1	222
1965	17	5	13	35	41	31	24	32	34	....	252
1966	9	1	29	34	52	25	19	47	37	....	253
1967	3	4	22	48	43	29	27	26	52	2	256
PERSONS INJURED											
1963	181	130	724	1,082	1,027	632	521	421	354	327	5,399
1964	170	141	794	1,146	1,005	542	550	417	350	335	5,450
1965	248	119	751	1,182	1,016	612	486	415	389	420	5,638
1966	209	130	791	1,342	1,033	618	545	460	405	464	5,997
1967	234	121	792	1,344	1,185	627	603	482	457	581	6,426

Road traffic accidents during the years ended 31 December 1966 and 1967 are classified in the next table according to nature of accident and type of vehicle involved. It should be noted that, as accidents (and casualties) may involve more than one type of vehicle and, in such cases, are classified to each type involved, it is not appropriate to derive totals by adding the figures shown in the second part of the table.

ROAD TRAFFIC ACCIDENTS
NATURE OF ACCIDENT AND TYPE OF VEHICLE INVOLVED

Nature of accident and type of vehicle involved	Year ended 31 December—					
	1966			1967		
	Accidents involving casualties	Casualties		Accidents involving casualties	Casualties	
		Persons killed	Persons injured		Persons killed	Persons injured
Vehicle colliding with—						
Motor vehicle (moving)	2,199	94	3,278	2,413	94	3,646
Railway vehicle	24	10	30	14	7	15
Pedestrian	726	50	706	775	59	749
Stationary vehicle	110	1	147	134	1	180
Other fixed object	10	....	16	13	2	25
Animal or animal-drawn vehicle	24	2	30	12	....	22
Vehicle overturning or leaving road	1,134	89	1,653	1,190	90	1,670
Passenger accident	32	3	33	34	3	32
Other accidents	87	4	104	74	....	87
Total	4,346	253	5,997	4,659	256	6,426

NATURE OF ACCIDENT

Nature of accident and type of vehicle involved	1966		1967		Total
	Persons killed	Persons injured	Persons killed	Persons injured	
Vehicle colliding with—					
Motor vehicle (moving)	2,199	94	3,278	2,413	3,646
Railway vehicle	24	10	30	14	15
Pedestrian	726	50	706	775	749
Stationary vehicle	110	1	147	134	180
Other fixed object	10	....	16	13	25
Animal or animal-drawn vehicle	24	2	30	12	22
Vehicle overturning or leaving road	1,134	89	1,653	1,190	1,670
Passenger accident	32	3	33	34	32
Other accidents	87	4	104	74	87
Total	4,346	253	5,997	4,659	6,426

TYPE OF VEHICLE INVOLVED (a)

Type of vehicle involved	1966		1967		Total
	Persons killed	Persons injured	Persons killed	Persons injured	
Motor vehicle—					
Car other than taxi	3,614	204	5,114	3,903	5,554
Taxi	88	4	135	76	117
Van, utility, truck	1,010	75	1,390	1,168	1,610
Semi-trailer	46	11	55	39	45
Omnibus; trolley-bus	60	5	79	63	97
Other	42	8	57	23	27
Motor cycle, motor scooter	373	5	415	374	420
Pedal cycle	360	9	361	348	356

(a) See letterpress immediately preceding table.

PASSENGER FERRY SERVICE

The Metropolitan (Perth) Passenger Transport Trust operates a passenger ferry service across the Swan River from Perth to South Perth. Particulars of private charter excursions are excluded from the figures in the following table, other than those which relate to operating revenues and expenses.

PASSENGER FERRY SERVICE

Year ended 30 June—	Boats at end of year	Miles run (a)	Passengers carried (a)	Employees at end of year	Operating revenues	Operating expenses	Depreciation	Interest
1963	4	22,144	192,448	8	\$ 22,442	\$ 28,002	\$ 1,458	\$ 484
1964	4	22,262	184,556	8	23,896	30,538	1,652	330
1965	5	22,064	201,336	8	30,636	33,900	1,796	660
1966	5	21,588	238,273	9	34,200	39,407	493	540
1967	5	21,784	253,160	9	40,925	41,096	564	623

(a) Excludes private charter operations.

AIR TRANSPORT

The supervision and control of civil air transport operations throughout Australia is the responsibility of the Department of Civil Aviation. Among its functions are the enforcement of safety regulations; the registration of aircraft and the issue of certificates of airworthiness; the licensing of members of air crews and of ground staffs; the provision, operation and maintenance of aeronautical communication systems and air navigation facilities; the authorisation of sites for aerodromes; the design, operation and maintenance of aerodromes; the establishment and operation of air traffic control services; the specification of the requisite meteorological services; the approval of fares, freight rates and time tables; and the licensing of air service operations and co-operation with State Government transport licensing authorities.

An extensive system of air services operates in Western Australia for the transport of passengers, freight and mails. Perth has an international airport which is used by overseas services between Australia and Singapore, Australia and the United Kingdom via Singapore and between Australia and South Africa. Perth is also the western terminus of interstate flights connecting the capital cities of Australia and is the base for a comprehensive airline network serving many inland centres as well as coastal towns in the south, the north-west and the north of the State. From some of these towns regular services operate over many hundreds of miles of route to sheep and cattle stations and to native missions. Some stations and towns in the Kimberley are linked with Darwin and Alice Springs in the Northern Territory. (The principal air routes being flown in or through Western Australia at 31 December 1966, are shown on the map of the State following the Index.) In addition to these regular services there are facilities for charter flights. Some operators engage in work connected with the Royal Flying Doctor Service of Australia.

The principal function of the Royal Flying Doctor Service of Australia is to provide medical aid, dental care and air ambulance transport for residents, including aboriginal natives, in remote areas. Isolated townships, mining centres and sheep and cattle stations are usually equipped with two-way radio sets and, by this means, are linked with bases where doctors are available for radio consultation in the event of sickness or accident. In serious cases a doctor flies to the patient, who may then be flown to hospital for treatment. The Service provides first-aid books, as well as standard medicine chests with directions for the use of the drugs and medical supplies which they contain and, where necessary, the doctor gives additional instruction by radio.

The radio network of the Royal Flying Doctor Service is regularly used in the work of Schools of the Air conducted by the Education Department, and also for the transmission and receipt of telegrams. In addition, it may be used, as the need arises, in connection with flood relief, in searching for lost parties and in co-ordinating movements of livestock.

The Service is financed by grants from the Commonwealth and State Governments and by private donations.

The following table, compiled from information published by the Department of Civil Aviation, contains a summary of operations at airports in Western Australia during the year ended 30 June 1967. The figures refer only to regular public transport operations on scheduled services and do not include charter operations.

CIVIL AVIATION—TRAFFIC HANDLED AND AIRCRAFT MOVEMENTS, 1966-67

Airport	Passengers (a)	Freight (b)	Aircraft movements (c)	Airport	Passengers (a)	Freight (b)	Aircraft movements (c)
		sh. tons (d)				sh. tons (d)	
Albany	3,550	13	416	Tom Price	3,980	76	648
Barrow Island	4,074	143	1,088	Onslow	3,599	95	1,404
Broome	6,151	185	1,696	Perth—			
Carnarvon	9,895	209	2,616	Internal (e)	278,662	6,641	8,091
Dampier	6,793	132	1,124	International	30,788	636	1,550
Derby	13,024	734	2,045	Port Hedland	16,273	653	2,632
Esperance	2,625	57	308	Roebourne	1,779	60	612
Geraldton	17,316	73	2,877	Rottnest Island	16,724	17	1,004
Kalgoorlie	5,392	134	714	Wittenoorn	3,548	84	1,662
Kununurra	4,211	253	655	Wyndham	4,438	311	1,120
Learmonth	11,196	219	1,072				

(a) Total of embarkations and disembarkations. (b) Total of freight loaded and unloaded. (c) Total of arrivals and departures. (d) Short ton = 2,000 lb. (e) Interstate and intrastate.

TRANSPORT CO-ORDINATION

Reference is made in earlier issues of the Year Book to the provisions of the *State Transport Co-ordination Act, 1933-1961*. This Act was repealed by the *State Transport Co-ordination Act, 1966*, which came into operation on 19 June 1967. From the same date the *Road and Air Transport Commission Act, 1966-1968* became effective.

State Transport Co-ordination Act

The Act provides for the appointment of a Director General of Transport, a Transport Advisory Council and a Transport Users' Board.

The duties of the Director General are to recommend to the Minister transport policy or changes in transport policy and measures for achieving policy objectives and the co-ordination of the various forms of transport service; to implement such policies and measures; to provide for research in transport planning and operation and in the economics of every form of transport; to co-ordinate capital works programmes for public transport services; to inquire into existing transport services; to recommend the provision of road transport services; to examine and report on any proposal for the construction of a new railway; to recommend the closure or partial suspension of any transport service, including a railway; and to advise the Minister on the administration of specified Acts relating to transport.

The Transport Advisory Council comprises the Director General of Transport (as Chairman), the Commissioner of Railways, the Commissioner of Main Roads, the Commissioner of Transport, the Chairman of the Metropolitan (Perth) Passenger Transport Trust, the Chairman of the Western Australian Coastal Shipping Commission, a representative of the West Australian Road Transport Association, and a representative of operators of regular air transport services. The duties of the Council are to formulate proposals in respect of, and make recommendations on, any matter referred to it by the Minister or the Director General of Transport, or that it may bring forward of its own motion.

The Transport Users' Board consists of the Director General of Transport (as Chairman) and four persons appointed by the Governor on the nomination of the Minister. These four members must be persons who, in the opinion of the Minister, are capable of assessing the financial and economic effect on transport users of any proposed or existing transport policy, two of them being persons particularly versed in the transport needs

of rural industries. The Transport Users' Board is charged with the duty of considering and, where it so resolves, of making recommendations on, any matter affecting a transport service operating in the State, or concerning the lack or inadequacy of a transport service.

Road and Air Transport Commission Act

The Act provides for the appointment of a Commissioner of Transport. Under the direction of the Minister, the Commissioner is required to call tenders for the provision of road transport where, in the opinion of the Minister, the requirements of a district are not adequately served by any form of transport; to administer and direct the payment of such subsidies with respect to the provision of transport as may be authorised pursuant to the Act; and to consider and determine all applications for licences in respect of public vehicles. In regard to such licences the Commissioner may specify any particular conditions concerning the granting or holding of a licence, and may determine, in respect of any particular licence or group of licences, the conditions that shall be imposed on the granting and holding of such licences.

The public vehicles licensed by the Commissioner are omnibuses (other than those operated by the Metropolitan (Perth) Passenger Transport Trust), commercial goods vehicles, and aircraft.

In the licensing of omnibuses the Commissioner is empowered to prescribe the routes to be operated, the stopping places at which passengers may be picked up or set down, the fares to be charged, the timetables to be observed and the maximum number of passengers to be carried at any one time on any vehicle. The Commissioner may impose such other conditions as he thinks proper in the public interest.

All commercial goods vehicles operating on public roads are required to be licensed, except those which operate solely in the area within a radius of 20 miles from the General Post Office, Perth, or within a radius of 20 miles from the owner's place of business (or, where such place of business is situated more than 40 miles from the General Post Office, Perth, within a radius of 25 miles). Exemptions from licensing provisions also apply to vehicles used for the transport of specified types of goods, mainly primary produce including forest products, minerals and livestock, or for the transport of goods within particular areas or between particular points.

Aircraft licences issued by the Commissioner relate to regular services and charter flights. Aircraft exempted from the licensing provisions of the Act are those operated solely in connection with the Royal Flying Doctor Service or in the course of aerial spraying, crop dusting, seed sowing, fertiliser distribution, photography, geophysical surveying, dingo baiting or whale or fish spotting.

Financial transactions are recorded in a Transport Commission Fund account as required by the Act. The principal revenues of the Fund are receipts from licence and permit fees and amounts received from the Treasury for distribution in the form of subsidy to transport operators and others in certain areas. The expenditure from the Fund includes amounts necessary to meet administration costs, disbursements to the Main Roads Department and to local government authorities for the maintenance and improvement of roads, moneys required to be held in trust for the provision and maintenance of landing grounds, and the payment of subsidies. Subsidies are paid principally on the cartage of grain and fertilisers, but also on the air transport of perishable goods to remote parts of the State and on travel, mainly by air, by students normally resident in those areas.

Taxi-cars (Co-ordination and Control) Act

The *Taxi-cars (Co-ordination and Control) Act, 1963-1968* constitutes a Taxi Control Board of seven members to provide for the co-ordination and control of taxi-cars and the registration and conduct of taxi-car drivers in the Metropolitan Traffic Area and such other areas as may be declared. The Act provides that the Board shall consist of the Commissioner of Transport (as Chairman); a member of the police force appointed by the Commissioner of Police; and five persons, appointed by the Governor, comprising

one nominated by the Local Government Association of Western Australia to represent the interests of local authorities; one nominated by the W.A. Taxi Operators' Association; two who are taxi-car owners or operators and who are elected by taxi-car owners and operators; and one nominated by the Metropolitan (Perth) Passenger Transport Trust.

The principal functions of the Board are the formulation of schemes for the co-ordination and control of taxis; the determination of the number and kind of taxis to be licensed; the issue of licences; the determination of fares and other charges; the supervision of the operation of taxis and the regulation of stands; the registration of, and the control of the conduct and dress of, drivers; and the enforcement of regulations made under the Act.

It is provided that the number of taxis that may be licensed to operate within the Metropolitan Traffic Area shall not at any time exceed one for every 700, or be less than one for every 800, of the population of the area.

The Act establishes a Taxi Control Fund for the receipt of fees payable on the issue, renewal or transfer of licences. The expenses of the administration of the Act are paid from the Fund.

Chapter IX—continued

Part 4—Communication

POSTS, TELEGRAPHS AND TELEPHONES

The first postmasters in the Colony of Western Australia were appointed at Perth and Fremantle in 1830 and a Postal Department was established by the Colonial Government in 1834. Telegraphic communication, between Perth and Fremantle, was inaugurated in 1869 by means of a private line, which was purchased by the Government in 1871. A telephone exchange system, installed and operated by the Government, was opened at Perth in 1887.

In 1901, following the federation of the Australian Colonies, the post, telegraph and telephone services of the State Governments were transferred to the Commonwealth Government. The Post and Telegraph Act of 1901 placed the services under the control of a Commonwealth Minister to be known as the Postmaster-General.

The following table shows the number of persons employed by the Postmaster-General's Department in Western Australia, and the number of post offices and telephone offices throughout the State at 30 June in each year from 1963 to 1967. Full-time employees are those directly under the control of the Department. The remainder, shown as 'Other employees', provide services, which may or may not occupy their full time, under contract or in return for payments appropriate to work performed. 'Non-official' post offices are conducted by persons who are not members of the Commonwealth Public Service, and are frequently operated in conjunction with some other business activity. 'Telephone offices' are those where trunk-line calls and local calls may be made and telegrams lodged by members of the public, but which do not provide other postal facilities. Multi-coin public telephones are not included.

**POSTMASTER-GENERAL'S DEPARTMENT—NUMBERS OF EMPLOYEES AND OFFICES
WESTERN AUSTRALIA**

Particulars	At 30 June—				
	1963	1964	1965	1966	1967
Full-time employees—					
Permanent officers	4,743	4,842	4,966	5,065	5,344
Temporary and exempt officers (a)	1,143	1,281	1,251	1,428	1,600
Total	5,886	6,123	6,217	6,493	6,944
Other employees—					
Non-official postmasters and staff	539	535	533	542	492
Telephone office-keepers	304	285	266	242	224
Mail contractors (b)	315	316	290	292	329
Part-time employees	242	231	241	262	305
Total	1,400	1,367	1,330	1,338	1,350
Total, Employees	7,286	7,490	7,547	7,831	8,294
Post offices—					
Official	147	148	149	151	153
Non-official	492	488	486	484	477
Telephone offices	305	284	268	241	222
Total, Offices	944	920	903	876	852

(a) Exempt staff are persons exempt from the provisions of the Public Service Act.
contractors to drive vehicles on mail runs.

(b) Includes persons employed by

Figures relating to the revenue and expenditure of the Department in Western Australia during each of the financial years from 1962-63 to 1966-67 are given in the following table. They represent actual collections and payments in each year, as shown by records kept for Treasury purposes. Some additional items of departmental revenue and expenditure are not apportioned to States and therefore do not appear in the table.

POSTMASTER-GENERAL'S DEPARTMENT—REVENUE AND EXPENDITURE
WESTERN AUSTRALIA
(\$'000)

Particulars	Year ended 30 June—				
	1963	1964	1965	1966	1967
REVENUE (a)					
Postal	5,829	6,208	6,591	6,993	7,376
Telegraph	1,192	1,267	1,373	1,591	1,787
Telephone	10,852	12,490	15,061	17,276	18,897
Other	56	33	37	26	9
TOTAL	17,929	19,997	23,062	25,886	28,069
EXPENDITURE (b)					
Non-capital works—					
Expenditure from ordinary services votes—					
Salaries and payments in the nature of salary	6,451	6,828	7,530	8,179	9,502
Administration	678	836	977	1,147	1,062
Stores and material	219	196	226	317	551
Mail services	506	530	555	603	626
Engineering services, other than new works	4,538	5,084	5,971	7,046	7,469
Total	12,392	13,473	15,259	17,292	19,210
Rent, repairs and maintenance	197	229	268	372	484
Furniture and fittings	(c)	(c)	(c)	48	81
Capital works—					
Plant and equipment—					
Telegraph services	106	103	170	185	200
Telephone services	7,676	8,340	9,907	11,042	13,623
Other plant and equipment and motor vehicles	777	1,086	807	827	1,431
Buildings, sites and properties (c)	588	828	1,383	1,147	1,300
Total	9,147	10,358	12,267	13,200	16,554
GRAND TOTAL	21,736	24,060	27,795	30,912	36,328

(a) Revenue actually collected during the year, as recorded for Treasury purposes. (b) Actual payments made during the year, as recorded for Treasury purposes. (c) Prior to 1965-66, expenditure on furniture and fittings was included in the item *Buildings, sites and properties* under Capital works.

POSTMASTER-GENERAL'S DEPARTMENT PROFIT OR LOSS (a) OF SERVICES
AUSTRALIA
(\$'000)

Particulars	Year ended 30 June—								
	1965			1966			1967		
	Postal	Tele-communications	All services	Postal	Tele-communications	All services	Postal	Tele-communications	All services
Earnings	112,191	257,855	370,045	116,746	284,528	401,274	119,988	311,500	431,488
Working expenses	112,889	200,037	312,926	124,279	216,803	341,082	139,347	244,614	383,961
Profit or loss before charging interest	— 698	57,818	57,119	—7,532	67,725	60,192	—19,359	66,885	47,527
Interest	1,920	50,987	52,907	2,809	57,507	60,316	4,221	64,808	69,029
Profit or loss after charging interest	—2,618	6,831	4,212	—10,341	10,217	— 124	—23,580	2,078	—21,502

(a) Minus sign (—) denotes loss.

As the figures shown in the first table on page 437 relate to actual collections and payments made, they do not represent the net results of the Department's operations for the year. The annual net results of the operations throughout Australia of each service, for the three years ended 30 June 1967 after providing for working expenses (including depreciation, superannuation and furlough liability) and interest charges are shown in the previous table. The amounts appearing under the heading of *Interest* represent interest on funds provided by the Treasury.

Posts

In the following table, postal matter handled in Western Australia during each year from 1962-63 to 1966-67 is dissected according to the type of article dealt with, and whether received from overseas or posted for delivery in Australia or to an overseas destination.

POSTAL ARTICLES HANDLED (Thousands)

Particulars	Year ended 30 June—				
	1963	1964	1965	1966	1967
Posted for delivery within Australia—					
Ordinary postal articles—					
Letter-form	118,270	130,714	136,287	143,192	153,082
Other	9,857	11,262	11,873	13,540	13,861
Parcels (a)	954	1,016	1,001	1,045	1,149
Registered articles (b)	533	533	575	659	663
Posted for delivery overseas—					
Ordinary postal articles—					
Letter-form	6,289	6,855	4,697	6,437	6,827
Other	1,228	1,216	721	869	1,050
Parcels (a)	22	29	28	31	32
Registered articles (b)	53	55	62	53	60
Received from overseas—					
Ordinary postal articles—					
Letter-form	3,036	3,454	3,970	3,961	5,213
Other	5,963	6,453	6,578	6,698	6,653
Parcels (a)	57	64	70	79	93
Registered articles (b)	29	44	46	49	50

(a) Includes registered, cash on delivery and duty parcels.

(b) Excludes registered parcels; see note (a).

Telegraphs and Telephones

The next two tables relate to telegraph and telephone services in Western Australia in each financial year from 1962-63 to 1966-67. Telephone services comprise ordinary exchange services (*i.e.* those which provide direct access to the exchange system by means of exclusive use of an exchange line), duplex services, party-line services, private branch exchange services and public telephones. The numbers shown as 'Telephone instruments in service' relate to those through which direct access to the exchange system may be obtained.

TELEGRAPHS

Particulars	Year ended 30 June—				
	1963	1964	1965	1966	1967
Number of—					
Offices (a)	954	920	903	875	852
Telegrams—	'000	'000	'000	'000	'000
Within Australia—Dispatched	1,850	1,940	2,004	2,160	2,245
Beyond Australia—Dispatched	85	84	98	110	119
Received	80	83	90	97	107
Total	165	167	188	207	227

(a) At 30 June.

TELEPHONES (a)

Particulars	Year ended 30 June—				
	1963	1964	1965	1966	1967
Number of—					
Exchanges	765	767	765	765	750
Services—					
Metropolitan (b)	71,396	77,312	81,404	86,787	93,528
Other	34,080	36,506	38,677	41,236	44,161
Total	105,476	113,818	120,081	128,023	137,689
Telephone instruments in service—					
Total	144,843	154,932	164,354	176,256	191,031
Per 100 of population (a)	*18.4	*19.3	*19.9	*20.8	21.8

(a) At 30 June. (b) Services connected to exchanges located within 10 miles of the General Post Office, Perth.
* Revised.

The teleprinter exchange service was introduced in Perth in December 1956. This service enables a subscriber's teleprinter to be connected with that of any other subscriber in the local network or networks in other States.

TELEPRINTER EXCHANGE NETWORK (TELEX)

Particulars	Year ended 30 June—				
	1963	1964	1965	1966	1967
Number of—					
Subscribers at 30 June	96	117	164	200	271
Local calls	5,326	3,947	3,913	7,992	(a)
Trunk calls	42,521	60,616	84,858	119,312	(a)
Total calls (b)	52,053	71,261	97,363	136,381	253,955

(a) Not available separately. (b) Includes Post Office official traffic.

At 30 June 1967, the single wire mileage of telegraph and telephone cables in Western Australia was 1,152,973. The single wire mileage of aerial wires was 128,326 and the mileage of pole routes was 17,295. There were 667 tube miles of coaxial cable.

RADIOCOMMUNICATION

The Overseas Telecommunications Commission (Australia) is the authority responsible for the operation of Australia's external telecommunication services by cable and radio.

The Commission is constituted under the provisions of the *Overseas Telecommunications Act* 1946-1968. This Act implemented, in Australia, a recommendation of the 1945 Commonwealth Telecommunications Conference for national ownership of the external telecommunication services of the British Commonwealth countries concerned and for the establishment of a representative advisory board, the Commonwealth Telecommunications Board, to co-ordinate their development.

The Commission thus participates with other countries of the British Commonwealth in the development, maintenance and operation of a world-wide network of cable and radio circuits. The whole of Australia's international public telecommunications traffic is handled through this network, traffic being routed over cable or radio circuits, or a combination of them, according to circumstances.

The Commission operates a coastal radio service, telegraph, telex and photo-telegraph services and, in conjunction with the Postmaster-General's Department, telephone services with overseas countries and ships at sea.

The coastal radio service provides, as its principal function, essential maritime communications, including distress signals, navigation warnings, air-sea rescue service and radio-medical service messages, meteorological messages and time signals, as well as naval

traffic as required. It provides also, by radiotelegraph and radiotelephone, commercial communications with ships at sea and, by radiotelephone, message communication with small vessels. Western Australian coastal radio stations at Perth, Broome, Esperance and Geraldton are operated by the Overseas Telecommunications Commission, and at Wyndham by the Department of Civil Aviation as agent for the Commission.

The licensing of civil radiocommunication stations and the transmission of radio messages within Australia are the responsibility of the Postmaster-General's Department. The Royal Flying Doctor Service of Australia, to which reference is made in the section *Air Transport* in Part 3 of this Chapter, provides general telegraph facilities in remote areas through its extensive radio network.

At 30 June 1968 there were 101,622 civil radiocommunication stations authorised throughout Australia. They comprised 3,636 fixed stations, 8,135 land stations, 84,177 mobile stations and 5,674 amateur stations.

The numbers of each type of radiocommunication station authorised to operate in Western Australia at 30 June 1968 are given in the next table. The following definitions are relevant in considering the figures shown in the table. *Fixed Stations*—Stations established at fixed locations for communication with other stations similarly established. *Outposts*—Stations established in outback areas for communication with control stations such as those of the Royal Flying Doctor Service. *Land Stations*—Stations established at fixed locations for communication with mobile stations. *Coast Stations*—Land stations for communication with ocean-going vessels. *Mobile Stations*—Equipment installed in aircraft (aeronautical), motor vehicles (land mobile services), harbour vessels (harbour mobile services) and ocean-going vessels (ship), and mobile equipment of organisations such as the Royal Flying Doctor Service.

CIVIL RADIOCOMMUNICATION STATIONS AUTHORISED AT 30 JUNE 1968

Type of station	Number	Type of station	Number
TRANSMITTING AND RECEIVING—		TRANSMITTING AND RECEIVING— <i>contd</i>	
Fixed stations—		Mobile stations—	
Aeronautical	17	Aeronautical	381
Services with other countries	10	Land mobile services	6,332
Outpost	434	Harbour mobile services	186
Other	242	Outpost	591
Land stations—		Ship	946
Aeronautical	34	Amateur	415
Base stations—			
Land mobile services	693	TOTAL, TRANSMITTING AND	
Harbour mobile services	39	RECEIVING	10,423
Coast	39	RECEIVING ONLY (fixed)	57
Special experimental	64	GRAND TOTAL	10,480

BROADCASTING AND TELEVISION

Broadcasting and television services throughout Australia are controlled by the Australian Broadcasting Control Board under the Ministerial direction of the Postmaster-General. The Board is established by a provision of the *Broadcasting and Television Act 1942-1968*, which places under its general control the National Broadcasting Service, the National Television Service, the Commercial Broadcasting Service and the Commercial Television Service. The Act prescribes the fees payable for broadcast listeners' licences and television viewers' licences, while the fees to be charged for licences to operate commercial broadcasting and television stations are provided for in the *Broadcasting Stations Licence Fees Act 1964-1966* and the *Television Stations Licence Fees Act 1964-1966*.

The principal functions of the Australian Broadcasting Control Board are to ensure that services by broadcasting stations and television stations are in accordance with approved plans, that stations are operated in accordance with appropriate technical standards, and that adequate and comprehensive programmes are provided. Subject to the approval of the Minister and of the Treasurer, the Board may give financial and other assistance to commercial broadcasting stations for the purpose of ensuring that programmes of adequate extent, standard and variety are provided in the areas which they

serve. The Board is required to hold public inquiries into applications for licences for commercial broadcasting and television stations in areas for which the Minister proposes to grant licences.

The Australian Broadcasting Commission, which is constituted under the *Broadcasting and Television Act 1942-1968*, controls the activities of, and provides programmes for, the National Broadcasting Service and the National Television Service. The operations of the Commission are financed by appropriations made by the Commonwealth Parliament.

The income of licensees of commercial broadcasting and television stations is derived from advertisements and other forms of publicity.

Commercial broadcasting stations are operated under licences granted and renewed by the Postmaster-General after taking into consideration any recommendations which have been made by the Broadcasting Control Board. The initial period of a licence is five years and renewals are granted for a period of one year. The fee payable for a licence is \$50 on the grant of the licence, and thereafter \$50 a year plus an amount ascertained by applying the following rates to 'gross earnings', within the meaning of the *Broadcasting Stations Licence Fees Act 1964-1966*, during the preceding financial year—1 per cent up to \$1,000,000; 2 per cent \$1,000,001 to \$2,000,000; 3 per cent \$2,000,001 to \$4,000,000; and 4 per cent over \$4,000,000.

Commercial television stations are operated under licences granted and renewed by the Postmaster-General. The initial grant of a licence is for a period of five years and thereafter the licence is renewable annually. The fee payable is \$200 for the first year and thereafter \$200 a year plus an amount ascertained by applying the following rates to 'gross earnings', within the meaning of the *Television Stations Licence Fees Act 1964-1966*, during the preceding financial year—1 per cent up to \$1,000,000; 2 per cent \$1,000,001 to \$2,000,000; 3 per cent \$2,000,001 to \$4,000,000; and 4 per cent over \$4,000,000.

Broadcasting and Television Stations

The following tables show details of national and commercial broadcasting stations and television stations operating in Western Australia at 30 June 1968.

BROADCASTING STATIONS AT 30 JUNE 1968

NATIONAL STATIONS					COMMERCIAL STATIONS				
Type and location	Call sign	Frequency (kHz)	Aerial power (watts)	Hours of service per week (a)	Type and location	Call sign	Frequency (kHz)	Aerial power (watts)	Hours of service per week (a)
Medium frequency—					Perth	6IX	1,080	2,000	168
Perth	6WF	690	50,000	125½	"	6KY	1,210	2,000	168
"	6WN	810	10,000	125½	"	6PM	1,000	2,000	129
Albany	6AL	650	400	125½	"	6PR	880	2,000	168
Broome	6BE	670	50	125½	Albany	6VA	780	2,000	123
Carnarvon	6CA	720	200	125½	Bridgetown	6BY	900	2,000	113
Dalwallinu	6DL	530	10,000	125½	Bunbury	6TZ	960	2,000	124½
Derby	6DB	870	2,000	125½	Collie	6CI	1,130	2,000	124½
Esperance	6ED	840	1,000	125½	Geraldton	6GE	1,010	2,000	114½
Kalgoorlie	6GF	660	2,000	125½	Kalgoorlie	6KG	980	2,000	103
Geraldton	6GN	830	2,000	125½	Katanning	6WB	1,070	2,000	116
Northam	6NM	600	200	125½	Merredin	6MD	1,100	2,000	115½
Port Hedland	6PH	600	2,000	125½	Narrogin	6NA	920	2,000	123½
Wagin	6WA	560	50,000	125½	Northam	6AM	860	2,000	117
High frequency—									
Perth	VLW	(b)	10,000	122½					
"	V LX	(b)	50,000	122½					

(a) To the nearest quarter hour.

(b) The frequencies on which these stations transmit are varied as required to obtain optimum results.

TELEVISION STATIONS AT 30 JUNE 1968 (a)

Call sign and channel	Area served	Location of transmitter	Authorised frequencies (mHz)	Polarisation	Hours of service per week (b)	Date of commencement of operations (c)
NATIONAL STATIONS						
ABW-2	Perth	Bickley	Vision 63-70 Sound 64.25 69.75	Horizontal	79½	7 May 1960
ABAW-2	Southern Agricultural	Mount Barker	Vision 63-70 Sound 64.24 69.74	Vertical	79½	6 June 1966
ABCW-4	Central Agricultural....	Mawson Trig....	Vision 94-101 Sound 95.26 100.76	Horizontal	79½	28 March 1966
ABSW-5	Bunbury	Mount Lennard	Vision 101-108 Sound 102.25 107.75	Horizontal	79½	10 May 1965
COMMERCIAL STATIONS						
STW-9	Perth	Bickley	Vision 195-202 Sound 196.25 201.75	Horizontal	89½	12 June 1965
TVW-7	Perth	Bickley	Vision 181-188 Sound 182.25 187.75	Horizontal	84½	16 October 1959
BTW-3	Bunbury	Mount Lennard	Vision 85-92 Sound 86.24 91.74	Horizontal	33½	10 March 1967

(a) The operating power for all stations is: Vision, 100 kW e.r.p. (effective radiated power); Sound, 20 kW e.r.p. (b) To nearest quarter hour. (c) Date on which full-scale transmission began.

Receiving Licences

Broadcast listeners', television viewers', and combined receiving licences are issued at post offices in accordance with the provisions of the *Broadcasting and Television Act* 1942-1968, which stipulates that, except as prescribed, a person shall not use, maintain or have in his possession a broadcast or television receiver unless there is in force a licence which applies to that receiver. A broadcast listener's licence or a television viewer's licence, whichever is appropriate, authorises the operation of any broadcast receiver or any television receiver, which is in the possession of the holder of a licence, or of a member of his family, at the address specified in the licence and is ordinarily kept at that address; or is installed in a vehicle which is ordinarily in the possession of the holder, or a member of his family, and is ordinarily kept at that address when not in use. A person who has both broadcast and television receivers at the one address is required to take out a combined receiving licence, provision for which was introduced by legislation effective from 1 April 1965.

A licence may be granted free of charge to a blind person over sixteen years of age or to a person or authority conducting a school, and at a concession rate to certain classes of pensioners. Receivers provided for the use of inmates of an institution (including a hospital) are covered by an appropriate licence held by the institution. Persons residing in Zone 2 may also be granted a broadcast listener's licence at a reduced rate. Zone 1 is the areas within 250 miles of specified broadcasting stations and Zone 2 is the remainder of Australia.

Each broadcast or television receiver let out on hire (except under a hire purchase agreement) must be covered by a hirer's licence held by the person or firm from whom the receiver is hired. The keeper of a lodging house (which includes a hotel, motel, boarding house or any other premises where lodging or sleeping accommodation is provided

for reward) must take out a lodging house licence for each broadcast or television receiver provided by the proprietor in any room or part of the lodging house occupied or available for occupation by lodgers.

The annual fee payable at 30 June 1968 for each class of licence is shown in the following table.

BROADCAST LISTENERS' AND TELEVISION VIEWERS' LICENCES
ANNUAL FEES: 30 JUNE 1968

Class of licence	Ordinary rate	Pensioner rate
	\$	\$
Broadcast listener's licence and hirer's licence for a broadcast receiver—		
Zone 1	5.50	1.00
Zone 2	2.80	0.70
Lodging house licence for a broadcast receiver—		
Zone 1	5.50	....
Zone 2	2.80	....
Television viewer's licence and hirer's licence for a television receiver	12.00	3.00
Lodging house licence for a television receiver	12.00	....
Combined receiving licence	17.00	4.00

Revenue in Western Australia from fees for all receiving licences amounted to \$1,843,348 in 1963-64, \$2,124,246 in 1964-65, \$2,285,076 in 1965-66, \$2,570,450 in 1966-67 and \$2,665,963 in 1967-68.

RECEIVING LICENCES

Class of licence	Number in force at 30 June—				
	1964	1965	1966	1967	1968

BROADCAST LISTENERS' LICENCES (a)

Ordinary	147,873	122,503	43,724	34,702	36,857
Hirers'	1	14	12	12	12
Lodging house	9	48	94	43	196
Pensioners'	25,492	22,208	11,286	9,411	8,900
Blind persons'	392	....	....	....	....
Schools'	354	....	....	....	....
Total	174,121	144,773	55,116	44,168	45,965

TELEVISION VIEWERS' LICENCES (a)

Ordinary	91,923	71,605	10,771	12,051	11,700
Hirers'	10,769	11,204	15,687	15,531	16,149
Lodging house	140	236	296	342	519
Pensioners'	12,250	10,026	1,534	1,721	1,873
Blind persons'	165	....	....	....	....
Schools'	25	....	....	....	....
Total	115,272	93,071	28,288	29,645	30,241

COMBINED RECEIVING LICENCES (a)

Ordinary	(b) {	25,660	97,965	111,398	115,867
Pensioners'		4,228	14,975	17,230	18,802
Blind persons'		416	451	396	....
Schools'		366	392	379	722
Total	(b)	30,670	113,783	129,403	135,391

(a) The combined receiving licence came into effect on 1 April 1965. From that date, a person having both broadcast and television receivers at the one address has been required to take out a combined receiving licence. (b) See note (a).

CHAPTER X—INDUSTRIAL CONDITIONS, EMPLOYMENT AND PRICES

Part 1—Industrial Conditions

INDUSTRIAL AUTHORITIES

Commonwealth Authorities

A Commonwealth Court of Conciliation and Arbitration was established under the provisions of the *Commonwealth Conciliation and Arbitration Act 1904*. By an amendment made to the Conciliation and Arbitration Act in 1956 the Commonwealth arbitration system was reorganised by the creation of two separate authorities to deal with matters formerly within the sole jurisdiction of the Court. The amendment had the effect of allocating to a Commonwealth Industrial Court the judicial functions, and to a Commonwealth Conciliation and Arbitration Commission the arbitral functions, previously carried out by the Commonwealth Court of Conciliation and Arbitration.

Commonwealth Industrial Court. The Commonwealth Industrial Court, as constituted at 31 December 1968, comprises a Chief Judge and five other Judges. The Act provides that, except in respect of certain specified matters, the jurisdiction of the Court shall be exercised by not less than two Judges. A single Judge may refer a question of law for the opinion of the Court constituted by not less than two Judges. Although, in general, decisions of the Court are final, an appeal may be made to the High Court of Australia, but only when the High Court grants leave to appeal.

Commonwealth Conciliation and Arbitration Commission. The Commonwealth Conciliation and Arbitration Commission, according to the provisions of the *Conciliation and Arbitration Act 1904-1968*, shall consist of a President, not less than two Deputy Presidents, a Senior Commissioner and not less than five Commissioners. The Act provides also for the appointment of Conciliators. At 31 December 1968 there were, in addition to the President and the Senior Commissioner, five Deputy Presidents, fifteen Commissioners and three Conciliators. Generally, the Commission's jurisdiction is limited to the prevention or settlement, by conciliation or arbitration, of industrial disputes which extend beyond the limits of any one State, but the Commission is authorised to conciliate or arbitrate in respect of any dispute or industrial matter associated with Commonwealth Government undertakings or projects. The power to make awards or certify agreements concerning standard hours, basic wages and long service leave is reserved to the Commission in Presidential Session, which is constituted by not less than three presidential members nominated by the President. The Principal Registry of the Commission is in Melbourne, Victoria, and there is a Deputy Industrial Registrar in each State.

Western Australian Authorities

A Court of Arbitration was established in Western Australia in 1901 under the provisions of the *Industrial Conciliation and Arbitration Act, 1900*. The Court comprised a President, a representative of associations of employers and a representative of associations of workers. The Court of Arbitration was replaced, with effect from 1 February 1964, by the Western Australian Industrial Appeal Court and The Western Australian Industrial Commission, authorities constituted in terms of the *Industrial Arbitration Act, 1912-1968*.

Western Australian Industrial Appeal Court. The Western Australian Industrial Appeal Court consists of three Judges, one of whom is President of the Court. The President and the other members are nominated by the Chief Justice of Western Australia. Certain

of the functions, powers and jurisdiction conferred on the Court may be exercised by any member, on the nomination of the President, sitting or acting alone. An appeal lies to the Court from any decision of the Western Australian Industrial Commission or the Commission in Court Session, but only on the ground that such decision is erroneous in law or is in excess of jurisdiction.

The Western Australian Industrial Commission. The Western Australian Industrial Commission consists of a Chief Industrial Commissioner and three other Commissioners. The Act provides that a Commissioner sitting or acting alone constitutes the Commission and may exercise all the powers and jurisdiction of the Commission.

The Commission is empowered to inquire into any industrial matter or industrial dispute in any industry and to make orders or awards fixing the prices for work done by and the rates of wages payable to workers; fixing the number of hours and the times to be worked in order to entitle those workers to the wages so fixed; limiting the hours of piece workers; fixing the rates for overtime, work on holidays, shift work, week-end work and other special work, including allowances as compensation for overtime; determining any industrial matter; and declaring what deduction may be made from the prices or wages of workers for board or residence or board and residence provided for workers and for any customary provisions or payments in kind conceded to such workers.

The Commission in Court Session is constituted by not less than three Commissioners sitting or acting together. Appeals from decisions of a single Commissioner are heard and determined by the Commission in Court Session. Such appeals are restricted to the evidence and matters raised in the proceedings before the single Commissioner.

Western Australian Coal Industry Tribunal. The Western Australian Coal Industry Tribunal, as constituted under the *Mining Act, 1904-1968*, consists of five members appointed by the Governor. One member is chairman of the Tribunal, and there are two members representing employees, and two representing employers. The Tribunal has power to consider and determine industrial disputes, not extending beyond the limits of the State, and other matters relating to the coal-mining industry.

TRADE UNIONS

The following table gives particulars of the number of trade unions in Western Australia and the number of members at the end of December of the years 1963 to 1967. The table also shows the estimated proportion of trade union members to total wage and salary earners in employment. As estimates of numbers of wage and salary earners in employment do not include employees engaged in rural industry or in private domestic service (see letterpress *Estimates of Employment* on page 466), the percentages have been calculated on figures obtained by adding to the estimates for December in each year the number of employees in rural industry and private domestic service recorded at the nearest available Population Census. For this reason, and also because the membership of trade unions includes some persons not in employment, the percentages shown in the table are approximations.

TRADE UNIONS—NUMBER AND MEMBERSHIP

Date	Number of unions	Number of members ('000)			Proportion of total wage and salary earners (a) (per cent)		
		Males	Females	Persons	Males	Females	Persons
End of December—							
1963	154	103·8	25·2	129·0	59	42	55
1964	154	108·5	26·6	135·1	61	43	56
1965	155	110·6	28·6	139·2	59	42	54
1966	157	114·7	31·8	146·6	59	45	55
1967	155	117·4	34·9	152·3	58	45	54

(a) See letterpress immediately preceding table.

The following table shows the numbers and membership of trade unions in Western Australia in broad industry groups. The table does not give a precise classification of trade union members according to industry, because in cases where the members of a union are employed in a number of industries they have been classified to the predominant industry for the union concerned.

TRADE UNIONS—NUMBER AND MEMBERSHIP: INDUSTRY GROUPS

Date	Manufacturing	Building and construction	Transport	Public authority n.e.i., etc. (a)	Other (b)	All groups
NUMBER OF UNIONS						
End of December—						
1963	38	7	20	45	44	154
1964	36	7	20	45	46	154
1965	35	7	20	45	48	155
1966	36	7	20	44	50	157
1967	34	8	20	43	50	155
NUMBER OF MEMBERS ('000)						
End of December—						
1963	30.5	9.3	18.3	27.3	43.6	129.0
1964	30.4	10.7	18.7	29.2	46.2	135.1
1965	31.9	11.4	19.2	30.1	46.7	139.2
1966	33.5	11.5	19.1	31.9	50.6	146.6
1967	33.5	13.9	19.3	33.1	52.5	152.3

(a) Includes Communication and municipal, etc. (b) Includes Agriculture, etc.; Mining and quarrying; Banking, insurance and clerical; Wholesale and retail trade; Amusement, hotels, personal service, etc.; and Community and business services.

INDUSTRIAL DISPUTES

Statistics of industrial disputes are compiled by the Commonwealth Statistician from data obtained from the following sources: direct collections from employers and trade unions concerning individual disputes; reports from government departments and authorities; reports of State and Commonwealth industrial authorities; and information contained in trade journals, employer and trade union publications, and newspaper reports.

In the following tables details of industrial disputes in Western Australia during the years 1963 to 1967 are given, together with an analysis, according to industry group, of disputes which were in progress in 1967. The statistics relate only to disputes involving stoppages of work of ten man-days or more in the establishment where the stoppage occurred. Effects on other establishments resulting from lack of materials, disruption of transport services, power cuts, etc. are not measured by these statistics.

Particulars of all disputes in progress during the year are included in the annual figures, whether the dispute commenced in that year or was in progress at the beginning of the year. Consequently, details of 'the number of disputes' and 'workers involved' in disputes which commenced in any year, and were still in progress during the following year, are included in the figures for both years.

INDUSTRIAL DISPUTES (a)

Year	Number of disputes	Number of workers involved			Number of working days lost	Estimated loss in wages
		Directly	Indirectly (b)	Total		
1963	28	42,390	194	42,584	31,969	\$'000 252.5
1964	26	6,093	72	6,165	7,148	62.6
1965	33	12,611	.....	12,611	10,020	100.8
1966	25	2,860	16	2,876	6,239	64.5
1967	26	5,032	39	5,071	5,994	62.6

(a) Refers only to disputes involving a stoppage of work of ten man-days or more in the establishments where the stoppages occurred, but not themselves parties to the dispute.

(b) Persons thrown out of work at

INDUSTRIAL DISPUTES (a)—INDUSTRY GROUPS: 1967

Industry group	Number of disputes	Number of workers involved			Number of working days lost	Estimated loss in wages
		Directly	Indirectly (b)	Total		
Agriculture, grazing, etc. ....	....	....	....	....	....	\$'000
Coal mining ....	....	....	....	....	....	....
Other mining and quarrying	3	77	....	77	184	2.3
Manufacturing—						
Engineering, metals, vehicles, etc.	1	42	....	42	20	0.2
Textiles, clothing and footwear ....	....	....	....	....	....	....
Food, drink and tobacco	4	1,572	....	1,572	2,171	18.8
Sawmilling, furniture, etc. ....	....	....	....	....	....	....
Paper, printing, etc.	1	238	....	238	46	0.4
Other manufacturing	2	186	....	186	599	7.0
Building and construction	7	1,841	39	1,880	2,351	26.5
Railway services ....	....	....	....	....	....	....
Road and air transport	3	89	....	89	70	0.8
Shipping ....	....	....	....	....	....	....
Stevedoring	3	677	....	677	441	5.4
Amusement, hotels, personal service, etc. ....	....	....	....	....	....	....
Other industries (c)	2	310	....	310	112	1.3
Total	26	5,032	39	5,071	5,994	62.6

(a) Refers only to disputes involving a stoppage of work of ten man-days or more. (b) Persons thrown out of work at the establishments where the stoppages occurred, but not themselves parties to the dispute. (c) Includes Communication; Finance and property; Wholesale and retail trade; Public authority (n.e.i.); and Community and business services.

WAGES AND EARNINGS

The Basic Wage

Commonwealth Basic Wage. Earlier issues of the Year Book contain an account of the development of the Commonwealth basic wage from its inception until it was abandoned in 1967. In a unanimous judgment given on 5 June 1967 the Commonwealth Conciliation and Arbitration Commission announced 'the elimination of basic wages and margins and the introduction of total wages'. An increase of \$1 per week was awarded to all adult employees and the judgment stated that 'total wages will be arrived at by adding an amount of \$1 per week to the weekly award wages of all adult males and females . . .' and further, that the Commission had 'on this occasion deliberately awarded the same increase to adult females and adult males'. The increase was declared to become operative from the beginning of the first pay-period commencing on or after 1 July 1967.

A table showing Commonwealth basic wage rates at 31 December of each year from 1923 to 1966 is given in the *Statistical Summary from 1829* following this Chapter.

State Basic Wage. Reference is made in earlier issues of the Year Book to the work of the former Court of Arbitration in the field of wage determination from the declaration of the first State basic wage in 1926.

The Western Australian Industrial Commission came into operation on 1 February 1964, replacing the Court of Arbitration as the authority responsible for State basic wage determinations in Western Australia. The *Industrial Arbitration Act, 1912-1968* requires that such determinations shall be made by the Commission in Court Session. The Commission so constituted made its first adjustment to the basic wage on 27 April 1964, when it prescribed increased rates to apply on and from that date. As a result of this decision, the weekly rates payable to adult males became £15 4s. 2d. (\$30·42) in the Metropolitan Area, £15 2s. 7d. (\$30·26) in the South-West Land Division, and £14 16s. 8d. (\$29·67) in Goldfields Areas and other parts of the State. (For purposes of the basic wage, the 'Metropolitan Area' was the area comprised within a radius of 15 miles from the General Post Office, Perth; the 'South-West Land Division' was the area so described in the Land Act, but excluding the 'Metropolitan Area'; and 'Goldfields Areas and other parts of the State' comprised the area outside the South-West Land Division. Reference to the South-West Land Division will be found on page 135).

On 15 June 1964 the Trades and Labor Council of Western Australia, acting on behalf of registered unions, addressed to the Commission a request for an inquiry into the basic wage. A preliminary hearing was held on 3 July to consider questions of procedure, representation and related matters. The general inquiry began before the Commission in Court Session on 22 July and was completed on 14 August. Representatives of the unions and of the Western Australian Employers' Federation (Incorporated) made extensive submissions and the Crown Counsel, on behalf of the State Government, intervened in the public interest, as authorised under section 68 of the Industrial Arbitration Act. Judgment was given on 22 September. The Commission was unanimous in its conclusion that one basic wage should apply to the whole State, but was divided as to the amount of the wage. The majority view was that a weekly wage of £15 8s. (\$30·80) should be declared as appropriate to adult male workers, and an order was issued accordingly prescribing this amount for males and an amount of £11 11s. (\$23·10) for females, the rates to operate on and from 22 September 1964 and to apply uniformly throughout the State.

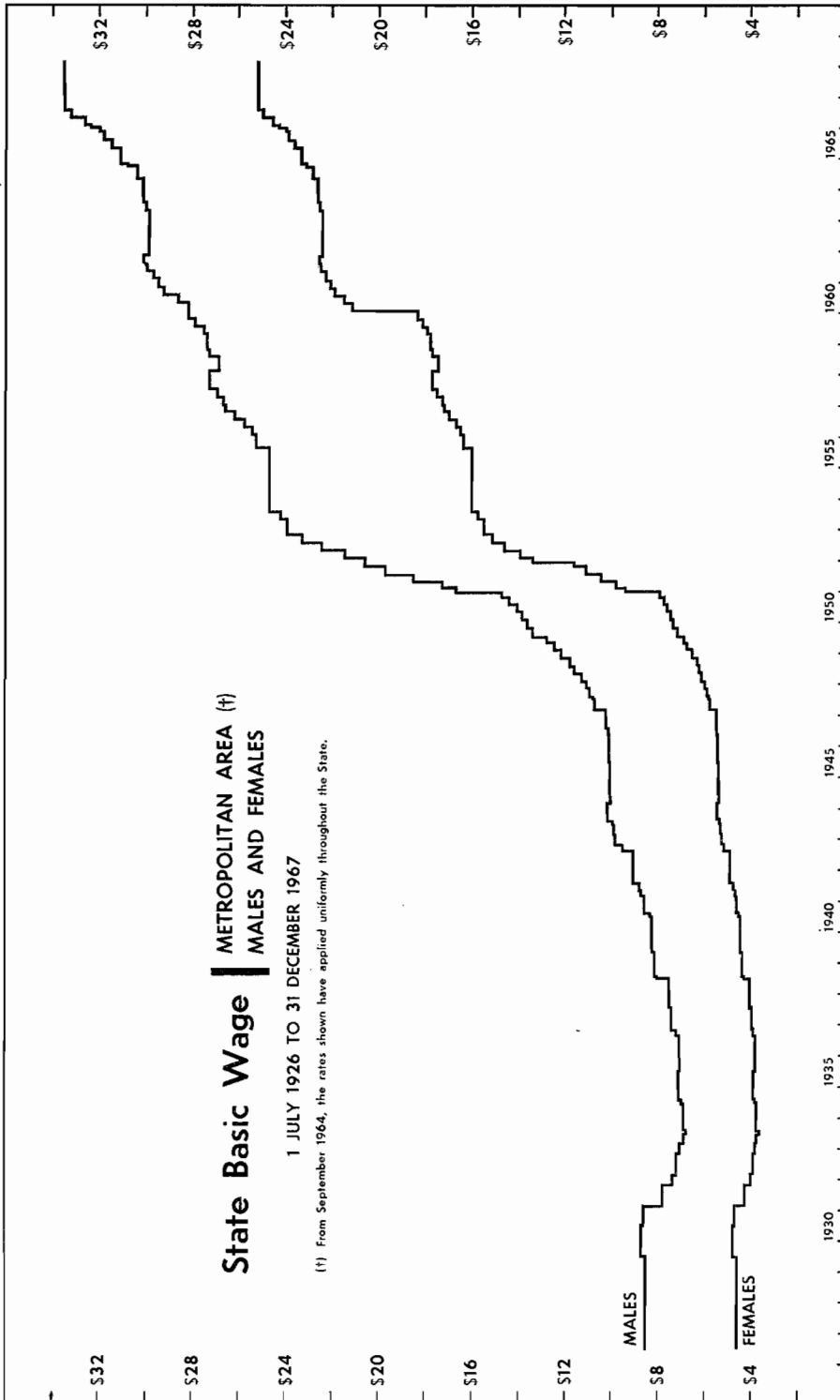
The *Industrial Arbitration Act Amendment Act, 1966*, which came into operation on 23 December 1966, provided that the rates which were current immediately prior to the date of commencement of the Act should remain unaltered until exceeded by the basic wage for the six capital cities as declared by the Commonwealth Conciliation and Arbitration Commission, and that subsequent alterations should be made in accordance with variations of that wage. (At 23 December 1966 the State basic wage for adult males was \$33·50 per week and for adult females, \$25·13 per week. The corresponding Commonwealth basic wage rates for the six capital cities at the same date were \$32·80 and \$24·60).

Reference is made in the preceding section *Commonwealth Basic Wage* to the decision given by the Commonwealth Conciliation and Arbitration Commission on 5 June 1967, when it announced the elimination of basic wages and margins from its awards, and the introduction of total wages to operate from the beginning of the first pay-period commencing on or after 1 July 1967. This decision provided also that total wages for adult males and adult females were to be increased by \$1 per week from the same date. Following this decision a number of unions in Western Australia applied to The Western Australian Industrial Commission seeking an increase of \$1 per week in margins for adult males and adult females, with proportionate increases for junior workers and apprentices. The Commission delivered its judgment on 27 June 1967. The terms of this decision were that the minimum weekly wage payable to adult male workers under certain awards be increased from \$36·55 to \$37·55; 'that the wage rates for adult workers not in receipt of the "minimum wage" be increased by 60 cents per week; and that other wage rates be adjusted as if the basic wage for males and the basic wage for females had been increased by that amount'. These increases were declared to operate from the beginning of the first pay-period commencing on or after 1 July 1967.

A further increase of \$1·35 per week for adult males and adult females was granted by the Commission in October 1968 to operate from the beginning of the first pay-period commencing on or after 25 October 1968.

The *Industrial Arbitration Act Amendment Act, 1968*, operative from 22 November 1968, restores to The Western Australian Industrial Commission the power to declare a basic wage, which had been removed by the amending Act of 1966. The 1968 amendment provides that the Commission in Court Session may at any time and from time to time, by order, '(a) determine and declare a basic wage for male workers; (b) determine and declare a basic wage for female workers; and (c) vary any basic wage for the time being in force, and any such basic wage so determined and declared or so varied shall be for all purposes, the basic wage for male workers or female workers throughout the State'.

The Act defines the term 'basic wage' as 'that wage or that part of a wage which in the opinion of the Commission, is just and reasonable for a worker to whom it applies, without regard to the circumstances pertaining to the work upon which, or the industry in which, such worker is employed'. In determining a basic wage the Commission is required by the Act to take into consideration the amount that it considers sufficient to



enable the average worker to whom that basic wage shall apply to live in reasonable comfort. Although the Commission must also consider the economic capacity of industry, it may not reduce the wage to a level below that required for the maintenance of this standard of 'reasonable comfort'.

The Act prescribes basic wage rates of \$35.45 per week for adult male workers and \$27.08 per week for adult female workers, to apply on and from the date of commencement of the Act (22 November 1968). These amounts comprise the sum of the basic weekly wage rates of \$33.50 for males and \$25.13 for females, operative from 24 October 1966 (before the Commission's power to determine basic wages was removed by the 1966 amendment to the Act), and the subsequent increases of 60 cents per week granted in June 1967 and \$1.35 per week in October 1968.

The Commission is required to review the basic wage, or any variation of the wage, not later than twelve months from the date on which the wage (or variation) came into operation. It is provided by the Act that any variation shall take effect 'only after the expiration of such twelve months, unless in the opinion of the Commission there are special reasons existing in the circumstances of any particular case and it is just and equitable to otherwise determine'.

The following table shows variations, from 22 September 1964, in the State basic wage rates payable to adult male and female workers employed under State industrial awards or registered agreements, or in accordance with the provisions of the Factories and Shops Act. A table showing rates applying at 31 December of each year from 1926 is given in the *Statistical Summary from 1829* following this Chapter.

STATE BASIC WAGE—ADULT WEEKLY RATES
(\$)

Date of operation	Males	Females	Date of operation	Males	Females
1964—22 September	30.80	23.10	1966—25 January	32.38	24.28
26 October	31.12	23.34	2 May	32.65	24.49
1965—26 April	31.47	23.60	2 August	33.26	24.95
26 July	31.78	23.84	24 October (a)	33.50	25.13
16 November	31.96	23.97	1968—22 November (b)	35.45	27.08

(a) See letterpress on page 448.
Act, 1968.

(b) Rates prescribed under the provisions of the *Industrial Arbitration Act Amendment*

Minimum Wage Rates. The basic wage, as the term implies, establishes a 'base' to which additions may be made to provide rates actually payable in certain industries and occupations and in particular areas. Minimum rates, incorporating these additional payments, may be prescribed by awards of The Western Australian Industrial Commission, or may be negotiated by industrial agreement. These agreements are registered with the Commission and are binding upon the parties. The additions made to the basic wage rate take the form of 'margins' and 'loadings'. Margins are amounts awarded to particular classifications of employees for features attaching to their work, such as skill, experience, arduousness and other like factors. Loadings are amounts awarded for various kinds of disabilities associated with the performance of work, or to meet particular circumstances. They include payments such as industry loadings and other general loadings prescribed in awards, determinations or agreements for the occupation concerned.

Awards of the Commonwealth Conciliation and Arbitration Commission take cognisance of particular features or circumstances such as those mentioned above but no longer contain identifiable components in the form of basic wage, margins, and loadings (see letterpress *Commonwealth Basic Wage* on page 447).

The statistics shown in the following table relate, in the main, to wages and hours prescribed in awards or determinations of the Commonwealth and State industrial authorities or in agreements registered with them. A survey conducted by the Commonwealth Statistician in May 1963 showed that Commonwealth awards, determinations and agreements applied to 13.3 per cent of male and 14.8 per cent of female workers in Western Australia, and State awards, determinations and agreements to 76.5 per cent of male and 74.4 per cent of female workers.

The minimum wage rates and index numbers shown in the table embrace a representative range of occupations and are based on the occupation and industry structures in Australia in 1954. The weekly wage rates given in the table, and used in the compilation of the indexes, represent the lowest rates payable for a full week's work (excluding overtime), as prescribed in representative industrial awards, determinations and agreements. The hourly wage rates are obtained by relating the weekly wage rates and the weekly hours of work prescribed in awards, etc. The rural industries are excluded from the table, because of coverage difficulties.

Because the indexes are designed to measure movements in prescribed minimum rates of 'wages' as distinct from 'salaries', those awards, determinations and agreements which relate solely or mainly to salary-earners are excluded.

The wage rates shown should not be regarded as actual current averages, but as indexes expressed in money terms, indicative of trends.

A more detailed description of the Minimum Wage Rates Index and more extensive tables are published in the mimeographed statement *Minimum Wage Rates, March 1939 to June 1965* issued by the Commonwealth Statistician, Canberra. Current figures are given in the Commonwealth Statistician's mimeographed monthly bulletin *Wage Rates and Earnings*.

A table showing minimum rates of wages payable in a wide selection of occupations in Western Australia at 31 December 1967 appears in the *Statistical Register of Western Australia for 1966-67: Part XII—Retail Prices, Wages, Employment and Miscellaneous* (pages 12-19).

WEIGHTED AVERAGE MINIMUM WEEKLY AND HOURLY WAGE RATES
WESTERN AUSTRALIA

Date	Weekly wage rates		Hourly wage rates		Index numbers (a)			
	Adult males	Adult females (b)	Adult males (c)	Adult females (b)	Weekly wage rates		Hourly wage rates	
					Males	Females (b)	Males (c)	Females (b)
End of June—	\$	\$	cents	cents				
1964	38.08	27.22	95.45	68.44	134.8	136.8	134.9	136.4
1965	39.29	27.99	98.55	70.35	139.1	140.6	139.3	140.2
1966	42.06	29.45	105.59	74.02	148.9	147.9	149.2	147.2
1967	44.03	31.20	110.45	78.43	155.9	156.7	156.1	156.3
1968	45.47	32.55	114.08	81.82	161.0	163.5	161.2	163.1

(a) Base of series: weighted average weekly wage rate—Australia, 1954 = 100.
and building and construction.

(c) Excludes shipping and stevedoring.

(b) Excludes mining and quarrying

Average Weekly Earnings. Statistics of average weekly earnings are derived from information concerning employment and wages and salaries as recorded on Pay-roll Tax returns, from other direct collections, and from estimates of the unrecorded balance. The figures relate to civilians only.

Particulars of wages and salaries paid are not available separately for males and females from these sources. Average weekly earnings have therefore been calculated in terms of male units, *i.e.* total male employees plus 55 per cent of female employees. This proportion is derived from the estimated ratio of female to male earnings in Australia. As it was not possible to estimate the ratio of female to male earnings in the several States the same ratio has been used in each State. Because the actual ratio may vary between States precise comparisons between average earnings in different States cannot be made on the basis of the figures shown in the following table.

For the purpose of this table, the term 'earnings' includes, in addition to wages at award rates, earnings of salaried employees, overtime earnings, over-award and bonus payments, and payments made in advance or retrospectively during the years specified. It is important to bear in mind that the figures relate to the total wage and salary earner field and therefore comprise payments to all grades of employees from junior workers to persons at the highest levels of executive and administrative activity.

Quarterly figures corresponding to those shown in the table are published by the Commonwealth Statistician in the monthly bulletin *Wage Rates and Earnings* and in the *Monthly Review of Business Statistics*.

AVERAGE WEEKLY EARNINGS PER EMPLOYED MALE UNIT (a)
AUSTRALIAN STATES
(\$)

Year	N.S.W. (b)	Vic.	Qld	S.A. (c)	W.A.	Tas.	Aust.
1963-64	52.60	52.50	46.90	48.20	47.20	48.40	50.90
1964-65	56.50	56.40	50.40	52.00	49.50	51.00	54.60
1965-66	58.60	59.20	52.50	53.80	54.10	53.80	57.00
1966-67	62.40	63.00	55.60	56.90	58.30	57.40	60.70
1967-68	66.00	66.80	58.80	60.40	62.50	61.00	64.30

(a) Includes, in addition to wages at award rates, earnings of salaried employees, overtime earnings, over-award and bonus payments, and payments made in advance or retrospectively during the years specified. (b) Includes Australian Capital Territory. (c) Includes Northern Territory.

HOURS OF WORK AND LEAVE PROVISIONS

Standard Hours of Work. In the fixation of weekly wage rates most industrial tribunals prescribe the number of hours constituting a full week's work for the wages specified.

Following applications for the introduction of a working week of forty hours, in place of the existing general standard of forty-four hours, the Commonwealth Court of Conciliation and Arbitration began hearing evidence in October 1945. In its judgment given on 8 September 1947 the Court granted the reduction to forty hours from the beginning of the first pay-period commencing in January 1948. On 6 November 1947 the Western Australian Court of Arbitration approved that, on application, provision for a working week of forty hours could be incorporated in awards of the Court with effect from 1 January 1948.

The forty-hour week has operated in Australia generally from 1 January 1948 (in New South Wales from 1 July 1947). However, the number of hours constituting a full week's work (excluding overtime) differs between occupations and/or between States. The weighted average standard hours of work (excluding overtime) prescribed in awards, determinations and agreements for a full working week, in respect of adult male workers in all industry groups except Rural, and Shipping and stevedoring, at 31 December 1967, were: New South Wales, 39.95; Victoria, 39.97; Queensland, 39.98; South Australia, 39.96; Western Australia, 39.89; Tasmania, 39.97; Australia, 39.96. Corresponding figures for adult female workers at 31 December 1967 were: New South Wales, 39.53; Victoria, 39.81; Queensland, 39.70; South Australia, 39.77; Western Australia, 39.78; Tasmania, 39.63; Australia, 39.67.

Annual Leave and Public Holidays. On 18 April 1963 the Commonwealth Conciliation and Arbitration Commission gave a judgment which had the effect of granting a general increase from two weeks to three weeks in the period of paid annual leave for employees covered by Commonwealth awards.

Following a general inquiry concerning annual leave and public holidays, the Western Australian Court of Arbitration in June 1963 adopted three weeks as the new standard for the normal period of annual leave in State awards, with four weeks for seven-day shift workers. Existing awards and agreements which already provided annual leave in excess of this standard were to be examined separately to ascertain whether special circumstances existed to justify leave greater than the normal standard.

In the inquiry the State Government sought a reduction in the number of public holidays and a review of other conditions where these were more favourable than the Court's standard. Private employers opposed any increase in annual leave but, alternatively, submitted that, if there was to be an increase, then the new standard should be two weeks and four days per annum or the number of public holidays in each year should be reduced by one. Both these submissions were rejected and the standard number of

public holidays was retained at ten with the provision that, where an award provided for more than ten public holidays a year, that award, unless the union consented to a reduction to ten, would be excluded from the order amending the annual leave provisions until it was established that special circumstances justified the continuance of the greater number of holidays.

In November 1963 the Court refused an application by employers for the right to split the annual leave into two parts, since it decided to follow the decision of most other State tribunals and allow the additional leave in conformity with conditions similar to those prescribed by the Commonwealth Conciliation and Arbitration Commission. The right to split the leave would be allowed by the Court only in exceptional circumstances, unless all the parties concerned agreed to the inclusion of such a provision.

Long Service Leave. The *Long Service Leave Act, 1958-1964* (State) confers entitlement to long service leave with pay on employees for whom such leave is not otherwise provided. Entitlement accrues only in relation to continuous service with one employer, but continuity of service is not affected by the transfer of a business from one employer to another. Leave of thirteen weeks on ordinary pay is granted in respect of the first fifteen years of service. For each subsequent ten years the entitlement is eight and two-thirds weeks, with *pro rata* conditions applying in the case of death or termination of employment for any reason other than serious misconduct. An employee who has completed at least ten years' service but less than fifteen years is entitled to *pro rata* leave, on the basis of thirteen weeks for fifteen years, if his employment is terminated by death; by the employer for any reason other than serious misconduct; or by the employee on account of sickness, injury, or domestic or other pressing necessity. An employee forfeits his right to long service leave if he engages in alternative employment for reward during the period of leave.

WORKERS' COMPENSATION

The *Workers' Compensation Act, 1912-1967* (State) provides compensation to workers in Western Australia for injuries suffered in the course of their employment, for death resulting from such injuries, and for disabilities due to specified industrial diseases associated with their employment. The provisions of the Act do not extend to employees of the Commonwealth Government, for whom compensation is provided by the *Commonwealth Employees' Compensation Act 1930-1968*.

Every employer, other than a self-insurer, is required to effect insurance with an approved insurer for the full amount of the liability to pay compensation under the Act to all workers in his employment.

The Act establishes a Workers' Compensation Board of three members, including a chairman, appointed by the Governor. The chairman must be a legal practitioner of not less than seven years' practice and standing. Of the remaining members, one is nominated by the Western Australian Employers' Federation (Incorporated), and one by the Trades and Labor Council of Western Australia. The Board has exclusive jurisdiction to inquire into, hear, and determine all questions and matters arising under the Act, and its actions and decisions are final, except that where any question of law arises in any proceedings before the Board, it may state a case for the decision of the Full Court of the Supreme Court.

In the following paragraphs the amounts of compensation shown are those which were payable under the Act as at 31 December 1968.

Where total or partial incapacity for work results from the injury, the maximum weekly payment during the period of incapacity is, in the case of an adult worker whose average weekly earnings are not less than the basic wage, \$25·40 for a male and \$19 for a female, where there are no dependants. Where there are dependants, the maximum

payment for both male and female workers is \$38·10. In the case of a worker receiving less than the basic wage and without dependants, the maximum payment is derived by applying to \$25·40 (or \$19 for a female) the ratio which his (or her) average weekly earnings bear to the basic wage. Where there are dependants, the maximum payment is equal to the amount of the average weekly earnings.

The total liability of the employer in respect of weekly payments, including payments for dependants, is limited to \$10,582. Additional compensation is payable up to a maximum of \$1,587 (or more, if the Board finds that, in particular circumstances, this amount is inadequate) for expenses incurred in respect of first aid and ambulance services, medicines, medical or surgical attendance, hospital treatment, and the like. In the event of the death of the worker, funeral expenses are compensable up to a maximum of \$159.

The Act provides for compensation in the form of a lump-sum payment, up to a maximum of \$10,582, in respect of specified injuries resulting in such disabilities as loss of sight, hearing or mental powers, or loss of a limb or limbs.

Where death results from the injury and the worker leaves any dependants who were wholly dependent on his earnings, the maximum amount of compensation is \$10,582, together with an additional sum of \$233 in respect of each dependent child or step-child under sixteen years of age not being an ex-nuptial child. It is provided that if a worker leaves a widow, a mother, or a dependent child or step-child under sixteen years of age, wholly dependent on his earnings, the minimum payment shall be \$2,467 plus \$233 for each dependent child. If a worker dies leaving no dependants, reasonable expenses in connection with medical attendance and burial are payable to the person by whom the expenses were properly incurred.

Disability or death caused by certain specified industrial diseases due to the nature of a worker's employment is compensable at the same rates and under the same conditions as those applying in the case of injury.

INDUSTRIAL ACCIDENTS

The collection of information required for detailed analysis of industrial accidents occurring in Western Australia commenced on 1 July 1961. From that date all insurers and self-insurers have been required to submit a report to the Workers' Compensation Board in respect of each claim for workers' compensation as soon as the claim is closed. Only accidents coming within the scope of the Workers' Compensation Act are included in the statistics, which therefore exclude industrial accidents resulting in the death of, or injury to, self-employed persons and all Commonwealth Government employees. As the statistics relate only to accidents, particulars of cases of industrial disease are excluded.

With few exceptions, an accident to an employee while travelling between his place of residence and place of employment was not compensable in Western Australia until 14 December 1964, when the *Workers' Compensation Act Amendment Act, 1964* came into operation. From that date, the compensation provisions have been extended generally to include such cases. These cases are not, however, included in the statistics. (During the year ended 30 June 1967, 106 claims were reported closed in respect of 'journey' cases involving loss of work for one week or more. The total time lost was 599 weeks and the cost of claims amounted to \$31,207.)

For the purpose of the statistics, each claim is regarded as a separate industrial accident and data are prepared from reports of claims closed during the year under review. The item 'cost of claims' refers to *total* payments made (principally in the form of compensation for loss of wages, medical expenses, and lump-sum settlements) in respect of claims closed during the year, and therefore does not necessarily represent amounts actually paid in that year. Similarly, 'time lost' refers to *total* time lost (*i.e.* from date of injury) in respect of claims closed during the year.

The tables in this section include particulars of industrial accidents resulting in death or absence from work of at least one week, *i.e.* a week of five working days. In respect of reopened claims, the additional time lost and additional costs are included in the tables but, to avoid duplication, such cases (of which there were 2,759 in 1966-67) have been excluded from the numbers of accidents shown.

The following table gives a summary of industrial accidents in Western Australia for the years 1962-63 to 1966-67.

INDUSTRIAL ACCIDENTS (a)—NUMBER, TIME LOST, AND COST OF CLAIMS (b)

Particulars	1962-63	1963-64	1964-65	1965-66	1966-67
Number of accidents—					
Fatal	34	28	32	31	21
Non-fatal	14,955	14,257	13,903	14,548	14,323
Time lost (c) (weeks)—					
Total	59,989	59,039	56,095	59,403	55,506
Average per accident	4.0	4.1	4.0	4.1	3.9
Cost of claims (b)—					
Fatal accidents	\$'000 150	117	161	214	85
Non-fatal accidents	\$'000 2,703	2,756	2,723	3,189	3,071
Total	\$'000 2,853	2,873	2,884	3,403	3,156
Average per non-fatal accident	\$ 181	193	196	219	214

(a) Accidents resulting in absence from work of one week or more. (b) Refers to total payments made (principally compensation for wages lost, medical expenses, and lump-sum settlements) in respect of claims closed during the year, and therefore not necessarily to amounts actually paid in that year. (c) Total time lost (*i.e.* from date of injury) in respect of claims closed during the year.

Statistics in greater detail, as well as analyses according to additional characteristics, are available in the publications, *Industrial Accidents (Series A)*, which relates to accidents resulting in death or absence from work for one day or more, and *Industrial Accidents (Series B)*, relating to accidents resulting in death or absence from work for one week or more. These publications, which are in mimeographed form, are issued annually by the Western Australian Office of the Commonwealth Bureau of Census and Statistics.

The following table contains an analysis, according to industry group, of industrial accidents in Western Australia for the year ended 30 June 1967. Accidents have been classified according to the Classification of Industries used in the 1966 Census of Population. The table on page 462 gives an indication of the nature of the sub-groups included in the several industry groups.

INDUSTRIAL ACCIDENTS (a)—NUMBER, TIME LOST, AND COST OF CLAIMS (b)
INDUSTRY GROUPS : 1966-67

Industry group	Fatal accidents		Non-fatal accidents			
	Number	Cost of claims (b)	Number	Per cent of total	Time lost (c)	Cost of claims (b)
		\$'000			weeks	\$'000
Primary production—						
Mining and quarrying	3	8	915	6.4	3,491	229
Other	5	9	1,097	7.7	4,394	240
Manufacturing	5	34	5,218	36.4	18,500	1,085
Electricity, gas, water and sanitary services (d)			208	1.5	885	45
Building and construction	5	26	2,493	17.4	11,238	589
Transport, storage and communication			1,402	9.8	5,408	273
Finance and property			25	0.2	93	4
Commerce	1	(e) 8	1,765	12.3	6,485	379
Public authority (n.e.i.) and defence services ; community and business services	1	(f)	647	4.5	2,694	113
Amusement, hotels, cafes, personal service, etc.	1	(f)	488	3.4	2,108	99
Other			65	0.5	210	15
Total	21	85	14,323	100.0	55,506	3,071

(a) Accidents resulting in absence from work of one week or more. (b) See note (b) to previous table. (c) See note (c) to previous table. (d) Production, supply and maintenance. (e) Reopened claim. (f) Less than \$500.

The following table gives a classification, according to duration of time lost, of industrial accidents in Western Australia for the year ended 30 June 1967.

INDUSTRIAL ACCIDENTS (a)—DURATION OF TIME LOST : 1966-67

Duration of time lost (weeks)	Males		Females		Total	
	Number	Time lost (weeks)	Number	Time lost (weeks)	Number	Time lost (weeks)
1 and under	2	....	....	....	....	....
2	4	....	....	....	....	....
4	6	....	....	....	....	....
6	8	....	....	....	....	....
8	13	....	....	....	....	....
13	26	....	....	....	....	....
26	52	....	....	....	....	....
52	104	....	....	....	....	....
104	156	....	....	....	....	....
156 and over	....	....	....	....	....	....
Reopened claims (b)	....	....	....	....	....	....
Total	13,251	51,257	1,072	4,249	14,323	55,506

(a) Non-fatal accidents resulting in absence from work of one week or more. allocated to appropriate groups. The number of reopened claims reported was 2,759.

(b) Additional time lost which cannot be

Chapter X—continued

Part 2—Employment

NOTE. In addition to the employment data appearing in this Part, references to the numbers of persons engaged in particular activities are to be found elsewhere in the Year Book. In Chapter V, for example, Part 1—*Education* shows numbers engaged in teaching, Part 3—*Health Services, Hospitals and Homes for the Aged* contains details of hospital staffs, and employment in building appears in Part 4—*Housing and Building*. In Chapter VIII, Part 1—*Primary Production* gives male employment on rural holdings, at mines and in fishing, and Part 2—*Secondary Production* includes tables relating wholly, or in part, to employment in factories. Chapter IX, Part 3—*Transport* shows numbers engaged in various types of transport undertakings.

All tables in this Part which contain information compiled from census schedules exclude particulars of full-blood Aborigines, as required by section 127 (now repealed) of the Australian Constitution; see letterpress Aborigines on page 124.

The most detailed and comprehensive statistics of employment of the population are those which are derived from the periodic Population Census. Among the most useful of the tabulations based on these enumerations are those which classify the population according to occupational status and industry.

THE WORK FORCE

It is customary in modern census practice to distinguish between the economically active and inactive sectors of the community on the basis of those 'In the Work Force' and those 'Not in the Work Force'.

The *work force* comprises all persons engaged in an industry, business, trade, or service, and includes persons who were not working at the time of the census. It includes employers, the self-employed (*i.e.* persons working on own account but not employing others), employees on wage or salary, and unpaid helpers (other than those usually working in such activities for less than fifteen hours per week).

Persons *not in the work force* include children not attending school; full-time students and children attending school; persons of independent means; those engaged in home duties; pensioners and annuitants; and inmates of institutions.

The comprehensive tables resulting from the census include detailed analyses of the work force according to such characteristics as age, marital status, religion, birthplace, occupational status, industry and occupation. For the purpose of this Chapter, only a selection of the tables, in condensed form, relating to occupational status, industry and occupation have been included.

At the Census of 30 June 1966 there were 246,155 males in the work force, representing 57·69 per cent of the total male population.

The number of females in the work force at the 1966 Census was 93,424, or 22·79 per cent of the female population. Of this total, 45,286, equivalent to 48·47 per cent of females in the work force, were married women, including women married but permanently separated.

The 1966 Census work force statistics are not strictly comparable with those of earlier censuses. For a detailed explanation of the new approach adopted at the 1966 Census, the reader is referred to *Census Bulletin No. 5.1—Summary of Population: Western Australia*, issued November 1967 by the Commonwealth Statistician, Canberra. The net effect of the new definition is to include approximately 8,100 additional persons in the Western Australian work force, a proportional increase of approximately 2·4 per cent.

Classification according to Occupational Status

POPULATION CLASSIFIED ACCORDING TO OCCUPATIONAL STATUS
CENSUS, 30 JUNE 1966

Occupational status	Males	Females	Persons	Percentage of population		
				Males	Females	Persons
In work force—						
Employed—						
Employer	21,383	4,700	26,083	5·01	1·15	3·12
Self-employed	25,136	4,689	29,825	5·89	1·14	3·56
Employee (on wage or salary)	195,704	79,661	275,365	45·87	19·43	32·91
Helper (not on wage or salary)	994	2,310	3,304	0·23	0·56	0·39
Total Employed	243,217	91,360	334,577	57·00	22·28	39·99
Unemployed	2,938	2,064	5,002	0·69	0·50	0·60
Total in work force	246,155	93,424	339,579	57·69	22·79	40·59
Not in work force—						
Child not at school	48,732	46,195	94,927	11·42	11·27	11·35
Child attending school or full-time student	97,401	90,728	188,129	22·83	22·13	22·49
Mainly dependent on pension or superannuation	22,374	32,163	54,537	5·24	7·84	6·52
Of independent means	3,626	3,402	7,028	0·85	0·83	0·84
Home duties .....	...	137,269	137,269	...	33·48	16·41
Inmates of institutions	3,094	3,166	6,260	0·73	0·77	0·75
Others not in work force	5,309	3,635	8,944	1·24	0·89	1·07
Total not in work force	180,536	316,558	497,094	42·31	77·21	59·41
GRAND TOTAL	426,691	409,982	836,673	100·00	100·00	100·00

POPULATION ACCORDING TO OCCUPATIONAL STATUS—AUSTRALIA
CENSUS, 30 JUNE 1966

Occupational status	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Australia
MALES									
In work force—									
Employed—									
Employer.....	83,466	67,236	44,111	23,747	21,383	8,245	815	1,388	250,391
Self-employed	106,723	92,302	49,463	31,135	25,136	9,162	601	1,286	315,808
Employee (on wage or salary)	1,058,213	777,217	379,207	259,105	195,704	87,567	12,796	27,304	2,797,113
Helper (not on wage or salary)	4,564	3,333	2,486	1,167	994	432	26	46	13,048
Total Employed	1,252,966	940,088	475,267	315,154	243,217	105,406	14,238	30,024	3,376,360
Unemployed	18,421	10,139	7,964	4,464	2,938	1,146	162	214	45,448
Total in work force	1,271,387	950,227	483,231	319,618	246,155	106,552	14,400	30,238	3,421,808
Not in work force	853,076	663,677	360,666	228,912	180,536	80,828	7,108	19,739	2,394,542
Total males	2,124,463	1,613,904	843,897	548,530	426,691	187,380	21,508	49,977	5,816,350
FEMALES									
In work force—									
Employed—									
Employer.....	19,774	16,747	10,518	6,228	4,700	1,759	225	271	60,222
Self-employed	23,170	20,008	11,306	7,205	4,689	1,644	134	263	68,419
Employee (on wage or salary)	474,185	374,625	149,377	111,197	79,661	35,450	4,171	12,774	1,241,440
Helper (not on wage or salary)	12,566	8,191	5,483	2,613	2,310	940	76	138	32,317
Total Employed	529,695	419,571	176,684	127,243	91,360	39,793	4,606	13,446	1,402,398
Unemployed	13,070	7,250	4,954	3,563	2,064	971	138	232	32,242
Total in work force	542,765	426,821	181,638	130,806	93,424	40,764	4,744	13,678	1,434,640
Not in work force	1,566,595	1,178,801	638,150	412,539	316,558	143,272	11,181	32,358	4,299,454
Total females	2,109,360	1,605,622	819,788	543,345	409,982	184,036	15,925	46,036	5,734,094

OCCUPATIONAL STATUS, MARITAL STATUS AND AGE—MALES
 CENSUS, 30 JUNE 1966

Occupational status and marital status	Age last birthday (years)							Total (a)
	15-19	20-24	25-34	35-44	45-54	55-64	65 and over	
Employers—								
Never married	186	473	555	256	183	132	42	1,827
Married	6	376	3,711	5,504	5,109	3,358	854	18,918
Married but permanently separated			33	69	72	51	19	246
Widowed		1	6	24	45	74	87	237
Divorced	1		17	36	53	35	13	155
Total	193	852	4,322	5,889	5,462	3,650	1,015	21,383
Self-employed—								
Never married	575	1,234	1,111	602	450	414	144	4,530
Married	11	652	4,512	5,488	4,336	3,544	1,100	19,643
Married but permanently separated		5	59	92	87	65	29	337
Widowed		1	2	22	48	142	139	354
Divorced			23	76	70	79	23	272
Total	586	1,893	5,707	6,280	4,991	4,244	1,435	25,136
Employees (on wage or salary)—								
Never married	26,456	17,305	9,448	4,468	2,783	2,054	372	62,886
Married	422	8,127	31,008	35,293	27,719	19,600	2,407	124,576
Married but permanently separated	3	133	72	1,038	986	667	103	3,652
Widowed	6	15	59	230	534	983	325	2,152
Divorced	8	28	302	660	765	607	68	2,438
Total	26,895	25,608	41,539	41,689	32,787	23,911	3,275	195,704
Helpers (not on wage or salary)—								
Never married	402	150	42	11	12	25	27	669
Married		19	30	31	41	57	77	255
Married but permanently separated		1		2		9	4	17
Widowed					3	6	30	39
Divorced			1	1	2	3	7	14
Total	402	170	74	45	58	100	145	994
Total employed—								
Never married	27,619	19,162	11,156	5,337	3,428	2,625	585	69,912
Married	439	9,174	39,261	46,316	37,205	26,559	4,438	163,392
Married but permanently separated	3	141	815	1,201	1,145	792	155	4,252
Widowed	6	17	67	276	630	1,205	581	2,782
Divorced	9	29	343	773	890	724	111	2,879
TOTAL EMPLOYED	28,076	28,523	51,642	53,903	43,298	31,905	5,870	243,217
Unemployed—								
Never married	533	351	263	136	89	80	20	1,472
Married	6	85	278	329	236	232	58	1,224
Married but permanently separated		3	24	36	31	20	4	118
Widowed		3	1	6	14	21	9	54
Divorced		2	8	16	25	15	4	70
Total Unemployed	539	444	574	523	395	368	95	2,938
Total in work force—								
Never married	28,152	19,513	11,419	5,473	3,517	2,705	605	71,384
Married	445	9,259	39,539	46,645	37,441	26,791	4,496	164,616
Married but permanently separated	3	144	839	1,237	1,176	812	159	4,370
Widowed	6	20	68	282	644	1,226	590	2,836
Divorced	9	31	351	789	915	739	115	2,949
TOTAL IN WORK FORCE	28,615	28,967	52,216	54,426	43,693	32,273	5,965	246,155
Not in work force—								
Never married	12,090	1,920	873	572	586	1,199	2,564	(a) 19,804
Married	7	133	475	753	1,086	3,803	14,366	20,623
Married but permanently separated	1	9	34	80	138	251	651	1,164
Widowed	1	1	5	19	58	354	4,378	4,816
Divorced		2	20	54	93	216	407	792
Total not in work force	12,099	2,065	1,407	1,478	1,961	5,823	22,366	(a) 47,199
Total Males—								
Never married	40,242	21,433	12,292	6,045	4,103	3,904	3,169	(a) 91,188
Married	452	9,392	40,014	47,398	38,527	30,594	18,862	185,239
Married but permanently separated	4	153	873	1,317	1,314	1,063	810	5,534
Widowed	7	21	73	301	702	1,580	4,968	7,652
Divorced	9	33	371	843	1,008	955	522	3,741
GRAND TOTAL	40,714	31,032	53,623	55,904	45,654	38,096	28,331	(a) 293,354

(a) Excludes 43,524 males aged 0-4 years, 45,791 males aged 5-9 years and 44,022 males aged 10-14 years not in the work force.

OCCUPATIONAL STATUS, MARITAL STATUS AND AGE—FEMALES
CENSUS, 30 JUNE 1966

Occupational status and marital status	Age last birthday (years)							Total (a)
	15-19	20-24	25-34	35-44	45-54	55-64	65 and over	
Employers—								
Never married	8	24	24	22	44	50	16	188
Married	7	122	869	1,328	1,122	497	58	4,003
Married but permanently separated .....	....	....	5	21	18	13	4	61
Widowed .....	....	1	3	24	113	154	81	376
Divorced .....	....	....	4	24	20	23	1	72
Total	15	147	905	1,419	1,317	737	160	4,700
Self-employed—								
Never married	38	44	30	35	61	83	42	333
Married	10	186	907	1,145	989	509	87	3,833
Married but permanently separated .....	....	3	13	23	30	21	2	92
Widowed .....	....	....	5	35	79	132	95	346
Divorced .....	....	....	7	19	38	18	3	85
Total	48	233	962	1,257	1,197	763	229	4,689
Employees (on wage or salary)—								
Never married	23,301	9,117	3,330	1,594	1,473	1,249	339	40,403
Married	730	4,719	7,157	10,165	6,831	2,215	176	31,993
Married but permanently separated	24	195	507	748	705	277	29	2,485
Widowed	6	14	84	402	1,130	1,157	317	3,110
Divorced	2	23	260	532	541	280	32	1,670
Total	24,063	14,068	11,338	13,441	10,680	5,178	893	79,661
Helpers (not on wage or salary)—								
Never married	159	55	29	17	10	11	5	286
Married	15	127	413	508	500	259	60	1,882
Married but permanently separated .....	....	3	12	10	4	4	4	37
Widowed .....	....	1	3	2	12	33	34	85
Divorced .....	....	1	5	4	5	5	....	20
Total	174	187	462	541	531	312	103	2,310
Total employed—								
Never married	23,506	9,240	3,413	1,668	1,588	1,393	402	41,210
Married	762	5,154	9,346	13,146	9,442	3,480	381	41,711
Married but permanently separated	24	201	537	802	757	315	39	2,675
Widowed	6	16	95	463	1,334	1,476	527	3,917
Divorced	2	24	276	579	604	326	36	1,847
TOTAL EMPLOYED	24,300	14,635	13,667	16,658	13,725	6,990	1,385	91,360
Unemployed—								
Never married	663	228	82	18	16	15	....	1,022
Married	47	167	219	211	99	28	10	781
Married but permanently separated	4	17	21	36	33	8	....	119
Widowed .....	....	3	2	10	31	31	17	94
Divorced .....	....	2	10	13	12	9	2	48
Total Unemployed	714	417	334	288	191	91	29	2,064
Total in work force—								
Never married	24,169	9,468	3,495	1,686	1,604	1,408	402	42,232
Married	809	5,321	9,565	13,357	9,541	3,508	391	42,492
Married but permanently separated	28	218	558	838	790	323	39	2,794
Widowed	6	19	97	473	1,365	1,507	544	4,011
Divorced	2	26	286	592	616	335	38	1,895
TOTAL IN WORK FORCE	25,014	15,052	14,001	16,946	13,916	7,081	1,414	93,424
Not in work force—								
Never married	11,191	1,099	724	557	625	1,209	2,555	(a) 17,960
Married	2,356	12,134	34,202	32,490	26,989	20,116	12,274	140,561
Married but permanently separated	14	144	556	697	568	618	595	3,192
Widowed	2	22	179	531	1,743	5,043	18,603	26,123
Divorced	3	25	180	300	404	513	454	1,879
Total not in work force	13,566	13,424	35,841	34,575	30,329	27,499	34,481	(a)189,715
Total Females—								
Never married	35,360	10,567	4,219	2,243	2,229	2,617	2,957	(a) 60,192
Married	3,165	17,455	43,767	45,847	36,530	23,624	12,665	183,053
Married but permanently separated	42	362	1,114	1,535	1,358	941	634	5,986
Widowed	8	41	276	1,004	3,108	6,550	19,147	30,134
Divorced	5	51	466	892	1,020	848	492	3,774
GRAND TOTAL	38,580	28,476	49,842	51,521	44,245	34,580	35,895	(a)283,139

(a) Excludes 41,286 females aged 0-4 years, 43,428 females aged 5-9 years and 42,129 females aged 10-14 years not in the work force.

Classification according to Industry

For census purposes, industry may be defined as any single *branch of productive activity, trade or service*. It is concerned with the activities of persons, firms or businesses considered as a *group* producing the same commodity, performing the same process or providing the same service. All persons engaged in any such branch of economic activity are classified industrially as belonging to that particular branch irrespective of their personal occupation within the industry. Examples are: Mining, which includes, in addition to miners and prospectors, such persons as laboratory technicians, transport workers and office staff employed by mining companies; Shipping, which covers staff members of shipping companies and agencies, as well as ships' crews; professional activities such as Medicine, Law and Architecture which include not only qualified practitioners but also persons employed by them as, for example, receptionists, law clerks and draftsmen.

Classification according to industry at the 1966 Census has been made on the basis of the *Classification and Classified List of Industries—Revised: June 1966*, published by the Commonwealth Statistician, Canberra. The Classification divides the work force into 14 Major Groups which, in turn, are divided into 53 Sub-groups and 342 Industry Categories.

In the following table, the work force at 30 June 1966 is classified according to the main industrial groups such as Primary Production; Mining and Quarrying; Manufacturing; and so on. It should be noted that the particulars shown under Public Authority Activities (n.e.i.) are residual figures comprising those persons in the administrative sphere of general government, local government and foreign consular services who have not been classified elsewhere. They do not, therefore, represent the total number of persons engaged in or attached to all fields of government service, Commonwealth, State or Local.

INDUSTRY AND OCCUPATIONAL STATUS OF THE WORK FORCE
CENSUS, 30 JUNE 1966

Industry group	In work force					
	Employed				Un- employed	Total in work force
	Em- ployer	Self- employed	Employee (on wage or salary)	Helper (not on wage or salary)		
MALES						
Primary production	8,260	14,052	13,555	727	370	36,964
Mining and quarrying	58	185	7,665	9	104	8,021
Manufacturing	2,018	1,347	46,817	49	314	50,545
Electricity, gas, water and sanitary services	25	18	5,437	2	26	5,508
Building and construction	2,613	3,024	27,758	26	465	33,886
Transport and storage	758	2,035	19,168	12	145	22,118
Communication .....	.....	.....	5,680	3	15	5,698
Finance and property	361	511	6,460	9	10	7,351
Commerce	4,392	2,416	29,779	67	221	36,875
Public authority (n.e.i.) and defence services .....	.....	.....	10,843	.....	43	10,886
Community and business services (including professional)	1,519	411	15,777	48	67	17,822
Amusement, hotels, cafes, personal service, etc.	1,340	1,072	5,644	29	90	8,175
Other (a)	39	65	1,121	13	1,068	2,306
Total males in work force	21,383	25,136	195,704	994	2,938	246,155
FEMALES						
Primary production	1,248	1,949	1,960	1,294	23	6,474
Mining and quarrying	2	1	306	1	.....	310
Manufacturing	347	271	9,517	84	129	10,348
Electricity, gas, water and sanitary services	4	4	334	3	1	346
Building and construction	205	54	862	55	5	1,181
Transport and storage	114	139	1,478	45	8	1,784
Communication .....	.....	.....	1,326	3	12	1,341
Finance and property	51	78	4,250	17	21	4,417
Commerce	1,601	1,164	20,884	335	217	24,201
Public authority (n.e.i.) and defence services .....	.....	.....	3,022	.....	30	3,052
Community and business services (including professional)	189	347	23,527	84	225	24,372
Amusement, hotels, cafes, personal service, etc.	909	608	10,461	189	206	12,373
Other (a)	30	74	1,734	200	1,187	3,225
Total females in work force	4,700	4,689	79,661	2,310	2,064	93,424

(a) Comprises the groups *Other industries* and *Industry inadequately described or not stated*.

INDUSTRY OF THE POPULATION
CENSUS, 30 JUNE 1966

Industry group and sub-group (a)	Males	Females	Persons		
			Total	Percentage of—	
				Work force	Population
Primary production—					
Rural industries	34,267	6,375	40,642	11·97	4·86
Other primary production (b)	2,697	99	2,796	0·82	0·33
Total, Primary production...	36,964	6,474	43,438	12·79	5·19
Mining and quarrying	8,021	310	8,331	2·45	1·00
Manufacturing—					
Cement, bricks, glass and stone	3,507	289	3,796	1·12	0·45
Founding, engineering and metal working	14,795	1,606	16,401	4·83	1·96
Manufacture, assembly and repair of ships, vehicles, and parts	8,337	369	8,706	2·56	1·04
Food, drink and tobacco	7,112	2,610	9,722	2·86	1·16
Sawmilling, wood products (other than furniture)	5,057	316	5,373	1·58	0·64
Paper and paper products, printing, packaging, bookbinding and photography	3,610	1,396	5,006	1·47	0·60
Other and undefined	8,127	3,762	11,889	3·50	1·42
Total, Manufacturing	50,545	10,348	60,893	17·93	7·28
Electricity, gas, water and sanitary services (c)	5,508	346	5,854	1·72	0·70
Building and construction—					
Construction and repair of buildings	20,625	931	21,556	6·35	2·58
Construction works (other than buildings)	13,261	250	13,511	3·98	1·61
Total, Building and construction	33,886	1,181	35,067	10·33	4·19
Transport and storage—					
Road transport	8,648	972	9,620	2·83	1·15
Rail and air transport	7,614	518	8,132	2·39	0·97
Other transport; storage	5,856	294	6,150	1·81	0·74
Total, Transport and storage	22,118	1,784	23,902	7·04	2·86
Communication	5,698	1,341	7,039	2·07	0·84
Finance and property—					
Banking	3,398	1,674	5,072	1·49	0·61
Insurance	2,003	1,413	3,416	1·01	0·41
Other finance and property	1,950	1,330	3,280	0·97	0·39
Total, Finance and property	7,351	4,417	11,768	3·47	1·41
Commerce—					
Wholesale trade	13,774	4,612	18,386	5·41	2·20
Livestock and primary produce dealing, etc.	3,365	727	4,092	1·21	0·49
Retail trade	19,736	18,862	38,598	11·37	4·61
Total, Commerce	36,875	24,201	61,076	17·99	7·30
Public authority (n.e.i.) and defence services	10,886	3,052	13,938	4·10	1·67
Community and business services (including professional)—					
Health, hospitals, etc.	4,295	12,084	16,379	4·82	1·96
Education	6,477	7,969	14,446	4·25	1·73
Other (including professional)	7,050	4,319	11,369	3·35	1·36
Total, Community and business services	17,822	24,372	42,194	12·43	5·04
Amusement, hotels and other accommodation, cafes, etc. (d)—					
Amusement, sport and recreation	2,737	1,234	3,971	1·17	0·47
Hotels, boarding houses and other accommodation, restaurants	3,171	6,616	9,787	2·88	1·17
Other personal services	2,267	4,523	6,790	2·00	0·81
Total, Amusement, hotels, etc.	8,175	12,373	20,548	6·05	2·46
Other industries and industry inadequately described (e)	2,306	3,225	5,531	1·63	0·66
Grand Total—Persons in the work force	246,155	93,424	339,579	100·00	40·59
Persons not in the work force	180,536	316,558	497,094	....	59·41
TOTAL POPULATION	426,691	409,982	836,673	....	100·00

(a) Only those sub-groups in which more than one per cent of the work force (equivalent to 3,396 persons) were recorded are shown separately. (b) Comprises *Fishing; Hunting and trapping; and Forestry.* (c) Production, supply and maintenance. (d) Includes *Personal service and Private domestic service.* (e) Includes *Industry not stated.*

INDUSTRY OF THE WORK FORCE—CENSUS, 30 JUNE 1966
CLASSIFICATION ACCORDING TO STATISTICAL DIVISION

Statistical Division	Primary (including mining and quarrying)	Manu- facturing	Build- ing and construc- tion	Trans- port, storage and commu- nication	Com- merce	Com- munity and business services (a)	Amuse- ment, hotels, cafes, etc. (b)	Other indus- tries (c)	Total (all indus- tries)
MALES									
Perth Statistical Division	5,921	41,653	19,959	17,973	27,861	13,809	5,921	20,367	153,464
Other Divisions—									
South-West	7,138	4,125	2,430	2,011	2,240	916	557	1,562	20,979
Southern Agricultural	6,411	1,280	1,520	1,182	1,780	564	321	716	13,774
Central Agricultural	8,958	1,260	2,367	1,718	2,104	794	385	1,125	18,711
Northern Agricultural	6,330	725	1,397	1,050	1,309	530	311	659	12,311
Eastern Goldfields	5,594	625	1,314	989	985	563	321	692	11,083
Central	889	28	164	106	58	44	35	72	1,396
North-West	1,130	207	1,686	255	181	220	146	224	4,049
Pilbara	1,445	91	2,247	285	158	148	101	207	4,682
Kimberley	1,126	501	772	410	178	211	68	316	3,582
Total	39,021	8,842	13,897	8,006	8,993	3,990	2,245	5,573	90,567
Total, all Divisions	44,942	50,495	33,856	25,979	36,854	17,799	8,166	25,940	244,031
Migratory (d)	43	50	30	1,837	21	23	9	111	2,124
Total males in work force	44,985	50,545	33,886	27,816	36,875	17,822	8,175	26,051	246,155
FEMALES									
Perth Statistical Division	1,249	9,234	919	2,049	18,619	18,918	8,269	8,814	68,071
Other Divisions—									
South-West	1,067	379	52	242	1,524	1,385	914	589	6,152
Southern Agricultural	1,151	319	40	171	978	835	626	356	4,476
Central Agricultural	1,643	116	47	232	1,192	1,134	765	442	5,571
Northern Agricultural	836	102	31	173	755	712	617	303	3,529
Eastern Goldfields	325	75	21	88	757	763	563	294	2,886
Central	103	3	2	19	46	86	120	24	403
North-West	208	57	32	30	121	143	196	71	858
Pilbara	85	3	20	26	79	117	126	52	508
Kimberley	110	39	17	62	121	259	167	69	844
Total	5,528	1,093	262	1,043	5,573	5,434	4,094	2,200	25,227
Total, all Divisions	6,777	10,327	1,181	3,092	24,192	24,352	12,363	11,014	93,298
Migratory (d)	7	21	....	33	9	20	10	26	126
Total females in work force	6,784	10,348	1,181	3,125	24,201	24,372	12,373	11,040	93,424
PERSONS									
Perth Statistical Division	7,170	50,887	20,878	20,022	46,480	32,727	14,190	29,181	221,535
Other Divisions—									
South-West	8,205	4,504	2,482	2,253	3,764	2,301	1,471	2,151	27,131
Southern Agricultural	7,562	1,599	1,560	1,353	2,758	1,399	947	1,072	18,250
Central Agricultural	10,601	1,376	2,414	1,950	3,296	1,928	1,150	1,567	24,282
Northern Agricultural	7,166	827	1,428	1,223	2,064	1,242	928	962	15,840
Eastern Goldfields	5,919	700	1,335	1,077	1,742	1,326	884	986	13,969
Central	992	31	166	125	104	130	155	96	1,799
North-West	1,338	264	1,718	285	302	363	342	295	4,907
Pilbara	1,530	94	2,267	311	237	265	227	259	5,190
Kimberley	1,236	540	789	472	299	470	235	385	4,426
Total	44,549	9,935	14,159	9,049	14,566	9,424	6,339	7,773	115,794
Total, all Divisions	51,719	60,822	35,037	29,071	61,046	42,151	20,529	36,954	337,329
Migratory (d)	50	71	30	1,870	30	43	19	137	2,250
Total persons in work force	51,769	60,893	35,067	30,941	61,076	42,194	20,548	37,091	339,579

(a) Including Professional. (b) Includes Private domestic service and Other personal services. (c) Comprises Electricity, gas, water and sanitary services (production, supply and maintenance); Finance and property; Public authority (n.e.i.) and defence services; and Industry inadequately described or not stated. (d) Comprises persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

Industry of the Work Force | CENSUS, 30 JUNE 1966
MALES AND FEMALES

MALES

FEMALES

thousands

60

50

40

30

20

10

PRIMARY PRODUCTION

MINING AND QUARRYING

MANUFACTURING

ELECTRICITY, GAS, WATER, AND
 SANITARY SERVICES

BUILDING AND CONSTRUCTION

TRANSPORT AND STORAGE AND
 COMMUNICATION

FINANCE AND PROPERTY

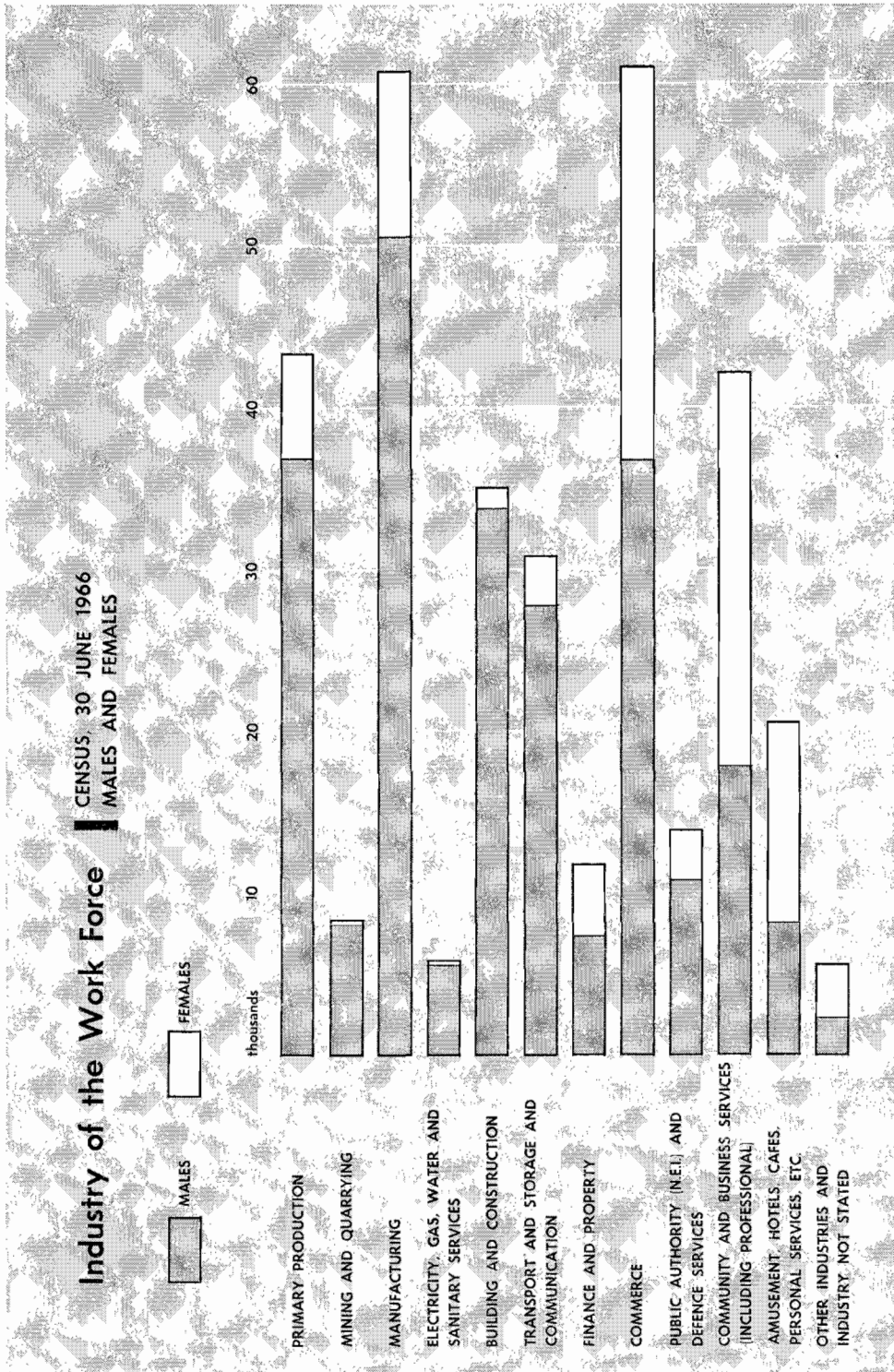
COMMERCE

PUBLIC AUTHORITY (N.E.L.) AND
 DEFENCE SERVICES

COMMUNITY AND BUSINESS SERVICES
 (INCLUDING PROFESSIONAL)

AMUSEMENT HOTELS, CAFES,
 PERSONAL SERVICES, ETC.

OTHER INDUSTRIES AND
 INDUSTRY NOT STATED



Classification of the components of the work force according to industry, as in the table on page 461, furnishes much useful information. It is interesting to note, for example, the preponderance of employers and the self-employed in Primary Production. Of the 43,438 persons engaged in this industry at 30 June 1966 nearly 60 per cent were in one or other of these categories.

Classification according to Occupation

Occupation is defined as the nature of the work which a person performs, and implies *personal* performance. It may be based on the material treated, the process carried out or the type of service rendered by an *individual* worker. Thus the occupation of a person is the kind of work that he or she personally performs, as distinct from industry, which is defined as any single *branch of productive activity, trade or service* and is not concerned with the nature of personal performance.

The Classification of Occupations used in the tabulation of the 1966 Census data has been adapted from and closely adheres to the principles embodied in the International Standard Classification of Occupations issued by the International Labour Office, Geneva, 1958. The International Standard Classification of Occupations was prepared after extensive discussions and research by world experts in this field to provide an adequate classification framework for countries interested in occupational classification and, at the same time, provide a basis for international comparison of occupational data obtained mainly from Censuses of Population. The Australian Classification of Occupations contains 11 Major Groups, 72 Minor Groups and 313 Occupation Categories. In accordance with the International Standard Classification, occupations have been grouped by the general similarity of the characteristics of the work they entail.

Complete descriptions of Major Groups, Minor Groups and Categories, together with a list of occupation titles included under each heading, are contained in the *Classification and Classified List of Occupations—Revised: June 1966*, published by the Commonwealth Statistician, Canberra.

The following table shows the numbers and the proportions of the Western Australian work force in each of the major groups of occupations, as recorded at the Census of 30 June 1966.

WORK FORCE CLASSIFIED ACCORDING TO OCCUPATION GROUP
CENSUS, 30 JUNE 1966

Occupation group	Males	Females	Persons	Percentage of total		
				Males	Females	Persons
Professional, technical and related workers	17,937	13,327	31,264	7.29	14.27	9.21
Administrative, executive and managerial workers	17,703	2,115	19,818	7.19	2.26	5.84
Clerical workers	20,307	27,193	47,500	8.25	29.11	13.99
Sales workers	12,862	14,385	27,247	5.23	15.40	8.02
Farmers, fishermen, hunters, timber getters and related workers	38,385	6,081	44,466	15.59	6.51	13.09
Miners, quarrymen and related workers	4,709	1	4,710	1.91	0.00	1.39
Workers in transport and communication occupations	20,382	2,315	22,697	8.28	2.48	6.68
Craftsmen, production-process workers and labourers, n.e.c.	100,081	6,648	106,729	40.66	7.12	31.43
Service, sport and recreation workers	9,747	18,295	28,042	3.96	19.58	8.26
Members of armed services	2,368	84	2,452	0.96	0.09	0.72
Occupation inadequately described or not stated	1,674	2,980	4,654	0.68	3.19	1.37
Total in work force	246,155	93,424	339,579	100.00	100.00	100.00

n.e.c. denotes 'not elsewhere classified'.

Work Force Survey

Estimates of the civilian work force are prepared each quarter by the Commonwealth Statistician. They are based on surveys of a sample of households, selected by area sampling methods, in the six Australian State capital cities. As the estimates refer to the six capital cities *considered as a whole*, separate details are not available for Perth. The surveys are currently in process of extension to non-metropolitan areas.

Surveys have been conducted at quarterly intervals, in February, May, August and November of each year, since November 1960. The information is obtained by personal interview at about 19,500 sample households which are visited during a four-week period each quarter by specially trained enumerators. The enumeration includes all persons aged 15 years and over living in the selected households, with the exception of members of the permanent armed forces, national servicemen enlisted in the Regular Army Supplement, and certain diplomatic personnel customarily excluded from the Population Census and population estimates.

Each person included in the survey is classified according to work force characteristics on the basis of his actual activity during the previous week as reported to the enumerator. The classification used in the surveys conforms closely to that recommended by the Eighth International Conference of Labour Statisticians held at Geneva in 1954. In this classification, the work force category to which each person is assigned depends on his actual activity during the specified week, as determined from answers given to a set of questions specially designed for the purpose.

The results of the quarterly surveys are published in the mimeographed release *Employment and Unemployment*, issued monthly by the Commonwealth Statistician, Canberra.

Work force participation rates and unemployment rates obtained from the survey are given in the next table for the six Australian State capital cities.

WORK FORCE PARTICIPATION AND UNEMPLOYMENT RATES
SIX AUSTRALIAN STATE CAPITAL CITIES
(Per cent)

November—	Work force participation rate (a)				Unemployment rate (b)			
	Males		Females		Males		Females	
	Married	Not married (c)	Married	Not married (c)	Married	Not married (c)	Married	Not married (c)
1963	88.4	72.0	27.3	50.7	0.6	1.9	1.1	1.7
1964	88.7	71.3	28.5	49.5	0.4	1.4	1.6	1.6
1965	89.1	71.5	30.4	49.8	0.6	2.0	1.8	2.0
1966	89.3	70.9	32.3	50.2	0.7	2.3	1.5	2.1
1967	89.0	70.8	34.2	50.0	0.6	2.2	1.5	2.4

(a) The civilian work force as a percentage of the civilian population aged 15 years and over.

(b) The number unemployed as a percentage of the civilian work force. See also table on page 470.

(c) Includes never married, widowed and divorced.

ESTIMATES OF EMPLOYMENT

In addition to employment data provided by the census and the work force survey, there are available monthly estimates of the number of wage and salary earners in civilian employment, excluding employees in rural industry (comprising agriculture, grazing and dairying) and private domestic service.

The prime purpose of the series is to measure currently, and as nearly as possible with available data, *monthly trends* in employment in the defined field.

The employment estimates are based on comprehensive 'benchmark' data derived for the purpose from the Population Censuses of June 1954 and June 1961. Figures for periods between and subsequent to the two benchmark points in time are estimates obtained from three main sources, (i) Pay-roll Tax returns, which are lodged by all employers paying more than \$400 a week in wages, other than those specifically exempted under the *Pay-roll Tax Assessment Act 1941-1968*, (ii) returns from government bodies, and (iii) some other direct current records of employment, e.g. for hospitals. The data thus derived are supplemented by estimates of the changes in the number of wage and salary earners not covered by these collections. As they become available, particulars of employment obtained from other collections, notably the annual factory census (see Chapter VIII, Part 2) and the censuses and sample surveys of retail establishments, are used to check and, where desirable, to revise estimates in relevant sections.

The terms *employment*, *number employed*, *employees* and *wage earners* as used here are synonymous with, and relate to, wage and salary earners on pay-rolls or *in employment* in the latter part of each month, as distinct from numbers of employees *actually working* on a specific date. Some persons working part-time are included.

The benchmark figures were derived from particulars recorded for individuals on population census schedules, while the estimated monthly figures are derived mainly from reports supplied by employers, relating to enterprises or establishments. Because the two sources differ in some cases in scope and in the reporting of industry, the industry dissection of the benchmark totals was adjusted to conform as closely as possible to an enterprise/establishment reporting basis. The industry classification used is that of the Population Census of June 1961.

Employees in rural industry and in private domestic service are not included in the estimates because the available data are inadequate.

The employment estimates appearing in this Part are not directly comparable with statistics derived from the 1966 Population Census, for which new work force definitions were adopted. A new series of estimates for June 1966 and subsequent months will be published as soon as possible. This new series will be based on 1966 Census benchmarks and will therefore be at a higher level than the present series. In due course the estimates for periods prior to the Census of June 1966 will be revised, but on a basis comparable with that of the 1961 Census benchmarks, the information needed to revise these benchmarks on the 1966 Census basis not being available.

The table on page 468 shows the number of wage and salary earners in civilian employment in various industry groups and sub-groups at the last pay-period in June for the years 1954 and 1964 to 1968. The figures appearing against the item 'Other' under the heading 'Other Industries' comprise employees in the Industry Sub-groups *Law, Order and Public Safety; Religion and Social Welfare; Other Community and Business Services; Amusement, Sport and Recreation; Hotels, Boarding Houses and other Accommodation, and Restaurants; and Other Personal Services.*

Employees of government and semi-government authorities are included in the figures shown in the table on page 468. Estimates of the numbers employed by Commonwealth, State and Local Government authorities are available separately. They include not only those engaged in administrative activities but also employees on services such as railways, road transport, air transport, shipping, education, health, hospitals and institutions, migrant hostels, banks, post office, broadcasting and television, police, factories, electricity generation and supply, water conservation, irrigation, road and bridge construction, harbour works and other public works. In the following table, government employment so defined is shown for June in each of the years 1954 and 1964 to 1968.

GOVERNMENT AUTHORITIES—CIVILIAN EMPLOYEES IN WESTERN AUSTRALIA
(Thousands)

Date	Commonwealth (a)			State (a) (b)			Local government (b)			Total		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
June— 1954	8.4	2.1	10.5	35.1	5.9	41.0	3.1	0.2	3.3	46.6	8.2	54.8
1964	10.6	2.6	13.2	39.6	9.5	49.1	4.3	0.4	4.7	54.5	12.5	67.0
1965	11.0	2.8	13.7	40.7	10.2	50.9	4.6	0.5	5.1	56.3	13.5	69.8
1966	11.6	3.0	14.6	42.1	11.0	53.1	4.7	0.6	5.3	58.4	14.6	73.0
1967	12.3	3.3	15.6	42.5	11.7	54.2	5.0	0.6	5.6	59.7	15.7	75.4
1968	13.2	3.6	16.8	43.9	12.7	56.6	5.3	0.7	6.0	62.4	17.0	79.3

(a) Includes employees of semi-governmental authorities.
industry.

(b) Excludes a small number of employees engaged in rural

WAGE AND SALARY EARNERS IN CIVILIAN EMPLOYMENT (a)—INDUSTRY GROUPS
 Excluding Employees in Rural Industry and Private Domestic Service, and Defence Forces
 (Thousands)

Industry group and sub-group	June 1954	June 1964	June 1965	June 1966	June 1967	June 1968
MALES						
Forestry, fishing and trapping	1.9	1.3	1.3	1.4	1.4	1.5
Mining and quarrying	8.5	7.1	6.9	7.2	7.8	8.6
Manufacturing	39.1	46.0	48.0	49.1	50.1	53.8
Electricity, gas, water and sanitary services	4.1	5.0	5.2	5.4	5.8	5.8
Building and construction	22.1	21.2	23.3	26.5	24.4	28.9
Transport and storage—						
Road transport and storage.....	3.9	5.1	5.6	6.2	6.5	7.3
Shipping and stevedoring	3.7	4.1	4.1	4.4	4.4	4.4
Rail and air transport	8.5	7.6	7.5	7.9	8.0	8.2
Communication	4.2	5.5	5.6	5.8	6.1	6.5
Finance and property—						
Banking.....	2.3	3.1	3.4	3.6	3.8	3.8
Other	1.6	2.9	3.0	3.2	3.4	3.8
Commerce—						
Retail trade	12.1	16.8	17.0	17.0	17.2	17.6
Wholesale and other commerce	9.9	12.0	12.3	12.8	13.2	13.8
Public authority activities, not elsewhere included	6.7	7.9	8.3	8.8	9.4	9.8
Other industries—						
Health, hospitals, etc.	2.0	3.4	3.5	3.7	3.8	3.9
Education	2.9	5.6	6.0	6.4	6.6	7.3
Other (b)	7.8	9.7	10.5	11.4	12.0	13.0
Total	141.2	164.3	171.5	180.7	183.9	198.1
FEMALES						
Forestry, fishing and trapping	0.1	0.2	0.2	0.3	0.3	0.5
Mining and quarrying	7.0	7.6	8.1	9.0	9.4	10.2
Manufacturing	0.2	0.3	0.3	0.3	0.4	0.4
Electricity, gas, water and sanitary services	0.2	0.3	0.4	0.5	0.6	0.7
Building and construction	0.3	0.5	0.5	0.6	0.6	0.7
Transport and storage—						
Road transport and storage.....	0.2	0.2	0.2	0.2	0.2	0.2
Shipping and stevedoring	0.3	0.4	0.4	0.5	0.5	0.5
Rail and air transport	0.9	1.1	1.2	1.2	1.3	1.5
Communication	0.7	1.4	1.5	1.7	1.8	1.9
Finance and property—						
Banking.....	1.2	2.2	2.3	2.5	2.5	2.9
Other	9.9	12.9	13.6	14.7	15.9	16.9
Commerce—						
Retail trade	3.2	3.5	3.7	4.1	4.3	4.7
Wholesale and other commerce	2.0	2.5	2.7	2.9	3.2	3.5
Public authority activities, not elsewhere included	5.8	10.4	11.0	11.3	11.8	12.3
Other industries—						
Health, hospitals, etc.	3.7	5.9	6.3	6.9	7.4	8.1
Education	7.5	9.2	10.2	11.1	12.0	13.6
Other (b)						
Total	43.2	58.5	62.7	68.0	72.4	78.7
PERSONS						
Forestry, fishing and trapping	1.9	1.3	1.3	1.4	1.5	1.5
Mining and quarrying	8.6	7.3	7.1	7.5	8.1	9.0
Manufacturing	46.1	53.6	56.1	58.1	59.5	64.0
Electricity, gas, water and sanitary services	4.3	5.3	5.5	5.8	6.2	6.2
Building and construction	22.3	21.5	23.7	27.0	25.0	29.6
Transport and storage—						
Road transport and storage.....	4.2	5.6	6.1	6.8	7.1	8.0
Shipping and stevedoring	3.9	4.3	4.3	4.6	4.6	4.7
Rail and air transport	8.8	8.0	7.9	8.3	8.4	8.7
Communication	5.1	6.6	6.8	7.0	7.5	8.0
Finance and property—						
Banking.....	3.0	4.5	4.9	5.2	5.6	5.8
Other	2.8	5.1	5.3	5.7	5.9	6.7
Commerce—						
Retail trade	22.0	29.7	30.6	31.7	33.0	34.5
Wholesale and other commerce	13.1	15.5	16.0	16.8	17.5	18.5
Public authority activities, not elsewhere included	8.7	10.4	11.0	11.7	12.7	13.2
Other industries—						
Health, hospitals, etc.	7.8	13.8	14.5	15.0	15.6	16.3
Education	6.6	11.5	12.3	13.3	14.0	15.4
Other (b)	15.3	18.9	20.7	22.6	24.1	26.7
Total	184.4	222.9	234.2	248.7	256.3	276.8

(a) Figures do not in all cases add to the totals shown owing to rounding to thousands.

(b) See letterpress on page 467.

UNEMPLOYMENT

A full count of unemployed persons in Western Australia is available only from population censuses. At the post-war censuses details have been obtained of all persons usually engaged in an industry, business, profession, trade or service but who were without employment at the time of the census, irrespective of whether they were actively seeking employment or not. At the 1966 Census, 2,938 males and 2,064 females were classified as being without employment. This was equivalent to 1.47 per cent of the total work force. Numbers of males and females unemployed in each of the Australian States and Territories and Australia as a whole are given in the table on page 458.

Monthly figures compiled by the Department of Labour and National Service from the operations of the Commonwealth Employment Service provide indicators of movement in the level of unemployment.

The department makes a count of the number of persons, registered with the Employment Service for employment on the Friday nearest to the end of the month, who claimed at the time of registering that they were not employed, and who were still recorded as unplaced. Included in the figures are persons who have been referred to employers and those who may have obtained employment without notifying the department. Also available from the Department of Labour and National Service is the number of vacancies, registered by employers, which were recorded as unfilled at the end of the month.

In the next table the number of persons registered for employment and vacancies registered at the end of June are shown for the years 1964 to 1968.

Applications for unemployment benefit are received by the Department of Labour and National Service acting on behalf of the Department of Social Services. Persons seeking unemployment benefit must register with the Employment Service, which is responsible for certifying that suitable employment is not available before benefits can be paid. Statistics of the number of persons receiving unemployment benefits are given on page 216.

Further details relating to the Commonwealth Employment Service appear on pages 470-1.

COMMONWEALTH EMPLOYMENT SERVICE
WESTERN AUSTRALIA
PERSONS REGISTERED FOR EMPLOYMENT AND
VACANCIES REGISTERED

At end of June—	Persons registered (a)			Vacancies registered		
	Males	Females	Total	Males	Females	Total
1964	2,955	2,186	5,141	879	264	1,143
1965	1,774	1,802	3,576	1,973	449	2,422
1966	2,075	1,295	3,370	2,437	528	2,965
1967	2,160	1,597	3,757	1,852	559	2,411
1968	2,483	1,668	4,151	2,010	620	2,630

(a) Persons who claimed when registering with the Commonwealth Employment Service that they were not employed and who were recorded as unplaced. Includes those referred to employers and those who may have obtained employment without notifying the Commonwealth Employment Service. Includes also persons receiving unemployment benefit.

One of the primary functions of the work force survey (see pages 465-6) is to provide regular and detailed information on unemployment in Australia. Separate details for Western Australia are not available and published estimates to date have been restricted to the six State capital cities.

In the following table unemployment rates are shown by industry group for the six capitals for the surveys of November 1963 to 1967. The unemployment rate is that percentage of the civilian work force who are currently unemployed and looking for work or who are laid off without pay.

UNEMPLOYMENT RATES—SIX AUSTRALIAN STATE CAPITAL CITIES
(Per cent)

Industry group in which last employed	November—				
	1963 (a)	1964 (a)	1965 (a)	1966 (b)	1967 (b)
Manufacturing	0.9	0.8	0.9	1.1	0.9
Building and construction	1.2	0.5	1.2	1.0	1.4
Transport, storage and communication	0.8	0.5	0.7	0.9	0.8
Commerce	0.9	0.9	1.3	1.1	1.2
Public authority (n.e.i.), community and business services (including professional)	0.7	0.7	0.7	0.8	0.8
Amusement, hotels, cafes, personal service, etc.	1.4	1.7	1.2	1.3	1.8
Other industries	1.3	1.0	1.0	1.0	0.7
All industries combined (c)	1.0	0.8	1.0	1.0	1.0

(a) Persons aged 14 years and over. (b) Persons aged 15 years and over. (c) Excludes unemployed persons who had not previously been employed.

Distribution of unemployment is given in the next table which shows, for the six State capital cities at November in each of the years 1963 to 1967, the unemployed persons in each industry group as a percentage of total unemployed persons.

DISTRIBUTION OF UNEMPLOYED—SIX AUSTRALIAN STATE CAPITAL CITIES
(Per cent)

Industry group in which last employed	November—				
	1963 (a)	1964 (a)	1965 (a)	1966 (b)	1967 (b)
Manufacturing	27.7	28.6	24.0	27.0	21.0
Building and construction	7.7	4.0	6.9	5.3	7.3
Transport, storage and communication	5.2	4.1	4.1	5.4	4.8
Commerce	15.3	17.1	18.7	15.6	17.4
Public authority (n.e.i.), community and business services (including professional)	9.6	11.2	8.7	10.6	9.6
Amusement, hotels, cafes, personal service, etc.	8.6	11.0	5.9	6.5	9.2
Other industries	8.5	7.5	6.1	5.9	4.4
Total, all unemployed persons who had previously been employed	82.6	83.5	74.4	76.3	73.7
Unemployed persons who had not previously been employed (c)	17.4	16.5	25.6	23.7	26.3
Total unemployed persons....	100.0	100.0	100.0	100.0	100.0

(a) Persons aged 14 years and over. (b) Persons aged 15 years and over. (c) Comprises mainly school-leavers seeking work for the first time.

Of the persons found to be unemployed in November 1967, 61.0 per cent had been unemployed for less than one month and 11.4 per cent had been unemployed for three months or more.

COMMONWEALTH EMPLOYMENT SERVICE

The Commonwealth Employment Service is established under the provisions of the *Re-establishment and Employment Act 1945-1966*. The main functions of the Service are to assist people seeking employment to obtain positions best suited to their training, experience, abilities and qualifications, and to assist employers seeking labour to obtain employees best suited to the kinds of work being offered.

Specialised facilities are provided for young people; persons with physical and mental handicaps; former members of the defence forces; migrants; rural workers; and persons with professional and technical qualifications. Vocational guidance is provided without charge by a staff of qualified psychologists. Guidance is available to any person, but is provided particularly for young people, ex-servicemen and the physically handicapped.

The Commonwealth Employment Service is responsible for placing in employment migrant workers sponsored by the Commonwealth under migration schemes. This function includes arranging for them to move to their initial employment and for their admission, if necessary, to Commonwealth migrant hostels. Experts for overseas service under technical aid programmes are recruited by the Employment Service.

In association with placement activities, regular surveys of the labour market are carried out, and detailed information is supplied to interested Commonwealth and State Government departments and instrumentalities and to the public. Employers, employees and other interested persons are advised on labour availability and employment opportunities in various occupations and areas and on other matters concerning employment.

In Western Australia at 31 December 1968 the Commonwealth Employment Service operated five offices in Perth and suburbs, and there were district offices at Albany, Bunbury, Collie, Esperance, Geraldton, Kalgoorlie, Manjimup, Merredin, Northam and Port Hedland. The Service has a Higher Appointments Office in Perth, which deals with the placement of the more highly qualified and professional applicants.

Chapter X—continued

Part 3—Retail Prices

Prices of a limited range of commodities are recorded in the Blue Books of Western Australia from the early years of settlement. It was not until 1911, however, that a systematic collection of retail prices statistics, undertaken by the Commonwealth Statistician, was begun. The results of this inquiry were published in 1912 and thus, for the first time, particulars of retail prices in a selection of Western Australian towns became available. As well as providing data for each of five principal towns for the year 1911, the published information contained particulars for the capital city for each year from 1901 to 1910, the scope of the investigation having been specially extended for this purpose. The forty-six commodities included in the collection, in addition to house rent, comprised a representative range of groceries, dairy produce and meat. The field of collection was later expanded to cover other groups of household expenditure.

Prices are now collected regularly for items of food; clothing and drapery; housing; household supplies and equipment; and miscellaneous commodities and services.

Representative and reputable retailers and service establishments are selected for each class of commodity and each service. These informants furnish regular returns of prices. Whenever necessary, particulars of prices are also obtained from other firms. For food items, prices are collected monthly, as at the 15th of each month, and are averaged for the three months of the quarter. For most other items prices are obtained quarterly as at the 15th of the middle month of the quarter. In general, prices are collected from actual vendors at retail selling outlets. The prices are those actually being charged for normal cash purchases of new articles. 'Bargain' or 'sale' prices of imperfect goods or discontinued lines are not used.

The information is collected, under authority of the *Census and Statistics Act 1905-1966*, for specified 'standards' of the commodities and services priced. Specifications include the unit of quantity to be priced, the grade, quality, size, style, etc. and in some cases the brand and the particular line or model of that brand. The standards selected are those with a considerable volume of sales and likely to remain representative over a long period.

The items and standards priced are revised from time to time to keep them in harmony with changing conditions. Before each quarterly collection the standards of all items are reviewed after extensive inquiries among manufacturers, wholesalers and retailers. Where changes in the items or standards priced become necessary, suitable adjustments are made in compiling price series to ensure that they reflect only changes in prices for representative goods of constant quality and not differences in prices of differing standards.

AVERAGE RETAIL PRICES OF GROCERIES—PERTH
(Cents)

Commodity	Unit	1963	1964	1965	1966	1967
Bread, ordinary white	2 lb	15.4	15.5	16.0	17.1	18.1
Flour, plain, prepacked (a)	"	12.8	12.6	12.7	13.4	14.1
" self-raising	"	17.6	16.9	17.1	17.6	18.3
Tea	$\frac{1}{2}$ lb	30.7	30.4	30.5	30.6	30.7
Sugar (a)	lb	9.2	9.0	8.8	8.7	9.4
Rice (a)	1 lb pkt	(b)	13.0	13.2	13.2	13.8
Jam, plum	$1\frac{1}{2}$ lb tin	27.4	26.5	26.6	27.0	28.0
Oats, rolled (a)	$1\frac{1}{2}$ lb pkt	20.8	20.3	21.8	23.3	23.4
Peaches, canned	29 oz	29.4	28.1	29.3	30.5	31.1
Pears, canned	"	29.4	28.2	29.4	30.5	31.5
Potatoes	7 lb	32.8	32.7	42.3	42.0	42.1
Onions, brown	lb	7.3	8.4	8.3	11.2	8.7
Soap, laundry (a)	20 oz pkt	21.0	25.3	28.3	31.0	31.4

(a) Series not strictly comparable throughout due to changes in unit or method of packing, necessitating some calculation of imputed prices. (b) Not available.

AVERAGE RETAIL PRICES OF DAIRY PRODUCE AND MEAT—PERTH
(Cents)

Commodity	Unit	1963	1964	1965	1966	1967
DAIRY PRODUCE						
Butter	lb	47.6	48.8	50.0	50.1	50.0
Cheese, processed (a)	½ lb pkt	21.5	21.8	22.3	23.4	24.7
Eggs, 24 oz	dozen	59.0	57.7	59.5	63.6	65.5
Bacon, rashers, prepacked (a)	½ lb	33.9	37.1	37.8	39.9	41.4
Milk, condensed	14 oz tin	19.0	19.1	19.6	19.9	20.6
„ fresh, bottled	quart	17.5	17.5	18.5	20.0	20.0
MEAT						
Beef (fresh)—						
Sirloin	lb	42.0	45.3	48.5	56.0	59.8
Rib (without bone)	„	40.2	42.2	44.4	50.6	53.4
Steak, rump	„	62.2	66.1	71.1	85.1	92.1
„ chuck	„	38.4	40.6	43.0	50.7	54.3
Sausages	„	20.1	21.2	22.3	24.4	24.8
Beef (corned)—						
Silverside	„	40.8	43.0	45.5	51.9	55.4
Brisket, rolled	„	28.7	30.8	33.1	38.4	42.3
Mutton (fresh)—						
Leg	„	25.3	28.6	29.6	31.8	33.2
Forequarter	„	15.2	18.8	18.7	20.8	21.4
Chops, loin	„	23.2	27.3	28.1	29.4	30.7
„ leg	„	23.8	27.4	28.3	30.1	31.6
Lamb (fresh)—						
Leg	„	40.1	44.1	45.1	48.1	50.2
Forequarter	„	25.6	29.0	30.0	32.5	33.6
Chops, loin	„	40.8	45.8	47.2	49.3	51.2
„ leg	„	41.0	45.8	47.2	49.4	51.4
Pork (fresh)—						
Leg	„	49.7	55.3	56.1	58.8	60.2
Loin	„	49.9	55.4	56.2	59.4	61.0
Chops	„	50.1	55.8	56.4	59.5	61.2

(a) See note (a) to previous table.

RETAIL PRICE INDEX NUMBERS

The collected information relating to prices of goods and services may be summarised in the form of index numbers. Prices of items, selected as being representative of a high proportion of the expenditure of wage-earner households, are combined at regular intervals by the use of 'weights' in approximate proportion to quantities actually used. The aim is to express as a single number the degree of change in prices for the selected field taken as a whole. In practice the application of this principle over a term of years presents great difficulty by reason of the numerous changes which occur in the type, grade and relative quantities of many of the items commonly used.

Basically in the simplest method of compiling retail price indexes the price of each item is multiplied by a fixed quantity or 'weight', the product being an 'expenditure'. The sum of these products for all items at any given date represents an 'aggregate expenditure'. The 'aggregate expenditures' for successive periods are converted into an index series by equating the aggregate for a selected or 'base' period to 1,000 (or some other convenient number), and calculating all index numbers to this base according to the ratio which the several aggregates bear to that of the base period.

The 'A' Series Index was first compiled in 1912 and although it was both rudimentary and of limited scope, covering only food, groceries and house rents, it was not discontinued until 1938. The 'C' Series Index was first compiled in 1921, and retrospectively to 1914, to supply the need for a more adequate index. It was originally described as the 'All Items' Index, to distinguish it from the 'A' Series, because it included, in addition to food, groceries and house rents, many items of clothing, household drapery and utensils, fuel, lighting, fares, smoking and some other miscellaneous items.

The list of component items and the weighting pattern of the 'C' Series Retail Price Index, first adopted in 1921, were slightly revised by Conference of Statisticians in 1936, but otherwise remained almost unchanged until the index was discontinued in 1960. From the outbreak of war in 1939 to late in 1948, periodic policy changes in regard to various war-time controls, including rationing, caused recurrent changes in consumption and in the pattern of expenditure. This rendered changes in the index desirable but made it

impracticable either to produce a new index, or to revise the old one, on any basis that would render the index more representative than it already was of the changing pattern in those years.

When commodity rationing had virtually ceased in the latter part of 1948, action was taken by the Commonwealth Statistician to collect price data of about 100 additional items and to gather information as to current consumption and expenditure patterns. This was done to facilitate review of the component items and weighting system of the 'C' Series Retail Price Index, in the light of the new pattern of wage-earner expenditure and consumption that appeared to be then emerging. However, there supervened, in the next few years, conditions which caused wide price dispersion coupled with a very rapid rise in prices and a new sequence of changes in consumption and the pattern of wage-earner expenditure. Under these conditions it was not possible to devise any new weighting pattern likely to be more continuously representative of conditions then current than was the existing 'C' Series Index on the 1936 revision. Consequently the 'C' Series Index continued to be compiled on its pre-war basis without significant change in procedures.

An Interim Retail Price Index, with the year 1952-53 as its base, was introduced in 1954 and continued until the March quarter of 1960. This Interim Index was a transitional index designed to measure retail price variations on the 'C' Series model in terms of post-war consumption weights, as emerging in the early 1950s. It embraced a wider range of commodities and services than did the 'C' Series Index, but it did not take into account successive major changes in the pattern of expenditure and modes of living that began to occur early in 1950 and through to 1960. These changes could not, in fact, be detected and measured promptly, and incorporated into an index, concurrently with their happening in those years. Nor was it envisaged as desirable to adopt fundamentally new procedures in price index construction until it was fully evident that far-reaching procedural changes were necessary to meet the situation that had developed between about 1950 and 1960.

During this period home-owning largely replaced the renting of privately-owned houses, the numbers of government-owned rented houses increased appreciably, the use of the motor car greatly increased and partly replaced use of public transport, various items of electrical household equipment and television came into widespread use, household consumption of electricity greatly increased, and technological developments such as the introduction of new synthetic materials produced a number of changes in clothing and other groups of items. Through the impact of these continuing changes in usage, combined with disparate movements in prices, the Interim Retail Price Index became out-moded. As studies progressed and new data became available, it was clear that no single list of items and no single set of fixed weights would be adequately representative as a basis for measuring retail price changes at all times throughout the post-war period. In consequence, the situation was met by compiling the Consumer Price Index constructed as a chain of linked indexes with significant changes in composition and weighting effected at short intervals.

THE CONSUMER PRICE INDEX

The Consumer Price Index was first compiled in 1960, retrospectively to the September quarter of 1948. It replaced both the 'C' Series Retail Price Index and the Interim Retail Price Index in official statistical publications. The title 'Consumer Price Index' is used for purposes of convenience and does not imply that the new index differs in definition or purpose from previous retail price indexes. The Index is designed to measure quarterly variations in retail prices of goods and services representing a high proportion of the expenditures of wage-earner households. The weighting pattern relates to estimated aggregates of wage-earner household expenditures and not to estimated expenditures of an 'average' or individual household of specified size, type, or mode of living. It is thus possible to give appropriate representation to owner-occupied houses as well as rented houses and to include motor cars, television sets, and other major expenditures which relate to some households and not to others.

Investigations revealed that the incidence and frequency of changes in the pattern of household expenditure since 1950 were such as to render it necessary to construct not one but a series of new indexes introducing additional items and changes in weighting patterns at short intervals. Five series for short periods (September quarter 1948 to June quarter 1952; June quarter 1952 to June quarter 1956; June quarter 1956 to March quarter 1960; March quarter 1960 to December quarter 1963; and from December quarter 1963) have therefore been constructed and linked to form a continuous series, with reference base year 1952-53 = 100·0. In each period between links the items and weighting have remained unchanged. It is envisaged that future links will be made in the index when significant changes in the pattern of household expenditure render it necessary to do so.

The Consumer Price Index covers a wide range of commodities and services arranged in the five major groups, Food; Clothing and Drapery; Housing; Household Supplies and Equipment; and Miscellaneous. It is designed only to measure the proportionate change in prices as combined in the individual groups, or the aggregate of the groups in the index. This is a basic principle of all price indexes, and failure to appreciate it gives rise to misconceptions concerning price indexes and their uses. Consumer (retail) price indexes are sometimes loosely called 'cost of living indexes' and are thought to measure changes in the 'cost of living'. Neither the Consumer Price Index, nor any other retail price index, measures those changes in the cost of living that result directly from changes in the mode or level of living. Changes of that kind are matters for consideration apart from price indexes. But the change in prices of goods and services is a very important part of the change in any cost of living and this part is measured by consumer (retail) price indexes.

The following summary gives a general description of the nature of the items included in the several groups which together comprise the Consumer Price Index.

Food—Meat (fresh and processed); dairy produce; cereal products; soft drink, ice cream and confectionery; potatoes, onions and preserved fruit and vegetables; and other foods including sugar, jam, margarine, tea, coffee, baby foods, and sundry canned and other foods.

Clothing and Drapery—Men's, women's, boys' and girls' clothing; men's, women's and children's footwear; household drapery; and piecegoods and knitting wool.

Housing—Costs (house price, rates, repairs and maintenance) involved in home ownership or purchase by instalments; and rent paid to a private owner or government authority.

Household Supplies and Equipment—Household appliances; fuel and light; and household articles including furniture (from December quarter 1963), floor coverings, kitchen and other utensils, gardening and small tools, household sundries, personal requisites, proprietary medicines and school requisites.

Miscellaneous—Transport (train, tram and bus fares and private motoring costs); tobacco and cigarettes; beer; services such as hairdressing, dry cleaning, shoe repairs and postal and telephone services; and other expenditure including costs of radio and television operation, cinema admission and newspapers.

These groups do not include every item of household spending. It is both impracticable and unnecessary for them to do so. Prices are collected regularly for specified quantities and qualities of a large and representative selection of commodities and services. Movements in the prices of these items, when combined in suitable proportions, provide a representative measure of price change as affecting a high proportion of the expenditure of wage-earner households.

The sets of weights used for the successive periods covered by the index have been derived from analyses of statistics of production and consumption, the Population Censuses of 1947, 1954 and 1961, the Censuses of Retail Establishments of 1948-49, 1952-53, 1956-57 and 1961-62 and the continuing Survey of Retail Establishments; from information supplied by manufacturing, commercial, and other relevant sources; and from special surveys. As from the December quarter 1963 the weights, in general, are based on the pattern of consumption of the years 1957-58 to 1961-62.

The index has been compiled for each quarter from the September quarter of 1948, and for each financial year from 1948-49. (A selection of Consumer Price Index numbers *ab initio* appears in the tables on pages 380-82 of the *Official Year Book of Western Australia*, No. 3—1962, and in the *Statistical Summary from 1829* following this Chapter.) 'All Groups' index numbers, and group index numbers for each of the five major groups, are compiled and published regularly for the six State capital cities separately and combined. The reference base for *each* of these indexes is: Year 1952-53 = 100·0. Figures appearing after the decimal point possess little significance for general statistical purposes. They are inserted merely to avoid the minor distortions that would occur in rounding off the figures to the nearest whole number.

The separate city indexes measure price *movements* within each city individually. They enable comparisons to be drawn between cities as to differences in the degree of *price movement*, but not as to differences in the *actual price level*, since the index for each city is *independently* based on the prices recorded *in that city* during 1952-53. Similarly, the separate group indexes measure price movements of each group individually. They enable comparisons to be drawn as to differences in the degree of price change in the different groups, but do not show the comparative cost of the different groups.

The index for the six State capital cities combined is a weighted average of price movement in the individual cities. For periods to the December quarter 1963 the relative influence of the several cities on the combined index is determined by their populations at the 1954 Census. From the link made as at the December quarter 1963 the weights of the individual cities have been revised on the basis of the results of the 1961 Census.

CONSUMER PRICE INDEX—PERTH
(Base of *each* Index Series: Year 1952-53 = 100)

Period	Group index numbers					Combined index (all groups)
	Food	Clothing and drapery	Housing	Household supplies and equipment	Miscellaneous	
1952-53	100·0	100·0	100·0	100·0	100·0	100·0
1958-59	115·2	107·2	130·3	105·9	118·7	114·7
1959-60	118·4	108·2	133·5	107·1	120·9	116·9
1960-61	124·4	110·8	141·7	107·3	125·2	121·2
1961-62	123·5	111·7	146·4	107·3	125·3	121·6
1962-63	123·9	112·0	150·9	107·0	125·5	122·2
1963-64	125·4	112·8	155·9	105·2	128·5	123·8
1964-65	130·5	114·1	160·0	106·4	134·2	127·6
1965-66	136·6	115·4	165·6	108·1	142·1	132·5
1966-67	143·5	117·9	173·7	110·0	149·1	137·9
1967-68	147·6	120·4	183·8	110·7	153·9	141·9

CONSUMER PRICE INDEX—SIX STATE CAPITAL CITIES COMBINED
(Base of *each* Index Series: Year 1952-53 = 100)

Period	Group index numbers					Combined index (all groups)
	Food	Clothing and drapery	Housing	Household supplies and equipment	Miscellaneous	
1952-53	100·0	100·0	100·0	100·0	100·0	100·0
1958-59	115·4	108·2	130·6	108·7	121·2	116·0
1959-60	119·8	109·4	135·2	109·8	123·9	118·9
1960-61	127·7	111·6	144·8	111·2	127·3	123·8
1961-62	125·5	112·8	150·7	112·7	128·1	124·3
1962-63	124·3	113·2	155·0	112·4	128·8	124·5
1963-64	126·0	114·0	159·6	111·0	129·9	125·7
1964-65	133·0	115·6	165·0	111·9	136·1	130·4
1965-66	139·3	117·0	171·9	113·8	142·5	135·2
1966-67	141·6	119·5	179·3	115·1	148·9	138·8
1967-68	148·2	122·1	187·2	116·5	153·1	143·4

CONSUMER PRICE INDEX: ALL GROUPS INDEX NUMBERS
SIX STATE CAPITAL CITIES, SEPARATELY AND COMBINED

(Base of each Index Series: Year 1952-53 = 100)

NOTE. The separate city indexes measure price movements within each city individually. They enable comparisons to be drawn between cities as to differences in degree of price movement, but not as to differences in price level.

Period	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Weighted average of six State capital cities
1952-53	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1958-59	115.3	116.6	118.2	114.5	114.7	118.7	116.0
1959-60	117.8	120.0	121.2	118.0	116.9	120.8	118.9
1960-61	122.1	125.9	125.4	122.9	121.2	127.5	123.8
1961-62	122.6	126.3	127.3	122.5	121.6	128.1	124.3
1962-63	123.2	126.2	127.7	122.1	122.2	128.0	124.5
1963-64	124.5	127.1	129.0	123.5	123.8	129.4	125.7
1964-65	128.8	132.2	133.9	128.6	127.6	133.6	130.4
1965-66	133.1	137.1	140.4	132.7	132.5	138.3	135.2
1966-67	136.3	140.7	144.0	136.9	137.9	141.2	138.8
1967-68	140.6	145.9	148.8	140.8	141.9	147.7	143.4

RETAIL PRICE INDEX NUMBERS, 1901 TO 1967

The index numbers shown in the following table are presented as a continuous series, but they give only a broad indication of long-term trends in retail price levels. They are derived by linking a number of indexes that differ greatly in scope. The successive indexes used are: from 1901 to 1914, the 'A' Series Retail Price Index; from 1914 to 1946-47, the 'C' Series Retail Price Index; from 1946-47 to 1948-49, a composite of Consumer Price Index Housing Group (partly estimated) and 'C' Series Index excluding Rent; from 1948-49 to 1967, the Consumer Price Index.

RETAIL PRICE INDEX NUMBERS, 1901 TO 1967
SIX STATE CAPITAL CITIES COMBINED
(Base: Year 1911 = 100)

Year	Index number	Year	Index number	Year	Index number
1901	88	1924	164	1947	198
1902	93	1925	165	1948	218
1903	91	1926	168	1949	240
1904	86	1927	166	1950	262
1905	90	1928	167	1951	313
1906	90	1929	171	1952	367
1907	90	1930	162	1953	383
1908	95	1931	145	1954	386
1909	95	1932	138	1955	394
1910	97	1933	133	1956	419
1911	100	1934	136	1957	429
1912	110	1935	138	1958	435
1913	110	1936	141	1959	443
1914 (a)	114	1937	145	1960	459
1915 (a)	130	1938	149	1961	471
1916 (a)	132	1939	153	1962	469
1917 (a)	141	1940	159	1963	472
1918 (a)	150	1941	167	1964	483
1919 (a)	170	1942	181	1965	502
1920 (a)	193	1943	188	1966	517
1921 (a)	168	1944	187	1967	534
1922 (a)	162	1945	187		
1923	166	1946	190		

(a) November.

STATISTICAL SUMMARY FROM 1829

In the next nineteen pages, a historical summary of some of the more important statistics relating to Western Australia is shown. This is intended to present a general picture of the development of the State, with details being given (wherever they are available) for the year 1829, for every tenth year in the period 1830-1900, and for each single year from 1906. Figures for the period 1901-1905 have been omitted from this issue in several instances owing to insufficient space. In these cases, the figures are available, if required, from the *Western Australian Year Book*, No. 7—1968 and earlier issues, and the *Statistical Register of Western Australia*.

ESTIMATED POPULATION AND MIGRATION (a)

NOTE. A line drawn across a column indicates a break in continuity in the series. Figures above the line exclude full-blood Aborigines; those below the line refer to total population, including Aborigines. See also note on page 123.

Year	Population at 31 December			Population increase				Mean population		Population of Perth Statistical Division (f)
	Males	Females	Persons	Recorded natural increase (b)	Estimated net migration (c)	Total increase (d)		Year ended—		
						Number	Per cent (e)	30 June	31 December	
1829	769	234	1,003	(g)	(g)	(g)	(g)		(g)	
1830	877	295	1,172	(g)	(g)	169	16.85		(g)	
1840	1,434	877	2,311	34	123	157	7.29		(g)	
1850	3,576	2,310	5,886	132	1,109	1,241	26.72		(g)	(g)
1860	9,597	5,749	15,346	379	130	509	3.43	(g)	15,092	
1870	15,511	9,624	25,135	475	7	482	1.96		24,894	
1880	16,985	12,576	29,561	551	129	422	1.45		29,350	
1890	28,854	19,648	48,502	1,021	1,821	2,842	6.22		47,081	20
1900	110,088	69,879	179,967	3,214	6,495	9,709	5.70		175,113	73
1906	148,061	107,112	255,173	4,716	319	5,035	2.01	251,112	254,362	104.7
1907	146,264	108,276	254,540	4,781	5,414	633	-0.25	255,840	255,510	105.0
1908	148,447	111,224	259,671	4,876	255	5,131	2.02	255,933	257,822	107.6
1909	151,325	114,350	265,675	4,898	1,106	6,004	2.31	260,355	263,279	110.6
1910	157,971	118,861	276,832	4,845	6,312	11,157	4.20	266,686	271,019	115.7
1911	167,993	125,930	293,923	5,168	11,923	17,091	6.17	278,043	286,712	121.4
1912	173,897	131,724	305,621	5,354	6,344	11,698	3.98	294,364	301,040	126.5
1913	180,534	139,401	319,935	6,284	8,030	14,314	4.68	307,145	313,383	132.9
1914	178,978	143,111	322,089	6,161	4,007	2,154	0.67	319,014	322,668	133.7
1915	170,890	145,773	316,663	6,025	11,451	5,426	-1.68	322,996	321,247	133.3
1916	159,237	147,643	306,880	5,478	15,261	9,783	3.09	317,867	313,066	135.6
1917	157,532	149,306	306,838	5,113	5,155	42	-0.01	308,756	306,339	142.3
1918	159,865	150,318	310,183	4,273	928	3,345	1.09	306,804	308,198	145.6
1919	174,981	152,879	327,860	3,347	14,330	17,677	5.70	311,835	319,955	155.7
1920	176,895	154,428	331,323	4,761	1,298	3,463	1.06	327,152	330,023	167.0
1921	178,968	157,580	336,548	4,327	898	5,225	1.58	331,973	334,084	171.0
1922	184,471	161,073	345,544	4,964	4,032	8,996	2.67	337,269	341,375	178.1
1923	191,131	165,728	356,859	4,924	6,391	11,315	3.27	345,891	350,772	191.8
1924	197,676	170,648	368,324	5,038	6,427	11,465	3.21	356,751	363,152	199.9
1925	202,554	174,973	377,527	4,870	4,333	9,203	2.50	368,525	372,970	203.0
1926	206,797	178,436	385,233	4,951	2,755	7,706	2.04	376,933	380,930	208.4
1927	215,851	184,046	399,897	5,039	9,575	14,664	3.81	385,780	392,071	216.2
1928	225,072	189,549	414,621	5,064	9,660	14,724	3.68	399,777	407,576	222.4
1929	231,361	195,276	426,637	5,121	6,895	12,016	2.90	414,489	420,756	229.0
1930	232,868	198,742	431,610	5,426	453	4,973	1.17	425,785	429,079	235.1
1931	232,397	201,289	433,686	4,868	2,792	2,076	0.48	431,022	432,347	239.9
1932	233,049	203,271	436,320	4,250	1,616	2,634	0.61	433,596	435,041	238.9
1933	234,744	205,898	440,642	4,084	238	4,322	0.99	436,798	438,780	232.1
1934	236,140	207,589	443,729	3,725	638	3,087	0.70	440,736	442,354	234.3
1935	238,739	210,884	449,623	4,001	1,893	5,894	1.33	444,275	446,874	237.7
1936	240,827	213,373	454,200	4,249	328	4,577	1.02	449,728	452,294	241.0
1937	244,050	216,492	460,542	4,544	1,798	6,342	1.40	454,532	457,328	244.4
1938	246,943	219,741	466,684	4,907	1,235	6,142	1.33	460,642	463,808	247.7
1939	249,065	223,315	472,380	4,696	1,000	5,696	1.22	466,896	469,780	252.2
1940	248,734	225,342	474,076	4,598	2,902	1,696	0.36	472,600	473,397	255.5
1941	246,842	226,371	473,213	4,906	5,769	863	-0.18	474,180	473,988	260.0
1942	246,816	229,839	476,655	3,791	349	3,442	0.73	474,833	476,619	265.6
1943	246,389	231,875	478,264	5,137	3,528	1,609	0.34	476,989	476,745	272.3
1944	249,301	235,474	484,775	5,857	654	6,511	1.36	478,271	481,498	281.2
1945	251,590	238,498	490,088	5,418	105	5,313	1.10	484,720	487,510	289.0
1946	255,310	241,663	496,973	7,277	392	6,885	1.40	489,982	492,771	297.9
1947	261,653	247,109	508,762	8,119	3,670	11,789	2.37	497,006	502,951	307.3
1948	268,304	253,695	521,999	8,246	4,991	13,237	2.60	508,747	514,621	315.8
1949	280,273	263,911	544,184	8,721	13,464	22,185	4.25	521,932	532,603	331.4
1950	294,758	277,891	572,649	9,170	19,295	28,465	5.23	545,134	557,878	351.7
1951	304,454	285,885	590,339	9,506	8,184	17,690	3.09	570,346	580,317	362.8
1952	316,700	296,235	612,935	10,204	12,392	22,596	3.83	589,887	600,615	378.1
1953	326,372	305,371	631,743	10,790	8,018	18,808	3.07	611,191	621,034	390.1
1954	334,342	314,365	648,707	10,564	6,400	16,964	2.69	630,705	639,963	402.2
1955	343,838	324,771	668,609	11,244	8,658	19,902	3.07	648,222	657,323	416.8
1956	350,333	330,935	681,268	11,344	1,315	12,659	1.89	666,898	674,459	427.4
1957	356,195	339,039	695,234	11,627	2,339	13,966	2.05	680,949	687,448	438.9
1958	361,441	345,755	707,196	11,177	785	11,962	1.72	693,568	699,915	449.3
1959	366,253	352,438	718,691	11,614	119	11,495	1.63	705,869	711,737	459.5
1960	372,665	358,368	731,033	11,229	1,113	12,342	1.72	717,316	722,900	470.3
1961	384,773	370,440	755,213	11,349	2,571	13,920	1.90	729,770	737,596	482.7
1962	395,891	381,357	777,248	11,254	10,499	22,035	2.92	755,770	766,205	500.3
1963	407,024	391,871	798,895	11,314	10,068	21,647	2.79	777,413	788,457	517.8
1964	417,023	401,098	818,121	10,256	8,705	19,226	2.41	798,824	808,300	534.0
1965	427,330	410,918	838,248	9,912	9,963	20,127	2.46	817,157	826,481	550.9
1966	439,680	423,005	862,685	10,235	14,046	24,437	2.92	837,290	848,837	569.5
1967	454,743	438,020	892,763	11,244	18,834	30,078	3.49	862,130	876,997	591.0

(a) Estimates for 1965 and earlier have been adjusted to conform to final census results; those for later years are subject to revision after the 1971 Census. (b) Excess of births over deaths, including deaths of defence personnel, whether in Australia or overseas, between September 1939 and June 1947. (c) Interstate and overseas. (d) Minus sign (—) denotes decrease. (e) The rates represent total increase in population during the year expressed as a proportion per cent of the population at the end of the previous year. (f) At 31 December. (g) Not available.

VITAL STATISTICS

See NOTE at head of previous table.

Year	Marriages registered	Births registered	Deaths registered (b)	Natural increase (c)	Rate per 1,000 of mean population (a)				Infant mortality	
					Marriages	Births	Deaths (b)	Natural increase (c)	Number (d)	Rate (e)
1840	25	54	20	34	(f)	(f)	(f)	(f)	(f)	(f)
1850	37	186	54	132	(f)	(f)	(f)	(f)	(f)	(f)
1860	151	588	209	379	10.01	38.96	13.85	25.11	(f)	(f)
1870	153	853	378	475	6.15	34.27	15.18	19.08	100	117.2
1880	214	933	382	551	7.29	31.79	13.02	18.77	72	77.2
1890	278	1,561	540	1,021	5.90	33.16	11.47	21.69	140	89.7
1900	1,781	5,454	2,240	3,214	10.17	31.15	12.79	18.35	688	126.2
1906	2,261	7,800	3,084	4,716	8.89	30.66	12.12	18.54	858	110.0
1907	2,114	7,712	2,931	4,781	8.27	30.18	11.47	18.71	752	97.5
1908	2,012	7,755	2,879	4,876	7.80	30.08	11.17	18.91	657	84.7
1909	1,997	7,602	2,704	4,898	7.59	28.87	10.27	18.60	593	78.0
1910	2,107	7,585	2,740	4,845	7.77	27.99	10.11	17.88	593	78.2
1911	2,421	8,091	2,923	5,168	8.44	28.22	10.19	18.03	615	76.0
1912	2,524	8,689	3,335	5,354	8.38	28.86	11.08	17.73	713	82.1
1913	2,572	9,218	2,934	6,284	8.21	29.41	9.36	20.05	648	70.3
1914	2,660	9,204	3,043	6,161	8.24	28.52	9.43	19.09	627	68.1
1915	2,581	9,017	2,992	6,025	8.03	28.07	9.31	18.76	600	66.5
1916	2,365	8,563	3,085	5,478	7.55	27.35	9.85	17.50	567	66.2
1917	1,621	7,882	2,769	5,113	5.29	25.73	9.04	16.69	450	57.1
1918	1,612	7,106	2,833	4,273	5.23	23.06	9.19	13.87	406	57.1
1919	2,194	6,937	3,590	3,347	6.86	21.68	11.22	10.46	424	61.1
1920	2,932	8,149	3,388	4,761	8.88	24.69	10.27	14.42	538	66.0
1921	2,656	7,807	3,480	4,327	7.95	23.37	10.42	12.95	611	78.3
1922	2,446	8,131	3,167	4,964	7.17	23.82	9.28	14.54	452	56.6
1923	2,376	7,854	2,930	4,924	6.77	22.39	8.35	14.04	442	56.3
1924	2,596	8,301	3,263	5,038	7.15	22.80	8.99	13.87	414	49.9
1925	2,746	8,135	3,515	4,620	7.36	21.95	8.59	13.00	463	56.6
1926	2,844	8,301	3,350	4,951	7.47	21.79	8.79	13.00	409	49.3
1927	3,108	8,432	3,393	5,039	7.93	21.63	8.65	12.93	389	45.9
1928	3,309	8,704	3,640	5,064	8.12	21.36	8.93	12.43	419	48.1
1929	3,367	9,051	3,930	5,121	8.00	21.51	9.34	12.17	508	56.1
1930	3,205	9,200	3,774	5,426	7.47	21.44	8.80	12.64	430	46.7
1931	2,741	8,549	3,681	4,868	6.34	19.77	8.51	11.26	355	41.5
1932	2,904	7,965	3,715	4,250	6.68	18.31	8.54	9.77	355	44.6
1933	3,374	7,874	3,790	4,084	7.69	17.95	8.64	9.31	290	36.8
1934	3,682	7,801	4,076	3,725	8.32	17.64	9.21	8.42	319	40.9
1935	3,940	8,119	4,118	4,001	8.82	18.17	9.22	8.95	326	40.2
1936	4,242	8,479	4,230	4,249	9.28	18.75	9.35	9.39	358	42.2
1937	4,169	8,609	4,065	4,544	9.12	18.82	8.89	9.94	323	37.5
1938	4,153	9,141	4,234	4,907	8.85	19.71	9.13	10.58	309	33.8
1939	4,195	9,036	4,536	4,700	8.03	19.23	9.23	10.00	369	40.8
1940	5,234	9,121	4,486	4,635	11.06	19.27	9.48	9.79	403	44.2
1941	5,077	10,118	4,769	5,349	10.71	21.35	10.06	11.29	357	35.3
1942	5,441	9,901	5,076	4,825	11.42	20.77	10.65	10.12	365	36.9
1943	4,528	10,431	4,587	5,894	9.50	21.98	9.62	12.36	342	32.6
1944	4,506	10,870	4,478	6,392	9.36	22.58	9.30	13.28	354	32.6
1945	3,788	10,672	4,712	5,960	7.77	21.89	9.67	12.23	315	29.5
1946	5,171	12,105	4,753	7,352	10.49	24.57	9.65	14.62	376	31.1
1947	5,282	12,874	4,723	8,151	10.50	25.60	9.39	16.21	398	30.9
1948	5,186	12,931	4,685	8,246	10.08	25.13	9.10	16.02	331	25.6
1949	4,951	13,511	4,790	8,721	9.30	25.37	8.99	16.37	357	26.4
1950	5,434	14,228	5,058	9,170	9.74	25.50	9.07	16.44	386	27.1
1951	5,990	14,794	5,288	9,506	9.29	25.49	9.11	16.38	425	28.7
1952	5,889	15,413	5,209	10,204	8.97	25.66	8.67	16.99	384	24.9
1953	5,032	15,892	5,072	10,790	8.10	25.54	8.17	17.37	378	23.8
1954	5,204	15,923	5,364	10,564	8.13	24.89	8.38	16.51	359	22.5
1955	5,145	16,623	5,379	11,244	7.83	25.29	8.18	17.11	373	22.4
1956	5,080	16,916	5,572	11,344	7.53	25.08	8.26	16.82	384	22.7
1957	4,897	16,924	5,297	11,627	7.12	24.62	7.71	16.91	357	21.1
1958	5,038	16,731	5,554	11,177	7.20	23.90	7.94	15.97	360	21.5
1959	5,387	17,111	5,497	11,614	7.57	24.04	7.72	16.32	345	20.2
1960	5,323	16,926	5,697	11,229	7.36	23.41	7.88	15.53	366	21.6
1961	5,150	17,078	5,729	11,349	6.98	23.15	7.77	15.39	336	19.7
1962	5,466	17,064	5,810	11,254	7.23	22.58	7.69	14.89	380	22.3
1963	5,755	17,290	5,976	11,314	7.40	22.23	7.68	14.55	353	20.4
1964	6,023	16,685	6,429	10,256	7.55	20.93	8.06	12.86	328	19.7
1965	6,448	16,186	6,274	9,912	7.91	19.85	7.70	12.16	351	21.7
1966	7,001	17,007	6,772	10,235	8.36	20.31	8.09	12.22	329	19.3
1967	7,430	18,023	6,779	11,244	8.47	20.55	7.73	12.82	314	17.4

(a) Rates for 1965 and earlier have been adjusted to conform to final census results; those for later years are subject to revision after the 1971 Census. (b) Excludes deaths of defence personnel, whether in Australia or overseas, between September 1939 and June 1947. (c) Excess of Births registered over Deaths registered; see also note (b). (d) Deaths under one year of age; included in Deaths registered. (e) Per 1,000 live births. (f) Not available.

STATISTICAL SUMMARY FROM 1829

PUBLIC REVENUE AND EXPENDITURE
(\$'000)

Year (a)	Consolidated Revenue Fund								
	Revenue from—			Total revenue	Expenditure on—				Total expendi- ture
	Land (including land tax)	Mining	Timber		Lands and surveys	Agricul- ture generally	Mining	Woods and forests (b)	
1840	5	....	....	34	2	....	....	....	30
1850	4	....	(c)	38	4	....	....	....	33
1860	33	....	1	140	4	....	....	....	123
1870	39	....	1	190	12	....	....	....	226
1880	69	(c)	2	360	15	....	....	....	409
1890	206	8	2	829	31	....	7	....	803
1900	237	213	22	5,751	91	13	126	5	5,231
1906	341	69	42	7,940	226	99	151	12	8,095
1907	396	68	43	7,675	206	85	140	13	7,863
1908	445	63	47	7,788	204	92	143	18	7,796
1909	527	64	53	7,633	226	101	129	18	7,813
1910	598	64	55	8,549	145	95	121	17	8,121
1911	732	76	69	7,701	161	108	136	18	7,469
1912	722	59	82	7,933	182	126	141	21	8,202
1913	729	53	87	9,193	166	174	136	23	9,574
1914	759	52	90	10,411	144	120	133	24	10,682
1915	733	47	80	10,281	124	98	120	21	11,413
1916	741	47	71	10,714	91	93	125	17	11,410
1917	649	41	55	9,154	93	115	129	20	10,554
1918	642	39	78	9,245	93	109	120	22	10,657
1919	670	35	54	9,800	89	125	115	22	11,194
1920	764	48	108	11,727	120	137	140	72	13,063
1921	800	48	142	13,579	180	132	147	100	14,953
1922	763	46	147	13,314	216	118	131	116	15,278
1923	733	40	144	14,415	202	113	133	114	15,226
1924	803	35	232	15,731	202	119	126	162	16,190
1925	896	33	304	16,763	166	126	123	171	16,880
1926	965	33	377	17,616	145	141	137	226	17,815
1927	996	33	367	19,502	144	156	172	220	19,445
1928	1,116	38	394	19,616	138	172	204	226	19,669
1929	1,079	35	307	19,896	144	188	204	191	20,448
1930	1,037	33	298	19,501	146	197	210	219	20,537
1931	808	35	172	17,374	129	155	210	75	20,215
1932	712	34	104	16,071	104	130	205	66	19,136
1933	657	41	123	16,664	96	130	175	63	18,392
1934	642	56	166	16,963	93	133	220	84	18,541
1935	745	90	221	18,663	96	151	241	103	18,997
1936	649	84	269	20,067	102	175	291	131	19,891
1937	613	84	311	20,371	103	201	288	146	21,113
1938	589	78	330	21,638	104	236	285	166	21,659
1939	507	82	275	21,899	114	234	288	153	22,340
1940	465	80	287	22,240	112	225	279	158	22,534
1941	511	69	302	22,844	113	218	260	166	22,842
1942	527	65	210	23,880	108	215	247	162	23,877
1943	580	43	275	26,303	111	211	225	235	26,254
1944	644	44	257	27,178	123	225	227	328	27,102
1945	617	40	276	27,908	130	266	256	399	27,899
1946	610	53	269	28,815	170	337	267	400	28,815
1947	729	76	473	29,962	240	365	325	433	30,573
1948	866	73	485	35,421	320	424	371	417	36,125
1949	921	85	365	41,121	372	515	388	365	42,756
1950	963	87	497	51,622	568	692	417	482	51,574
1951	930	86	574	56,312	591	801	494	561	55,994
1952	934	91	694	67,910	815	986	564	771	69,094
1953	1,041	103	907	77,768	875	1,103	698	1,052	78,784
1954	1,297	125	1,100	86,292	1,083	1,225	785	1,073	86,497
1955	1,537	131	1,127	91,440	1,122	1,335	714	1,190	92,408
1956	1,666	158	1,733	99,225	1,237	1,502	758	2,151	102,886
1957	2,561	138	1,751	108,662	1,452	1,724	817	2,155	112,487
1958	3,414	149	1,797	114,108	1,529	1,763	825	2,298	116,355
1959	3,250	185	1,823	120,136	1,541	1,842	828	2,289	123,506
1960	3,415	216	1,846	128,776	1,654	2,062	923	2,335	131,587
1961	2,866	242	1,876	138,665	1,760	2,236	1,056	2,389	141,075
1962	3,267	388	2,172	149,852	1,861	2,508	1,162	2,696	151,780
1963	3,478	409	2,167	157,182	2,183	2,732	1,274	2,796	158,687
1964	3,683	413	2,356	167,888	2,353	3,216	1,453	3,046	170,681
1965	3,896	513	2,589	180,143	2,408	3,409	1,639	3,400	184,840
1966	4,516	759	2,720	206,655	2,616	3,709	1,780	3,660	206,665
1967	4,946	2,971	3,328	228,146	3,087	4,197	2,011	4,276	228,174

(a) From 1900, year ended 30 June.

(b) Includes expenditure under Special Acts.

(c) Less than \$500.

NET EXPENDITURE FROM LOAN FUNDS ; PUBLIC DEBT
(\$'000)

Year (a)	Net expenditure from loan funds on public works and services (b)						Public debt (as at end of year)		
	Railways, tramways and omnibuses	Electricity supply	Harbours, rivers, light- houses, etc.	Water supplies, sewerage, drainage and irrigation	Public buildings	Other	Total	Gross amount outstand- ing	Sinking fund
1860	....	....	....	....	....	....	....	4	....
1870	....	....	....	....	....	....	....	....	....
1880	(c) 549	....	(d) 38	....	....	(e)	(d) 802	722	(e)
1890	3	6	6	2	(f) 76	(e)	32	2,735	170
1900	302	395	395	949	....	110	1,757	23,349	754
1906	440	57	57	37	0	204	745	36,117	2,641
1907	659	192	192	183	224	543	1,802	38,445	3,200
1908	612	256	256	213	240	240	1,467	40,987	3,809
1909	1,095	162	162	229	194	343	2,024	43,904	4,467
1910	908	174	174	199	152	626	2,058	46,575	5,139
1911	(g) 1,818	(g) 67	(g) 67	(g) 307	(g) 106	(g) 816	(g) 3,114	47,408	5,090
1912	2,641	372	372	250	262	1,095	4,619	52,567	5,837
1913	3,988	301	301	790	140	1,599	6,818	60,553	6,619
1914	2,333	180	180	664	88	2,561	5,826	68,840	7,384
1915	1,386	331	331	496	162	2,668	5,043	74,045	8,138
1916	895	218	218	331	81	1,643	3,169	78,279	9,057
1917	675	244	244	153	47	592	1,710	81,830	10,072
1918	416	170	170	136	35	1,351	2,108	84,608	11,142
1919	375	140	140	93	43	1,448	2,099	87,274	12,278
1920	242	204	204	94	21	4,765	5,327	93,644	13,656
1921	398	237	237	427	50	4,061	5,173	98,079	15,283
1922	1,207	183	183	435	89	2,996	4,910	109,920	16,740
1923	1,359	240	240	402	37	4,740	6,779	116,972	17,562
1924	1,303	278	278	871	177	5,244	7,874	125,532	18,747
1925	1,243	362	362	1,301	182	5,110	8,198	128,987	19,970
1926	1,540	439	439	1,357	156	4,667	8,157	140,022	21,309
1927	1,559	382	382	884	235	4,901	7,960	141,212	17,514
1928	1,902	530	530	1,132	256	4,577	8,397	152,856	17,798
1929	1,825	528	528	1,092	182	4,255	7,882	(h)138,711	(h) 1,983
1930	1,819	529	529	610	108	4,226	7,291	142,359	2,081
1931	878	257	257	420	Cr. (i)	1,457	3,012	153,130	2,621
1932	263	155	155	1,152	....	1,055	2,624	159,416	2,618
1933	374	485	485	1,355	69	1,838	4,121	167,029	2,693
1934	659	492	492	1,606	196	2,344	5,297	171,695	743
1935	997	610	610	2,155	213	1,103	5,076	177,180	1,048
1936	946	602	602	2,487	169	700	4,903	180,688	1,138
1937	491	352	352	2,303	178	741	4,064	184,666	1,292
1938	950	201	201	1,843	183	1,144	4,321	187,424	614
1939	441	184	184	1,777	230	640	3,272	190,945	719
1940	200	104	104	1,615	732	974	3,624	192,461	608
1941	214	18	152	1,649	306	480	2,819	195,583	1,147
1942	110	25	111	605	70	437	1,359	194,718	535
1943	157	92	133	100	55	217	754	193,976	347
1944	49	31	Cr. 143	75	166	34	212	192,957	140
1945	140	11	61	150	241	492	1,094	191,790	254
1946	142	208	75	473	451	276	1,625	193,852	1,008
1947	535	332	173	1,453	772	821	4,087	198,005	1,091
1948	676	1,471	316	1,388	1,097	125	5,074	200,549	309
1949	913	2,131	449	1,626	1,099	942	7,161	207,377	126
1950	4,496	4,691	804	2,002	1,357	2,859	16,209	219,100	142
1951	3,723	6,591	1,164	4,091	2,003	3,081	20,653	246,374	17
1952	15,198	6,684	2,694	4,803	2,729	3,409	35,517	276,577	647
1953	13,533	179	2,422	4,858	5,432	8,787	35,213	306,144	1,861
1954	11,295	1,406	2,328	3,939	3,144	6,276	28,388	331,565	822
1955	9,752	1,410	1,920	5,661	3,993	6,726	29,462	355,763	442
1956	6,139	2,049	1,638	5,516	4,187	7,098	26,629	377,465	245
1957	5,519	4,200	950	7,119	5,590	9,169	32,556	410,290	112
1958	4,209	2,430	1,398	7,694	5,891	6,590	28,272	436,857	147
1959	5,711	2,200	1,428	8,395	7,410	7,199	32,342	464,237	173
1960	4,953	1,553	1,373	9,547	8,723	6,355	32,504	498,575	171
1961	4,221	400	1,966	10,314	10,479	8,037	35,418	523,070	94
1962	5,432	300	2,587	10,952	12,032	6,449	37,751	555,130	222
1963	6,204	500	2,438	10,770	13,420	5,563	38,894	587,336	485
1964	7,496	....	3,028	10,537	15,630	6,409	43,100	626,045	442
1965	6,800	794	2,822	10,957	19,948	5,457	46,779	665,620	473
1966	7,023	1,434	2,583	12,667	19,908	3,580	47,800	705,514	267
1967	9,068	2,427	1,746	13,642	18,230	5,902	51,015	748,601	216

(a) From 1900, year ended 30 June. Sinking Fund at 31 March from 1900 to 1928. (b) From 1928 includes expenditure from Loan Suspense Account. (c) Total amount for the years 1877 to 1881. (d) Total amount for the years 1872 to 1881. (e) Not available. (f) Includes expenditure prior to 1890. (g) Including readjustments for previous years. (h) Reduction due to operation of Financial Agreement Act of 1928. (i) Less than \$500

BANKING AND INSURANCE

Year	Trading banks			Savings banks (c)		Insurance			
	De-positors' balances (a)	Loans (other than to authorised dealers in the short-term money market), advances and bills discounted (a)	Weekly debits to customers' accounts (b)	Number of accounts open at end of year	Depositors' balances at end of year	Life		General (d) (e)	
						Sum insured under policies existing at end of year		Gross premiums	Gross claims
						Ordinary (including super-annuation)	Industrial		
\$'000	\$'000	\$m		\$'000	\$'000	\$'000	\$'000	\$'000	
1870	(f)	(f)		895	27	(f)	(f)		
1880	(f)	(f)		1,299	45	(f)	(f)		
1890	1,904	2,809		3,014	69	(f)	(f)		
1900	8,781	5,514		33,046	2,598	6,916	439		
1906	11,102	9,228		63,575	4,632	11,252	731		
1907	10,696	10,123		66,737	5,266	11,242	711		
1908	9,970	10,902		70,340	5,762	11,546	890		
1909	10,232	10,977		75,852	6,111	11,874	961	(f)	(f)
1910	12,627	12,228		84,262	6,955	12,717	1,170		
1911	14,331	15,000		97,147	8,178	13,996	1,369		
1912	13,395	16,824		108,622	8,801	14,925	1,662		
1913	12,841	16,353		121,201	9,350	15,277	2,017		
1914	13,787	16,633		134,510	9,851	15,842	2,267		
1915	15,229	17,418		144,777	10,285	16,058	2,451		
1916	16,099	18,635		156,458	10,667	16,660	2,731		
1917	17,178	18,285		171,207	11,683	17,239	3,042	721	196
1918	19,374	19,170		182,140	12,580	18,103	3,456	783	303
1919	21,606	20,829		196,584	14,005	19,851	3,907	803	295
1920	24,742	21,594		211,415	14,516	21,640	4,089	1,080	368
1921	24,004	21,833		226,468	15,433	24,183	4,699	1,112	684
1922	24,519	21,581		237,505	15,519	25,586	5,189	1,195	658
1923	25,349	22,796	(f)	250,214	16,067	27,544	5,707	1,242	435
1924	26,245	23,313		264,842	16,436	29,310	6,360	1,528	543
1925	27,200	24,095		277,701	16,608	31,789	6,811	1,669	724
1926	(g) 28,887	(g) 25,745		292,353	17,940	33,970	7,317	1,832	901
1927	29,301	29,233		309,176	18,389	36,279	8,042	(g) 831	(g) 432
1928	31,025	30,592		330,284	21,291	38,926	8,750	2,111	1,200
1929	26,811	34,450		350,046	23,218	41,268	9,366	2,391	1,205
1930	25,524	41,773		367,665	23,457	41,656	9,008	2,452	1,163
1931	24,455	41,635		371,662	21,735	39,906	8,353	1,914	971
1932	28,563	39,292		206,997	20,435	39,181	8,585	1,693	655
1933	29,785	38,433		194,095	20,129	39,447	8,918	1,736	796
1934	32,853	38,742		192,915	20,798	40,631	9,394	1,746	801
1935	36,206	41,061		197,611	21,858	42,899	9,946	1,929	910
1936	38,731	43,232		208,990	23,034	45,608	10,688	2,176	1,015
1937	39,463	44,532		217,247	23,670	48,857	11,373	2,410	1,368
1938	41,230	45,141		225,118	24,075	51,653	11,944	2,641	1,526
1939	41,181	47,774		232,564	24,792	53,853	12,609	2,746	1,462
1940	42,219	47,529		233,649	23,720	54,768	13,086	2,884	1,460
1941	47,099	45,617		238,820	25,042	55,842	13,875	2,792	1,236
1942	51,918	43,638		250,153	27,642	55,881	15,311	2,806	1,245
1943	61,135	37,827		279,469	37,769	57,865	16,656	2,347	1,014
1944	71,529	33,462		301,225	51,581	61,380	17,962	2,369	897
1945	74,846	31,504		316,565	63,526	66,254	19,024	2,565	1,154
1946	(h) 66,652	(h) 33,726	(i) 11.6	340,737	76,578	77,608	21,036	2,890	1,223
1947	72,490	45,388	14.2	349,091	73,250	88,016	23,054	3,503	1,737
1948	82,032	48,754	17.4	358,769	72,365	98,891	25,139	4,188	2,089
1949	100,971	49,904	21.4	365,130	75,070	111,213	27,127	5,071	2,053
1950	116,458	55,301	27.4	378,670	79,225	126,332	29,503	5,913	2,440
1951	149,244	66,680	38.6	392,790	89,345	148,724	32,460	7,360	3,341
1952	170,923	83,353	43.6	403,678	94,342	171,007	35,257	9,358	5,261
1953	170,234	87,353	44.2	414,288	99,589	195,499	38,110	10,736	5,458
1954	181,863	106,429	50.8	422,450	105,229	221,568	40,240	11,427	5,276
1955	180,895	137,830	52.4	426,637	107,258	251,543	41,487	12,563	6,281
1956	174,070	142,156	53.9	446,419	115,898	282,139	42,114	13,548	7,126
1957	185,576	135,074	57.1	473,548	125,386	317,264	42,595	15,792	8,202
1958	186,478	141,198	60.4	497,690	131,898	352,360	43,003	15,601	7,807
1959	180,300	147,106	61.5	527,079	142,998	396,322	43,279	17,169	9,165
1960	192,076	142,064	69.7	550,906	157,246	459,740	44,325	19,951	10,671
1961	190,094	146,244	75.7	577,619	161,424	523,636	44,745	21,607	12,770
1962	209,274	139,204	80.4	625,070	181,056	597,892	46,754	22,914	12,255
1963	219,952	153,528	88.2	683,417	208,812	679,161	47,983	24,761	14,723
1964	242,268	164,878	96.5	736,009	239,766	774,550	50,588	26,285	15,629
1965	272,430	184,000	106.3	786,340	261,654	881,652	53,565	28,224	16,103
1966	310,432	195,190	122.5	848,502	292,871	*1,005,119	57,916	32,385	18,247
1967	355,899	212,023	138.6	905,349	330,807	1,164,613	63,900	36,535	20,995

(a) Average based on amounts as at close of business each week. From 1927, year ended 30 June. (b) Weekly average for year ended 30 June. Excludes debits to Australian Government accounts at city branches. From 1946-47 includes The Rural and Industries Bank of Western Australia (Rural Department). (c) From 1900, year ended 30 June. (d) From 1927, year ended 30 June. (e) Excludes transactions of The Motor Vehicle Insurance Trust, which became the sole insurer in respect of motor vehicle (third party) insurance from 1 July 1949. (f) Not available. (g) Six months ended 30 June. (h) Average for nine months to 30 June. (i) Ten months ended June 1946. * Revised.

TRANSPORT AND COMMUNICATION

Year	State Government railways (a)				Private railways	Posts, telegraphs and telephones			Shipping (h)	
	Route miles at end of year (b)	Operating revenue (c)	Operating expenses (c)	Paying goods and livestock carried (c)	Route miles at end of year (d)	Telegraph and telephone lines (e)	Revenue (f)(g)	Expenditure (f)(g)	Vessels—Cleared to ports outside the State	
									Number	Net tons
	\$'000	\$'000	'000 tons		miles	\$'000	\$'000		'000	
1870	....	....	....	....	....	....	....	131	68
1880	.... 34	.... 5	.... 8	.... 2	.... 38	.... 1,568	.... 26	60	126
1890	.... 188	.... 90	.... 103	.... 61	.... 385	.... 2,961	.... 53	73	420
1900	.... 1,355	.... 2,519	.... 1,723	.... 1,384	.... 623	.... 6,053	.... 413	498	1,606
1906	.... 1,612	.... 3,269	.... 2,404	.... 2,097	.... 743	.... 6,451	.... 519	591	1,792
1907	.... 1,764	.... 3,075	.... 2,272	.... 2,091	.... 765	.... 6,686	.... 521	638	1,780
1908	.... 1,943	.... 3,004	.... 2,015	.... 2,059	.... 798	.... 6,868	.... 544	692	1,817
1909	.... 2,045	.... 3,017	.... 1,948	.... 1,997	.... 842	.... 6,719	.... 553	672	2,054
1910	.... 2,145	.... 3,275	.... 2,194	.... 2,242	.... 902	.... 7,480	.... 613	785	2,372
1911	.... 2,376	.... 3,689	.... 2,433	.... 2,489	.... 948	.... 7,580	.... 629	904	2,566
1912	.... 2,598	.... 3,769	.... 2,688	.... 2,542	.... 981	.... 7,758	.... 642	988	2,614
1913	.... 2,854	.... 4,076	.... 3,013	.... 2,866	.... 952	.... 8,513	.... 673	1,265	3,023
1914	.... 2,967	.... 4,514	.... 3,144	.... 3,170	.... 900	.... 8,804	.... 688	1,142	(i) 527 (i) 1,795
1915	.... 3,332	.... 4,116	.... 2,996	.... 2,524	.... 976	.... (j) 976	.... 692	1,088	2,384
1916	.... 3,332	.... 4,176	.... 3,023	.... 2,555	.... 993	.... 8,791	.... 734	1,052	2,493
1917	.... 3,425	.... 3,755	.... 2,897	.... 2,400	.... 1,010	.... 8,342	.... 761	973	2,558
1918	.... 3,491	.... 3,633	.... 2,908	.... 2,259	.... 983	.... 8,313	.... 778	890	315
1919	.... 3,539	.... 3,746	.... 3,135	.... 2,379	.... 898	.... 8,328	.... 903	926	2,112
1920	.... 3,539	.... 4,584	.... 4,001	.... 2,614	.... 918	.... 8,270	.... 886	1,067	2,659
1921	.... 3,539	.... 5,440	.... 4,844	.... 2,604	.... 895	.... 8,318	.... 1,084	1,236	789
1922	.... 3,539	.... 5,656	.... 4,658	.... 2,548	.... 878	.... 8,413	.... 1,184	1,473	874
1923	.... 3,555	.... 5,832	.... 4,421	.... 2,624	.... 865	.... 8,706	.... 1,215	1,725	3,088
1924	.... 3,629	.... 6,455	.... 4,596	.... 3,023	.... 812	.... 10,098	.... 1,217	2,611	673
1925	.... 3,783	.... 6,719	.... 4,710	.... 3,285	.... 854	.... 11,031	.... 1,270	1,943	805
1926	.... 3,865	.... 6,675	.... 5,018	.... 3,237	.... 884	.... 11,402	.... 1,360	2,054	685
1927	.... 3,918	.... 7,216	.... 5,371	.... 3,439	.... 872	.... 11,858	.... 1,480	1,875	799
1928	.... 3,977	.... 7,716	.... 5,822	.... 3,698	.... 838	.... 11,526	.... 1,598	1,926	812
1929	.... 4,079	.... 7,600	.... 6,111	.... 3,670	.... 842	.... 11,691	.... 1,691	1,831	808
1930	.... 4,111	.... 7,318	.... 6,226	.... 3,530	.... 847	.... 11,804	.... 1,818	1,841	794
1931	.... 4,181	.... 6,398	.... 5,222	.... 3,154	.... 826	.... 11,812	.... 1,672	1,626	742
1932	.... 4,235	.... 5,845	.... 4,247	.... 2,848	.... 890	.... 11,699	.... 1,576	1,234	694
1933	.... 4,338	.... 5,864	.... 4,223	.... 2,840	.... 845	.... 11,723	.... 1,639	1,266	691
1934	.... 4,360	.... 5,839	.... 4,373	.... 2,652	.... 854	.... 11,785	.... 1,696	1,336	683
1935	.... 4,359	.... 6,624	.... 4,765	.... 2,903	.... 869	.... 11,505	.... 1,845	1,467	730
1936	.... 4,358	.... 6,892	.... 4,976	.... 2,887	.... 880	.... 11,532	.... 1,949	1,653	725
1937	.... 4,357	.... 6,924	.... 5,240	.... 2,798	.... 873	.... 12,090	.... 2,078	1,779	761
1938	.... 4,376	.... 7,356	.... 5,420	.... 3,062	.... 854	.... 12,057	.... 2,163	1,845	866
1939	.... 4,378	.... 7,198	.... 5,823	.... 2,859	.... 844	.... 12,071	.... 2,217	2,034	930
1940	.... 4,381	.... 7,112	.... 5,657	.... 2,659	.... 831	.... 12,040	.... 2,235	1,983	805
1941	.... 4,381	.... 7,144	.... 5,516	.... 2,604	.... 815	.... 12,080	.... 2,300	1,990	556
1942	.... 4,381	.... 7,993	.... 6,052	.... 2,638	.... 818	.... 12,118	.... 2,601	2,086	492
1943	.... 4,381	.... 8,336	.... 6,895	.... 2,505	.... 849	.... 12,164	.... 3,084	2,258	312
1944	.... 4,381	.... 8,773	.... 7,592	.... 2,560	.... 829	.... 12,523	.... 3,278	2,570	385
1945	.... 4,381	.... 8,552	.... 7,529	.... 2,904	.... 798	.... 12,435	.... 3,364	2,603	382
1946	.... 4,381	.... 8,213	.... 8,053	.... 2,728	.... 706	.... 12,429	.... 3,463	2,914	490
1947	.... 4,348	.... 8,092	.... 8,848	.... 2,577	.... 759	.... 12,423	.... 3,690	3,326	572
1948	.... 4,348	.... 9,198	.... 11,140	.... 2,858	.... 739	.... 12,661	.... 3,923	4,418	752
1949	.... 4,321	.... 10,430	.... 13,405	.... 2,737	.... 734	.... 12,874	.... 4,132	5,792	950
1950	.... 4,252	.... 12,944	.... 15,003	.... 2,843	.... 774	.... 14,439	.... 4,739	6,477	1,006
1951	.... 4,228	.... 14,392	.... 17,238	.... 3,033	.... 752	.... 14,120	.... 5,511	8,303	1,060
1952	.... 4,113	.... 18,327	.... 21,331	.... 3,063	.... 752	.... 14,598	.... 7,290	9,849	1,045
1953	.... 4,108	.... 15,945	.... 24,175	.... 2,619	.... 724	.... 14,904	.... 7,792	10,924	1,025
1954	.... 4,111	.... 22,749	.... 27,512	.... 3,206	.... 758	.... 14,946	.... 8,360	11,746	1,005
1955	.... 4,111	.... 25,061	.... 27,871	.... 3,407	.... 748	.... 15,149	.... 9,088	11,854	1,136
1956	.... 4,119	.... 26,548	.... 29,986	.... 3,793	.... 726	.... 15,284	.... 9,828	13,844	1,268
1957	.... 4,117	.... 28,088	.... 32,023	.... 4,223	.... 706	.... 15,482	.... 10,792	14,808	1,244
1958	.... 4,117	.... 25,950	.... 29,685	.... 3,589	.... 575	.... 15,579	.... 11,685	16,222	1,219
1959	.... 4,117	.... 27,400	.... 29,865	.... 3,913	.... 575	.... 15,690	.... 12,219	17,144	1,282
1960	.... 4,120	.... 30,077	.... 30,816	.... 4,533	.... 517	.... 15,839	.... 14,404	18,148	1,403
1961	.... 4,123	.... 33,076	.... 31,103	.... 4,833	.... 469	.... 16,082	.... 15,817	18,566	1,598
1962	.... (k) 3,851	.... 35,608	.... 31,527	.... 5,342	.... (l) 558	.... 16,153	.... 16,284	19,508	1,687
1963	.... (k) 3,797	.... 33,429	.... 31,150	.... 4,793	.... 552	.... 16,569	.... 17,929	21,736	1,528
1964	.... (k) 3,677	.... 35,190	.... 32,250	.... 5,187	.... 413	.... 16,843	.... 19,997	24,060	1,580
1965	.... (k) 3,733	.... 36,686	.... 32,920	.... 5,229	.... (m) 21	.... 17,336	.... 23,062	27,795	1,560
1966	.... 3,747	.... 43,669	.... 35,985	.... 6,384	.... 285	.... 17,245	.... 25,886	30,912	1,711
1967	.... 3,815	.... 49,120	.... 40,170	.... 7,873	.... 282	.... 17,295	.... 28,069	36,328	(n) 1,682 (n) 10,929

(a) From 1900, year ended 30 June. (b) Open for general and passenger traffic. (c) From 1942 includes operations of Railway Road Services, which began in November 1941. (d) From 1900 to 1964 includes 277 miles of line open for general and passenger traffic. From 1915, year ended 30 June. (e) At end of year; from 1916, at 30 June. From 1935, figures represent pole route mileage. (f) From 1920, year ended 30 June. (g) Figures represent revenue actually collected, and actual payments made, as recorded for Treasury purposes. (h) From 1915, year ended 30 June. (i) Six months ended 30 June. (j) Complete records not available. (k) Decrease due to proclamations of closure issued by authority of the Railways (Cue-Big Bell and other Railways) Discontinuance Act, 1960. (l) Increase due to the transfer of all government-operated timber railways to private control. (m) Decrease due to transfer of Midland Railway Company to Western Australian Government Railways, and to closure of timber and mining railways. (n) Figures not comparable with previous years due to exclusion of non-cargo vessels and cargo vessels of less than 200 gross tons.

MOTOR VEHICLE REGISTRATIONS; EXPORTS OF WHEAT

Year	New motor vehicles registered (a)				Motor vehicles on register (b)				Wheat exports (c)	
	Motor cars (d)	Utilities, vans, trucks and omnibuses (e)	Motor cycles (e)	Total	Motor cars (f)	Utilities, vans, trucks and omnibuses (e)	Motor cycles (e)	Total	Quantity ('000 bushels)	Value (\$'000)
1860									(g)	(g)
1870									....	....
1880									15	8
1890									....	....
1900									1	(g)
1906									(g)	(g)
1907									490	193
1908					n.a.				212	90
1909									625	258
1910									2,015	813
1911									2,231	774
1912									502	200
1913							n.a.	n.a.	4,106	1,528
1914									(h) 7,286	(h) 2,688
1915									(g)	(g)
1916									3,931	2,047
1917	n.a.	n.a.	n.a.	n.a.					7,036	3,239
1918					2,538				1,694	875
1919					2,938				1,651	800
1920					3,404				9,151	5,083
1921					4,181				6,576	5,860
1922					4,403				10,357	6,076
1923					7,280				5,363	2,942
1924					11,162				10,925	5,085
1925					15,261				14,986	10,316
1926					20,011				13,175	8,373
1927					19,451	5,819			16,330	9,334
1928					24,205	8,104			26,194	13,989
1929					27,174	9,767			26,091	13,334
1930					31,130	11,358	7,707	50,195	24,953	12,258
1931					27,741	10,880	6,777	45,398	42,440	10,577
1932					28,603	12,094	6,700	47,402	36,868	10,647
1933					27,969	12,626	6,700	47,295	30,695	9,323
1934					28,761	13,937	6,284	48,982	23,360	6,834
1935					30,578	15,530	6,597	52,705	24,986	7,844
1936					32,329	17,362	6,861	56,552	14,897	5,607
1937					34,180	19,919	6,977	61,076	13,780	7,255
1938					36,386	22,596	7,079	66,061	22,038	9,667
1939	3,297	1,814	568	5,679	33,039	24,441	7,199	69,679	22,014	6,055
1940	2,871	1,517	399	4,787	38,907	25,026	6,789	70,722	15,330	4,669
1941	1,015	632	200	1,847	36,995	24,788	6,704	68,487	14,856	5,858
1942	250	353	74	677	29,022	21,625	4,057	54,704	9,774	4,021
1943	218	151	57	426	29,750	21,189	3,935	54,874	5,138	2,111
1944	19	1,102	109	1,230	30,295	22,459	4,324	57,078	12,057	5,813
1945	40	597	192	829	30,635	23,943	4,501	59,079	23,590	14,955
1946	101	456	271	828	31,408	28,904	6,799	67,111	13,510	11,696
1947	1,354	1,126	678	3,158	32,879	32,097	8,199	73,175	6,802	8,964
1948	2,963	1,975	1,059	5,997	35,596	35,285	8,877	79,758	19,312	33,809
1949	4,634	3,122	1,769	9,575	40,119	38,901	10,974	89,994	18,401	28,100
1950	8,926	4,707	2,346	15,979	43,632	43,206	12,897	104,735	21,510	33,384
1951	8,201	6,610	2,802	17,613	56,235	47,908	14,535	118,678	30,510	51,688
1952	8,836	5,750	2,740	17,326	64,277	52,627	16,047	132,951	26,823	45,728
1953	6,879	4,881	1,416	13,176	69,917	56,445	15,565	141,927	23,319	40,347
1954	9,926	5,601	1,258	16,785	78,312	60,362	15,243	153,917	6,800	11,272
1955	12,394	5,993	1,205	19,589	90,255	63,870	14,662	168,787	19,335	27,478
1956	10,100	5,203	1,089	16,392	99,206	62,809	12,959	174,974	22,773	28,860
1957	9,321	4,418	1,192	14,931	104,506	63,315	12,731	180,552	46,796	61,291
1958	10,140	5,562	1,702	17,404	111,825	63,598	12,631	188,054	26,644	40,861
1959	10,389	5,140	2,071	17,600	119,957	65,588	13,814	198,359	23,503	33,113
1960	13,492	5,695	1,949	21,136	130,476	68,702	12,876	212,054	36,713	49,442
1961	15,161	5,542	1,080	21,783	141,612	70,974	12,589	225,175	52,480	71,280
1962	17,082	5,833	902	23,817	155,447	74,224	12,300	242,061	73,883	104,356
1963	23,175	6,367	754	30,296	170,781	75,748	11,649	258,178	50,720	72,197
1964	24,958	7,013	623	32,599	183,251	78,239	10,449	277,939	55,022	77,881
1965	23,304	6,897	553	30,754	202,914	79,316	9,244	291,474	40,507	56,955
1966	23,418	9,170	706	33,294	219,316	84,423	8,777	313,016	69,372	96,515
1967	27,922	9,404	1,158	38,484	240,519	87,661	8,851	337,061	84,980	126,918

n.a. denotes 'not applicable' or 'not available'.

(a) Year ended 30 June. (b) From 1929, at 30 June; for earlier years, at various dates. For years before 1946, excludes Commonwealth-owned vehicles; from 1946, includes Commonwealth-owned vehicles other than those of defence services. From 1956, new series based on the results of the periodic Census of Motor Vehicles. (c) From 1915, year ended 30 June. (d) From 1959, includes station wagons previously included with utilities, vans, trucks and omnibuses. (e) Including motor scooters. (f) From June 1957, includes station wagons previously included with utilities, vans, trucks and omnibuses. (g) Less than 500. (h) Six months ended 30 June.

EXPORTS OF CERTAIN COMMODITIES—*continued*

Year (a)	Wool				Meats—Fresh, chilled or frozen					
	Greasy (b)		Degreased		Beef and veal		Mutton and lamb		Pigment	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	'000 lb	\$'000	'000 lb	\$'000	'000 lb	\$'000	'000 lb	\$'000	'000 lb	\$'000
1840	50	5								
1850	310	31								
1860	657	99	(c)	(c)						
1870	1,788	179								
1880	4,343	543								
1890	6,969	523								
1900	8,658	505	436	36	(d)	(d)	(d)	(d)	(d)	(d)
1906	14,678	1,157	364	49			16	1		
1907	19,914	1,583	296	41			370	11		
1908	20,303	1,239	440	35			95	3		
1909	26,431	1,951	714	75					1	(e)
1910	25,777	1,894	420	40						
1911	24,981	1,835	176	16						
1912	27,902	2,052	225	19						
1913	25,505	1,933	227	21					(e)	
1914 (f)	4,846	361	35	3						
1915	23,906	1,626	99	10						
1916	28,869	2,517	235	29	4,311	176	41	2		
1917	24,327	2,831	78	10						
1918	10,519	1,056	113	15	1,188	36	115	4	324	15
1919	29,022	3,775	623	129	239	6	138	4	133	6
1920	56,284	7,218	3,316	657	662	33				
1921	42,048	4,593	1,084	183	5,762	248	118	7	45	5
1922	54,512	5,673	4,181	731	2,479	79				
1923	39,275	5,986	2,651	479	9,955	305	866	55	1	(e)
1924	42,359	8,028	1,516	446	10,647	272	446	26		
1925	33,722	7,030	1,293	443	7,106	198				
1926	48,024	6,703	1,666	353	8,119	240				
1927	52,131	6,694	1,657	342	6,697	198				
1928	60,402	9,734	839	192	11,026	272	227	15		
1929	56,202	7,615	843	207	9,313	226				
1930	61,777	5,422	1,025	136	11,381	272				
1931	69,397	4,652	1,366	121	11,315	244	855	35	209	7
1932	64,591	4,540	1,966	151	11,240	235	2,113	103	1,221	53
1933	68,192	4,871	2,695	236	14,406	276	384	15	949	37
1934	69,998	9,131	2,728	491	12,602	234	1,352	49	668	29
1935	80,550	6,479	3,451	348	12,072	233	4,979	236	1,194	55
1936	78,488	8,892	3,081	451	17,036	321	5,557	282	1,550	65
1937	58,324	7,854	2,448	475	11,227	249	4,555	247	1,306	67
1938	53,452	5,877	2,706	446	11,445	314	8,705	470	823	52
1939	68,409	6,072	3,606	469	16,501	497	11,775	638	1,278	80
1940	65,279	7,603	3,648	661	10,639	329	10,285	533	4,990	324
1941	19,983	2,601	2,799	518	12,309	407	9,691	496	13,261	851
1942	75,739	9,836	4,928	1,030	7,883	327	8,122	435	10,295	682
1943	28,514	4,163	2,731	594	(e)	(e)	8,785	458	2,321	155
1944	68,663	10,842	4,619	917	3,185	190	14,691	763	3,457	238
1945	52,058	8,082	4,885	1,025	2,651	168	8,824	410	3,741	254
1946	108,180	17,136	11,746	2,778	9,517	558	5,002	275	7,497	545
1947	75,187	15,561	17,457	4,960	14,017	691	8,997	409	2,880	248
1948	80,205	27,801	16,073	5,443	14,007	604	11,198	584	669	53
1949	85,919	36,717	13,588	6,352	17,760	840	10,157	608	1,375	179
1950	83,405	40,071	17,491	10,852	19,015	1,183	5,274	485	359	59
1951	80,732	96,493	11,055	16,066	16,973	1,221	2,070	217	616	113
1952	91,455	57,291	11,353	10,389	13,290	1,135	2,301	301	934	232
1953	100,909	67,759	12,604	11,363	11,058	1,437	14,527	1,463	1,020	303
1954	100,701	71,346	11,918	10,914	13,555	1,748	7,295	875	474	152
1955	96,554	59,296	13,261	11,267	14,939	2,038	7,109	1,328	2,813	532
1956	113,289	57,894	16,745	12,410	16,757	2,343	14,556	2,156	1,637	482
1957	108,582	71,251	18,746	16,259	9,099	1,221	12,761	1,741	1,615	588
1958	96,453	57,224	18,557	15,462	24,305	3,302	11,205	1,900	5,124	1,462
1959	111,131	46,313	21,763	12,224	23,226	4,342	21,923	3,177	4,371	1,178
1960	111,104	58,137	27,430	19,820	29,977	6,742	19,258	2,378	2,618	973
1961	131,903	59,290	26,128	15,552	27,365	6,141	25,059	3,901	4,176	1,501
1962	136,894	68,177	25,331	15,688	27,654	6,299	18,669	2,436	6,946	2,025
1963	131,433	86,401	25,222	15,706	38,069	9,382	16,676	2,401	4,543	1,404
1964	159,262	97,138	22,901	17,101	45,257	11,497	11,872	1,895	1,898	718
1965	151,812	83,030	22,586	15,264	42,682	11,730	11,111	1,981	1,259	516
1966	193,682	101,905	21,705	13,223	39,937	12,108	22,750	4,357	926	376
1967	214,064	114,052	21,578	12,943	37,284	11,987	21,278	3,723	1,245	470

(a) From 1915, year ended 30 June. (b) For 1890 and earlier years includes degreased wool for which figures are not available separately. (c) See note (b). (d) Separate particulars not available. Total exports of fresh meats were 184,379 lb valued at \$9,164. (e) Less than 500. (f) Six months ended 30 June.

EXPORTS OF CERTAIN COMMODITIES—*continued*

Year (a)	Flour		Butter		Potatoes		Fresh fruit (b)	Cattle	Sheep
	Quantity	Value	Quantity	Value	Quantity	Value	Value	Value	Value
	short tons (c)	\$'000	cwt	\$'000	tons	\$'000	\$'000	\$'000	\$'000
1850	(d)	(e)	(d)	(e)	....	(e)	(e)
1860	12	....	....	70	1	....	....	4
1870	26	(e)	....	....	(e)
1880	(d)	....	....	....	....	....	....	(e)
1890	1	2
1900	52	1	76	1	111	1	(e)	2
1906	(e)	20	(e)	....	(e)	(e)	2
1907	4,067	69	4	(e)	....	2	1	(e)
1908	477	9	3	(e)	11	5	1	(e)
1909	1,029	20	206	3	63	1	(e)	1
1910	2,821	49	1,507	12	18	(e)	11	9
1911	7,145	107	157	1	....	....	32	67
1912	15,410	241	135	2	548	11	67	103
1913	29,696	477	165	2	3	(e)	65	146
1914 (f)	18,211	315	30	(e)	4	(e)	17	59
1915	2,890	52	15	(e)	69	1	93	75
1916	17,220	428	69	1	516	11	44	142
1917	37,747	843	232	4	6	(e)	164	45
1918	57,634	1,377	2,631	48	7	(e)	71	177
1919	105,183	2,583	1,457	29	57	1	114	18
1920	129,250	5,045	744	17	1,611	54	300	73
1921	53,302	2,144	398	10	339	7	243	44
1922	56,155	2,046	245	6	293	5	352	96
1923	59,703	1,833	13	(e)	1,541	32	476	118
1924	77,970	1,644	115	2	3,389	90	378	60
1925	74,909	1,923	....	(e)	436	5	493	5
1926	91,859	2,581	....	(e)	1,621	43	464	30
1927	94,020	2,314	11	(e)	1,516	44	669	32
1928	85,107	2,009	10	(e)	429	12	384	70
1929	79,659	1,780	713	14	1,306	32	1,067	38
1930	69,070	1,540	412	7	4,957	151	312	1
1931	85,664	1,266	393	5	4,820	47	604	3
1932	88,252	1,156	13,044	179	713	14	381	3
1933	86,155	1,105	20,519	280	479	5	665	1
1934	64,594	781	19,676	195	1,681	17	673	(e)
1935	85,965	1,127	20,504	148	2,337	49	826	1
1936	66,836	972	20,325	246	8,307	121	905	1
1937	86,146	1,662	14,535	183	6,995	119	670	1
1938	81,162	1,605	32,318	472	4,951	55	549	(e)
1939	89,029	1,165	36,917	462	14,725	282	1,175	1
1940	91,667	1,301	36,861	490	11,764	214	740	(e)
1941	118,595	2,185	34,412	460	18,209	373	282	2
1942	84,974	1,681	32,988	428	10,287	213	114	1
1943	77,616	1,581	3,334	47	6,309	139	139	1
1944	106,859	2,344	18,082	262	760	22	96	27
1945	101,896	2,505	18,969	369	17,656	581	132	2
1946	116,942	4,667	25,254	502	13,010	446	488	2
1947	129,699	7,628	18,113	383	12,735	484	1,445	27
1948	139,996	11,326	40,207	1,000	18,329	681	1,688	10
1949	131,203	10,516	40,843	1,047	13,506	431	1,452	11
1950	115,814	8,335	29,033	864	9,931	384	1,780	5
1951	159,740	11,774	9,795	312	11,004	506	2,295	9
1952	161,581	13,669	2,828	93	13,301	733	2,853	23
1953	176,241	15,090	3,059	126	12,657	750	4,556	23
1954	147,849	11,704	3,343	141	15,773	1,300	3,300	29
1955	120,342	7,219	3,312	142	8,878	512	3,845	68
1956	129,421	7,766	5,017	206	2,239	171	3,393	177
1957	127,491	7,474	3,489	156	7,606	736	4,598	243
1958	111,827	6,907	3,938	169	13,777	832	3,725	308
1959	104,559	6,337	3,508	166	8,442	368	3,609	396
1960	87,851	5,100	3,764	183	9,460	436	2,437	325
1961	135,407	7,840	5,971	247	7,697	437	4,636	318
1962	97,983	5,891	14,877	532	10,165	632	2,818	55
1963	74,574	4,645	4,857	228	17,747	810	4,982	160
1964	69,090	4,396	2,723	126	9,768	353	4,016	331
1965	92,402	5,926	3,272	159	12,731	841	5,185	427
1966	54,157	3,378	20,896	732	21,025	1,393	4,838	283
1967	38,365	2,507	3,778	202	17,202	692	5,704	381

(a) From 1915, year ended 30 June. (b) Includes tomatoes for 1932-33 and earlier years. (c) Short ton = 2,000 lb. (d) Not available. (e) Less than \$500. (f) Six months ended 30 June.

EXPORTS OF CERTAIN COMMODITIES—*continued*

Year (a)	Skins and hides	Timber (b)		Crayfish tails (c)		Pearl-shell		Iron and steel (d)
	Value	Quantity	Value	Quantity	Value	Quantity	Value	Value
	\$'000	'000 sup. ft	\$'000	'000 lb	\$'000	cwt	\$'000	\$'000
1850	1	126	2	....	....	....	....	....
1860	(e)	658	10	....	....	....	....	....
1870	(e)	2,568	35	....	....	1,480	19	....
1880	8	7,950	133	....	....	14,380	79	....
1890	49	14,066	164	....	....	24,745	173	....
1900	150	68,705	916	....	....	14,747	173	7
1906	371	105,761	1,416	....	....	23,515	285	16
1907	373	76,826	1,010	....	....	27,881	340	7
1908	276	118,435	1,627	....	....	30,693	381	6
1909	395	129,898	1,734	....	....	23,412	350	5
1910	482	144,858	1,945	....	....	29,281	492	5
1911	347	149,390	1,972	....	....	27,471	482	2
1912	365	135,565	1,807	....	....	31,915	843	3
1913	513	163,438	2,179	....	....	30,419	549	3
1914 (f)	209	75,357	1,004	....	....	10,143	172	8
1915	300	119,622	1,617	....	....	22,806	323	45
1916	504	65,188	884	....	....	25,045	317	14
1917	445	46,688	622	....	....	24,000	394	21
1918	407	41,230	548	....	....	17,267	288	53
1919	544	49,629	665	....	....	13,253	236	62
1920	1,246	60,784	931	....	....	33,505	671	16
1921	759	117,795	2,274	....	....	23,056	470	26
1922	730	99,707	2,082	....	....	30,440	508	16
1923	1,092	94,935	1,995	....	....	25,477	429	18
1924	1,040	133,648	2,735	....	....	28,479	487	6
1925	955	142,132	2,956	....	....	23,264	469	13
1926	883	144,017	3,046	....	....	25,762	465	9
1927	752	157,355	3,316	....	....	24,502	425	10
1928	1,106	124,617	2,531	....	....	19,066	332	7
1929	1,101	91,623	1,921	....	....	21,515	345	3
1930	738	78,957	1,615	....	....	19,378	331	3
1931	539	49,534	1,015	....	....	20,313	334	2
1932	395	36,752	722	....	....	12,237	194	1
1933	480	26,826	523	....	....	20,653	294	1
1934	771	48,730	972	....	....	16,854	196	7
1935	640	63,913	1,270	....	....	19,435	189	3
1936	1,061	67,178	1,356	....	....	19,363	214	3
1937	1,143	68,087	1,397	....	....	18,261	247	7
1938	985	90,549	1,860	....	....	24,781	336	12
1939	736	68,451	1,436	....	....	22,621	212	15
1940	745	60,595	1,251	....	....	16,859	153	31
1941	580	73,094	1,546	....	....	13,704	153	35
1942	772	62,697	1,369	....	....	11,616	142	19
1943	348	42,272	1,189	....	....	120	1	5
1944	680	43,744	1,216	....	....	37	1	23
1945	537	34,218	1,131	....	....	....	....	100
1946	1,274	40,476	1,429	....	....	260	8	9
1947	2,131	41,505	1,719	....	....	2,491	120	99
1948	2,048	43,349	2,230	....	....	6,733	340	89
1949	2,134	38,379	1,986	(g)	(g)	8,169	367	59
1950	2,329	34,295	1,949	1,143	463	6,997	248	95
1951	5,294	23,110	1,783	3,165	1,517	6,797	274	83
1952	3,194	28,659	2,075	2,891	1,861	8,205	406	58
1953	3,942	47,585	4,147	2,930	2,085	10,538	612	357
1954	3,295	46,318	4,480	3,222	2,342	12,271	708	279
1955	2,921	41,748	3,847	3,377	2,490	13,785	820	602
1956	3,274	54,591	5,598	3,529	3,022	15,954	999	530
1957	4,650	56,147	6,215	3,566	3,514	21,671	1,391	1,174
1958	3,898	66,872	7,496	4,708	3,965	22,580	1,381	2,470
1959	3,489	77,561	8,415	6,117	5,281	15,521	772	4,218
1960	4,787	73,601	7,760	6,604	6,499	12,535	707	11,198
1961	3,828	66,412	7,175	5,106	5,881	11,283	502	12,781
1962	4,580	68,059	7,528	7,952	9,778	8,924	320	13,826
1963	4,339	65,811	7,241	7,694	8,910	7,647	289	15,107
1964	4,966	63,331	6,813	7,532	9,211	3,304	112	15,029
1965	4,177	56,521	6,279	5,891	10,592	3,186	133	17,933
1966	5,447	*29,186	*3,687	7,040	13,821	3,045	123	14,458
1967	5,377	58,960	7,475	8,032	13,873	4,284	189	15,658

(a) From 1915, year ended 30 June. (b) Excludes plywood and veneers and small quantities of timber for which the superficial footage is not recorded. For the years 1906 to 1921, figures are approximate. (c) Figures for the years 1949-50 to 1951-52 represent overseas exports only and exclude small consignments to other Australian States. Those for 1952-53 to 1959-60 include small consignments of cooked whole crayfish to other Australian States. (d) Principally pig-iron, cast iron and basic shapes and sections of iron and steel. (e) Less than \$500. (f) Six months ended 30 June. (g) Precise information not available, but it is known that the value of exports was about \$500,000. * Revised.

EXPORTS OF CERTAIN COMMODITIES—continued

Year (a)	Gold bullion (b)		Lead and zinc ores (c)	Tin ore and concentrates	Asbestos (crude and fibre)		Manganese ore and concentrates		Iron ore and concentrates		Ilmenite concentrates (including leucocene)	
	Quantity	Value (d)			Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	'000 fine oz	\$'000	\$'000	\$'000	short tons (e)	\$'000	'000 tons	\$'000	'000 tons	\$'000	'000 tons	\$'000
1850	(S)	....	....	....	....	....	....	....	....	....
1860	2	....	....	....	....	....	....	....	....	....
1870	29	....	....	....	....	....	....	....	....	....
1880	31	....	....	....	....	....	....	....	....	....
1890	23	173	4	11	....	....	....	....	....	....	....
1900	1,000	7,589	(S)	76	....	....	....	....	....	....	....
1906	692	5,861	....	277	....	....	....	....	....	....	....
1907	538	4,545	4	303	....	....	....	....	....	....	....
1908	485	4,105	10	167	....	....	....	....	....	....	....
1909	512	4,328	4	126	....	....	....	(S)	(S)	....	....
1910	334	2,835	4	93	....	....	....	....	....	....	....
1911	309	2,613	31	110	....	....	....	....	....	....	....
1912	269	2,285	45	159	....	....	(S)	(S)	....	....	....
1913	198	1,683	119	144	....	....	....	....	....	....	....
1914 (g)	60	513	57	39	....	....	....	....	....	....	....
1915	100	827	95	51	....	....	....	....	....	....	....
1916	183	1,547	22	92	....	....	(S)	(S)	....	....	....
1917	7	113	....	....	....	....	....	....	....
1918	9	110	1	....	....	....	....	....	....
1919	8	112	3	....	....	....	....	....	....
1920	41	452	102	129	....	....	....	....	....	....	....
1921	(S)	1	67	41	145	13	....	....	....	....	....
1922	10	18	98	8	....	....	....	....	....
1923	47	....	....	....	....	....	....	....	....	....
1924	91	767	108	38	....	....	....	....	....	....	....
1925	36	305	186	29	....	....	....	....	....	....	....
1926	50	386	186	23	....	....	....	....	....	....	....
1927	91	711	109	28	....	....	....	....	....	....	....
1928	14	121	8	24	....	....	....	....	....	....	....
1929	10	81	11	30	....	....	....	....	....	....	....
1930	(S)	1	19	29	....	....	....	....	....	....	....
1931	2	10	....	....	....	....	....	....	....
1932	515	7,336	1	6	....	....	....	....	....	....	....
1933	625	9,376	....	7	....	....	....	....	....	....	....
1934	653	10,624	....	11	....	....	....	....	....	....	....
1935	589	10,258	....	17	....	....	....	....	....	....	....
1936	771	13,385	....	18	....	....	....	....	....	....	....
1937	909	15,819	....	16	....	....	....	....	....	....	....
1938	1,075	18,598	1	20	310	37	....	....	....	....	....
1939	1,169	21,240	1	11	300	26	....	....	....	....	....
1940	1,168	24,056	2	14	207	17	....	....	....	....	....
1941	1,202	25,096	2	12	163	15	....	....	....	....	....
1942	975	20,590	2	6	82	7	....	....	....	....	....
1943	756	15,744	1	5	98	8	....	....	....	....	....
1944	349	7,250	1	6	101	8	....	....	....	....	....
1945	1	5	425	36	....	....	....	....	....
1946	(S)	8	1,192	104	....	....	....	....	....
1947	5	12	702	65	....	....	....	....	....
1948	356	7,656	146	17	1,324	148	....	....	....	....	....
1949	235	31	1,299	179	....	....	....	....	....
1950	(S)	2	272	49	985	204	2	22	....	....	....
1951	263	62	1,728	378	11	154	....	....	....
1952	395	13,143	1,369	107	2,888	709	8	115	52	102	....
1953	759	24,798	1,681	153	3,313	990	14	256	544	1,079	....
1954	418	13,230	270	97	3,527	986	27	829	583	1,157	....
1955	618	19,338	108	146	4,180	788	34	804	580	1,149	....
1956	410	12,842	888	322	8,305	1,440	55	1,271	472	936	....
1957	770	24,119	960	293	11,825	2,140	58	1,551	329	649	....
1958	208	6,511	410	166	12,944	2,920	75	2,501	439	870	88
1959	132	4,118	238	304	11,836	2,166	56	1,628	589	1,169	65
1960	600	18,738	229	415	16,983	3,111	79	2,224	796	1,601	89
1961	2,532	79,271	83	325	11,879	2,364	47	1,267	1,019	2,101	130
1962	453	12,195	45	563	14,165	2,753	108	2,945	1,052	2,209	156
1963	417	13,048	33	532	13,900	2,799	52	1,390	1,471	2,898	180
1964	385	12,045	18	1,080	8,894	1,767	27	695	1,359	2,743	259
1965	513	16,127	662	1,229	12,270	2,210	76	1,747	1,537	3,040	325
1966	833	26,147	124	1,521	8,889	1,702	*104	2,404	2,615	6,967	423
1967	480	15,107	177	2,214	6,597	1,229	190	4,161	8,395	50,890	436

(a) From 1915, year ended 30 June. (b) Gold sold abroad before consignment is not recorded as an export until actually shipped. (c) Includes silver-lead and silver-lead-zinc ores and concentrates. (d) Includes additional premiums on sales of industrial gold. (e) Short ton = 2,000 lb. (f) Less than 500. (g) Six months ended June. * Revised.

EXTERNAL TRADE
(\$'000)

Year (a)	Imports			Exports (b)			Excess of—		Ships' stores
	Overseas	Interstate	Total	Overseas	Interstate	Total	Imports	Exports	
1850	(c)	(c)	125	(c)	(c)	44	80	....	(c)
1860	318	20	338	160	16	175	163	....	3
1870	260	167	427	348	46	394	33	....	8
1880	349	358	707	736	252	988	....	280	11
1890	1,025	724	1,749	961	369	1,330	419	....	14
1900	6,574	5,350	11,924	11,246	2,250	13,496	....	1,572	208
1906	7,561	6,081	13,642	18,007	1,547	19,554	....	5,912	111
1907	7,175	5,871	13,046	17,157	2,499	19,656	....	6,610	154
1908	6,424	5,932	12,356	17,046	1,830	18,875	....	6,519	161
1909	6,645	6,169	12,814	13,361	4,121	17,482	....	4,668	239
1910	8,750	7,067	15,817	11,679	4,627	16,306	....	489	294
1911	8,971	8,321	17,292	18,342	2,586	20,928	....	3,637	285
1912	10,635	8,466	19,101	15,281	2,308	17,589	1,512	....	293
1913	10,815	8,970	19,785	10,204	7,726	17,931	1,854	....	326
1914 (d)	5,112	4,256	9,368	5,788	4,474	10,262	....	894	157
1915	7,972	8,630	16,603	6,242	4,177	10,419	6,184	....	286
1916	8,338	9,628	17,966	8,769	6,711	15,480	2,486	....	601
1917	8,773	9,997	18,770	9,291	19,488	28,779	....	10,009	587
1918	5,011	10,288	15,298	8,521	2,783	11,303	3,995	....	311
1919	6,281	9,767	16,048	18,886	2,323	21,209	....	5,161	637
1920	9,918	14,819	24,737	28,918	2,392	31,311	....	6,574	827
1921	14,439	15,239	29,678	20,790	2,724	23,514	6,165	....	1,004
1922	8,616	15,459	24,076	21,594	4,522	26,116	....	2,041	1,141
1923	13,001	14,555	27,555	19,359	2,252	21,611	5,944	....	599
1924	13,325	15,368	28,688	24,825	2,928	27,753	935	....	493
1925	16,053	16,095	32,148	25,719	2,623	28,342	3,806	....	987
1926	15,792	17,133	32,925	25,223	2,876	28,100	4,826	....	1,064
1927	18,894	17,858	36,752	26,135	2,810	28,946	7,806	....	1,358
1928	18,023	18,553	36,575	32,505	2,674	35,179	1,996	....	1,302
1929	18,906	21,201	40,108	30,603	2,411	33,014	7,094	....	1,358
1930	17,758	19,805	37,563	32,009	2,213	34,223	3,341	....	1,316
1931	9,165	13,639	22,804	33,306	1,550	34,856	....	12,052	1,095
1932	6,926	15,854	22,780	29,633	1,826	31,459	....	8,679	1,133
1933	9,542	16,740	26,282	28,037	1,916	29,953	....	3,671	1,122
1934	8,889	18,554	27,443	31,132	2,427	33,559	....	6,116	1,024
1935	10,203	20,290	30,493	30,002	2,650	32,652	....	2,158	1,106
1936	12,688	22,073	34,761	33,023	3,665	36,689	....	1,928	1,095
1937	14,144	24,742	38,886	34,592	6,361	40,953	....	2,067	1,029
1938	15,986	25,879	41,865	38,944	6,057	45,001	....	3,135	1,200
1939	12,275	25,329	37,604	34,149	10,815	44,964	....	7,360	1,049
1940	12,568	27,450	40,017	19,256	28,518	47,774	....	7,756	1,380
1941	9,710	27,519	37,229	16,900	30,808	47,708	....	10,479	1,971
1942	10,391	26,110	36,501	23,157	25,241	48,398	....	11,897	2,305
1943	7,383	24,803	32,186	10,625	20,117	30,741	1,445	....	1,983
1944	7,770	26,628	34,399	22,845	13,472	36,317	....	1,919	2,747
1945	9,215	26,863	36,079	24,765	11,533	36,298	....	219	2,508
1946	11,018	32,238	43,256	38,917	11,662	50,579	....	7,322	2,511
1947	18,929	42,253	61,182	46,015	11,459	57,474	3,708	....	1,966
1948	34,311	51,329	85,640	97,389	11,599	108,989	....	23,349	2,474
1949	44,075	61,182	105,258	96,982	9,495	106,477	....	1,220	4,710
1950	68,844	70,044	138,887	106,590	12,421	119,011	19,876	....	4,720
1951	80,517	95,828	176,345	197,686	18,780	216,466	....	40,122	7,249
1952	120,474	124,209	244,683	151,562	35,404	186,966	57,717	....	8,419
1953	59,748	137,213	196,961	166,286	49,659	215,945	....	18,984	10,321
1954	85,051	165,374	250,425	136,849	39,190	176,039	74,386	....	7,266
1955	101,295	182,110	283,405	137,013	47,310	184,323	99,082	....	7,865
1956	92,968	177,952	270,915	152,286	68,466	220,752	50,164	....	10,592
1957	80,423	188,680	269,103	216,599	81,545	298,144	....	29,041	12,902
1958	91,775	195,103	286,879	179,516	79,836	259,352	27,527	....	11,602
1959	89,972	202,430	292,402	174,585	68,919	243,504	48,898	....	9,482
1960	92,363	246,696	339,059	231,766	77,278	309,043	30,016	....	8,954
1961	110,531	245,474	356,005	309,332	89,922	399,254	....	43,249	10,285
1962	100,178	245,208	345,386	287,619	84,626	372,245	....	26,859	9,379
1963	112,640	313,712	426,351	246,823	91,636	338,459	87,892	....	7,904
1964	121,677	323,176	444,854	286,132	101,811	387,943	56,911	....	9,733
1965	153,540	343,899	497,439	243,078	119,954	363,033	134,407	....	9,009
1966	*175,690	403,054	*578,744	314,404	119,619	434,023	*144,721	....	10,058
1967	159,390	474,852	634,242	421,325	116,030	537,355	96,887	....	10,936

(a) From 1915, year ended 30 June. (b) Excludes ships' stores. (c) Not available. (d) Six months ended 30 June. * Revised.

LAND TENURE ; LIVESTOCK ; WOOL PRODUCTION

Year	Land alienated and land in process of alienation (a)	Land held under lease or licence (a) (b)	Livestock (c)				Wool production (d)	
			Horses	Cattle	Sheep	Pigs	Quantity	Gross value (e)
	'000 acres	'000 acres	'000	'000	'000	'000	'000 lb	\$'000
1829	525	.....	(f)	(f)	1	(f)	(g)	
1830	633	.....	(f)	1	8	(f)	(g)	
1840	1,598	.....	1	2	31	2	(g)	
1850	1,330	(g)	3	13	128	3	(g)	
1860	1,516	5,563	10	32	260	11	657	(g)
1870	1,465	12,239	22	45	609	13	1,788	
1880	2,125	44,920	35	64	1,232	24	4,343	
1890	5,334	104,742	44	131	2,525	29	6,969	
1900	6,619	87,376	68	339	2,434	62	9,531	
1906	12,576	152,528	105	690	3,341	56	17,438	1,375
1907	13,070	160,180	113	717	3,855	53	22,014	1,750
1908	14,003	161,219	117	742	4,097	47	22,451	1,371
1909	16,252	166,858	125	793	4,732	47	30,048	2,219
1910	17,330	167,208	134	825	5,159	58	29,123	2,141
1911	19,046	169,938	140	844	5,412	56	29,644	2,184
1912	20,793	175,630	148	806	4,597	47	25,380	1,870
1913	21,363	188,547	157	834	4,421	48	25,026	1,902
1914	21,649	184,221	162	864	4,456	60	24,419	1,819
1915	22,087	189,742	163	821	4,804	58	29,713	2,607
1916	21,710	196,707	170	864	5,530	91	33,093	3,926
1917	21,561	192,437	178	927	6,384	112	40,335	4,835
1918	21,568	208,049	180	944	7,184	86	45,734	6,155
1919	21,843	245,405	175	881	6,698	58	41,594	5,369
1920	23,023	257,610	179	850	6,533	61	41,772	4,552
1921	24,232	258,504	180	893	6,506	63	43,082	4,482
1922	25,756	267,620	181	940	6,664	68	40,862	6,294
1923	27,065	262,147	182	954	6,596	61	45,285	3,685
1924	28,343	209,937	175	892	6,397	66	43,424	9,151
1925	28,902	232,992	171	836	6,862	74	48,288	6,800
1926	30,278	230,562	166	827	7,459	70	55,132	7,143
1927	31,740	234,160	165	847	8,447	60	62,702	10,170
1928	33,322	237,428	161	838	8,943	49	58,866	8,027
1929	35,399	243,724	160	837	9,557	65	67,151	5,952
1930	36,039	245,390	157	813	9,883	101	71,542	4,829
1931	36,209	216,627	156	827	10,098	121	71,614	5,007
1932	35,869	206,162	157	857	10,417	118	75,147	5,198
1933	35,547	198,325	160	886	10,322	91	73,424	9,404
1934	35,090	200,588	162	912	11,197	98	89,902	6,422
1935	34,118	203,602	160	883	11,083	98	85,707	8,886
1936	32,995	203,961	155	793	9,008	76	63,537	7,306
1937	33,003	205,059	151	740	8,732	65	64,739	5,332
1938	33,009	205,992	144	768	9,178	83	72,475	5,450
1939	32,768	205,705	139	799	9,574	150	75,400	7,581
1940	32,437	209,380	130	789	9,516	218	71,347	7,889
1941	32,110	209,958	124	840	9,773	163	77,627	8,328
1942	31,864	211,536	113	831	10,424	152	95,718	11,935
1943	31,658	212,039	107	871	11,013	164	102,759	12,741
1944	31,622	212,696	97	853	10,050	164	84,141	10,512
1945	31,719	212,331	88	834	9,766	138	82,067	10,424
1946	31,781	212,163	81	812	9,787	102	80,524	16,094
1947	32,083	213,385	75	816	10,444	93	89,528	29,277
1948	31,857	217,807	69	864	10,873	81	93,769	37,720
1949	32,280	223,691	59	865	10,923	79	92,750	47,237
1950	32,778	226,005	55	841	11,362	90	102,911	118,068
1951	33,931	(b) 203,940	53	852	12,188	86	116,142	64,027
1952	34,766	205,607	50	846	12,475	76	120,726	75,121
1953	35,861	206,438	49	830	13,087	101	123,964	82,567
1954	37,237	206,566	47	861	13,411	107	124,173	67,985
1955	37,326	208,640	45	897	14,128	99	149,764	69,642
1956	38,230	216,318	45	957	14,887	140	148,374	90,283
1957	38,564	216,811	44	997	15,724	151	151,026	75,228
1958	39,259	221,763	41	1,000	16,215	115	157,358	59,407
1959	39,718	227,600	41	1,030	16,412	131	160,892	75,302
1960	40,103	227,650	40	1,100	17,151	176	182,217	73,863
1961	40,617	231,806	40	1,218	18,314	174	183,334	79,283
1962	41,468	240,037	39	1,298	18,727	131	177,176	80,071
1963	42,607	248,246	39	1,299	20,165	128	209,555	116,331
1964	43,643	246,467	37	1,258	22,392	137	200,995	93,275
1965	44,588	246,055	35	1,271	24,427	144	238,356	115,183
1966	45,416	246,038	(g)	1,357	27,370	161	263,352	121,509
1967	46,783	248,812	(g)	1,427	30,161	183	289,642	116,653

(a) From 1906, at 30 June; for earlier years, at 31 December. (b) Comprises allocations by Lands Department and certain leases and licences issued by Mines and Forests Departments. Apparent decrease in 1951 due mainly to revisions in records of Lands Department. (c) At 31 December for 1941 and earlier years; from 1942, the figures shown relate to 31 March in the following year. (d) Comprises shorn, dead and fellmongered wool. Excludes wool exported on skins. For 1947 and earlier, year ended 31 December; figures shown for 1948 to 1964 are for the year ended 31 March in the following year. From 1965 figures relate to the year ended 30 June in the following year. (e) Figures for 1949 and 1951 to 1955 exclude distributions of profits under the 1939-1945 War-time Wool Disposals Plan aggregating \$13,869,934. Separate State figures are not available for distributions made from 1956 to 1958 when payments were virtually complete. (f) Less than 500. (g) Not available.

AGRICULTURE

Year (a)	Total area under all crops (b)	Area and production of principal grain crops							
		Wheat				Oats		Barley	
		Area	Production			Area	Production	Area	Production
			Yield per acre	Total	Gross value				
'000 acres	'000 acres	bushels	'000 bushels	\$'000	'000 acres	'000 bushels	'000 acres	'000 bushels	
1840	3	2	20·0	33					
1850	4	4	(c)	(c)					
1860	7	14	15·3	208	(c)	1	12	2	43
1870	25	27	11·9	317		2	40	5	88
1880	55	28	9·3	257		1	21	6	89
1890	64	34	13·8	467		2	39	5	85
1900	201	74	10·4	775	310	5	86	3	29
1906	461	250	11·0	2,759	1,086	28	457	4	49
1907	494	280	10·5	2,926	1,046	47	722	6	76
1908	585	285	8·6	2,461	2,433	59	739	7	74
1909	722	449	12·5	5,602	2,661	73	1,248	8	102
1910	855	582	10·1	5,898	2,162	62	776	3	34
1911	1,073	612	7·1	4,359	1,734	77	961	4	37
1912	1,200	793	11·6	9,169	3,209	128	2,016	6	93
1913	1,538	1,097	12·2	13,331	4,666	134	1,656	12	168
1914	1,868	1,376	1·9	2,624	1,881	96	465	7	24
1915	2,189	1,734	10·5	18,236	6,536	104	1,538	10	131
1916	2,005	1,567	10·3	16,103	6,106	122	1,689	11	134
1917	1,680	1,250	7·4	9,304	4,419	96	909	5	36
1918	1,605	1,146	7·7	8,545	4,423	141	1,500	8	81
1919	1,628	1,042	10·8	11,223	10,662	192	2,487	9	116
1920	1,805	1,276	9·6	12,243	11,023	193	2,022	11	111
1921	1,902	1,336	10·4	13,905	7,532	163	2,020	8	86
1922	2,275	1,553	8·9	13,857	6,986	214	2,282	9	108
1923	2,323	1,657	11·4	18,920	8,987	242	2,847	9	98
1924	2,711	1,968	12·8	23,887	14,532	319	4,241	12	178
1925	2,932	2,112	9·7	20,471	12,837	278	2,939	13	158
1926	3,325	2,571	11·7	31,069	17,217	235	2,716	14	123
1927	3,720	2,999	12·1	36,370	19,842	235	2,923	12	127
1928	4,259	3,544	10·1	39,790	16,473	326	3,555	14	190
1929	4,566	3,568	11·0	39,081	17,721	385	4,058	24	262
1930	4,792	3,956	13·5	53,504	12,201	275	3,293	17	185
1931	3,968	3,159	13·1	41,521	14,430	288	3,550	15	165
1932	4,263	3,389	12·3	41,792	13,554	286	3,603	14	135
1933	4,217	3,183	11·7	37,305	12,004	343	3,950	25	325
1934	3,841	2,704	9·8	26,985	10,123	409	4,244	27	238
1935	3,736	2,541	9·2	23,315	9,747	448	4,558	32	418
1936	3,552	2,575	8·4	21,549	11,902	463	3,445	40	449
1937	4,168	3,026	12·0	36,225	14,830	386	4,364	45	584
1938	4,683	3,413	10·8	36,844	8,984	426	4,668	75	946
1939	4,287	2,970	13·8	40,861	15,526	453	5,315	83	971
1940	3,988	2,625	8·0	21,060	8,643	429	3,250	66	725
1941	3,817	2,653	14·1	37,500	15,615	407	5,325	68	950
1942	2,784	1,753	11·8	20,600	10,080	342	3,612	50	533
1943	2,744	1,567	10·6	16,550	9,531	358	3,964	61	724
1944	2,756	1,516	10·5	15,929	8,319	402	3,845	76	884
1945	2,875	1,836	11·4	20,929	15,871	396	4,081	66	666
1946	3,532	2,426	9·8	23,800	22,043	425	3,661	66	519
1947	3,936	2,760	12·5	34,500	50,265	495	5,411	63	745
1948	4,102	2,868	12·6	36,250	42,122	532	6,298	64	981
1949	4,293	2,894	13·3	38,500	51,339	535	7,968	68	968
1950	4,533	3,185	15·7	49,900	65,323	586	7,914	59	925
1951	4,508	3,095	12·9	40,000	58,984	657	7,689	57	695
1952	4,637	2,999	11·8	35,458	55,194	832	10,440	107	1,742
1953	4,477	2,885	13·8	39,700	55,423	733	9,591	209	2,733
1954	5,043	2,979	11·5	34,300	43,655	874	9,585	260	2,805
1955	5,234	2,890	18·4	53,250	68,840	1,091	16,516	337	4,653
1956	5,139	2,784	11·6	32,100	44,055	1,051	10,442	344	3,751
1957	5,511	2,957	11·2	33,100	45,912	1,153	13,793	307	3,556
1958	6,015	3,292	17·5	57,650	77,839	1,330	22,585	321	5,410
1959	6,382	3,719	15·8	58,670	82,361	1,240	19,599	421	7,080
1960	6,757	4,021	15·9	63,900	92,290	1,330	21,810	541	8,496
1961	6,976	4,380	15·0	65,700	100,023	1,231	20,186	491	7,282
1962	7,327	4,804	15·1	72,500	107,023	1,177	18,572	390	6,056
1963	6,706	4,640	11·3	52,340	74,389	1,125	17,850	299	4,077
1964	7,289	5,151	12·2	63,071	88,557	1,152	14,011	303	3,701
1965	8,449	6,150	16·6	102,156	153,050	1,240	23,279	413	6,481
1966	8,553	6,347	16·3	103,195	*153,157	1,204	22,117	373	6,707
1967	8,834	6,647	16·1	106,975	(d)	1,158	19,759	416	7,027

(a) Figures shown for 1942 and earlier are for the year ended last day of February in the following year ; those shown for 1943 and later are for the season ended 31 March in the following year. (b) Excludes meadow hay. (c) Not available. (d) Not available at time of publication. * Revised.

PRIMARY PRODUCTION — MISCELLANEOUS

Year	Hay (all kinds) (a)		Gold production (b)		Coal production		Average values f.o.b.	
	Area	Production	Quantity	Value (c)	Quantity	Value	Wool (greasy) per lb (d)	Wheat per bushel (e)
	'000 acres	'000 tons	'000 fine oz	\$'000	'000 tons	\$'000	cents	cents
1860	6	8	....	....	....	....	|	53·96
1870	17	21	....	....	....	....	|	....
1880	20	20	....	....	....	....	(f)	50·00
1890	23	25	20	171	....	....	|	....
1900	104	104	1,414	12,015	118	110	|	15·00
1906	150	158	1,795	15,245	150	116	7·88	36·87
1907	131	138	1,698	14,421	142	110	7·95	39·37
1908	202	170	1,648	14,000	175	151	6·10	42·50
1909	159	195	1,595	13,553	214	182	7·38	41·25
1910	175	179	1,471	12,494	262	227	7·35	40·42
1911	344	300	1,371	11,646	250	222	7·35	34·58
1912	232	256	1,283	10,897	295	272	7·35	39·79
1913	247	279	1,314	11,163	314	307	7·58	37·08
1914	332	157	1,233	10,475	319	297	(g) 7·45	36·87
1915	290	395	1,210	10,280	287	276	6·80	(h) 69·79
1916	241	237	1,061	9,017	302	296	8·72	48·54
1917	266	267	970	8,243	327	384	11·64	46·67
1918	250	250	877	7,446	337	409	10·04	50·21
1919	327	379	734	7,498	402	521	13·01	53·75
1920	267	264	618	6,951	462	701	12·82	71·67
1921	336	369	554	5,907	469	814	10·92	73·33
1922	432	457	538	5,052	438	763	10·41	55·00
1923	330	368	505	4,464	421	738	15·24	50·42
1924	398	449	485	4,512	422	727	18·95	47·50
1925	391	355	441	3,749	437	726	20·85	60·83
1926	358	424	437	3,715	475	789	13·96	62·71
1927	357	417	408	3,469	502	816	12·84	55·21
1928	415	422	393	3,342	528	840	16·11	54·58
1929	419	428	377	3,204	545	853	13·55	50·62
1930	398	492	418	3,729	501	770	8·78	45·42
1931	381	453	511	5,996	432	672	6·70	22·92
1932	417	485	606	8,807	416	541	7·03	31·25
1933	480	512	637	9,773	458	580	7·14	30·42
1934	413	463	651	11,118	500	557	13·04	29·37
1935	494	505	649	11,404	537	636	8·04	32·08
1936	478	413	846	14,747	565	663	11·33	39·79
1937	432	450	1,001	17,488	554	681	13·47	55·21
1938	408	438	1,168	20,726	605	750	11·00	41·04
1939	396	476	1,214	23,686	558	726	8·88	24·37
1940	418	375	1,191	25,393	539	729	11·65	30·45
1941	325	414	1,109	23,703	557	779	13·02	39·43
1942	253	278	848	17,731	581	923	12·99	41·14
1943	282	314	546	11,421	532	979	14·60	41·08
1944	329	339	466	9,800	558	1,166	15·79	48·21
1945	281	287	469	10,021	543	1,146	15·53	63·40
1946	277	280	617	13,280	642	1,460	15·84	86·67
1947	229	268	704	15,151	731	1,680	20·70	131·77
1948	227	277	665	14,314	733	1,760	34·66	175·07
1949	216	272	648	15,926	751	1,944	42·73	152·70
1950	177	227	610	18,933	814	2,575	48·04	155·20
1951	174	212	628	19,451	848	3,434	119·62	169·41
1952	227	290	730	23,696	830	4,915	62·64	170·48
1953	219	294	824	26,598	886	6,146	67·15	173·02
1954	289	305	851	26,627	1,018	7,178	70·85	165·75
1955	269	384	842	26,749	904	6,179	61·41	142·12
1956	242	288	812	26,405	830	5,448	61·10	126·73
1957	339	386	897	29,102	839	5,105	65·62	130·97
1958	333	455	867	28,357	871	4,561	59·33	153·36
1959	319	433	967	28,388	911	4,713	41·67	140·88
1960	284	381	856	28,140	922	4,878	52·33	134·67
1961	294	396	872	28,584	766	3,361	44·95	135·82
1962	340	453	859	28,115	919	3,982	49·80	141·25
1963	289	389	800	26,375	902	3,970	50·52	142·34
1964	305	390	713	23,383	987	4,679	60·99	141·65
1965	291	414	659	22,381	994	4,410	64·69	140·60
1966	295	417	629	23,316	1,061	4,562	52·61	139·13
1967	318	421	576	21,690	1,062	4,765	53·28	149·85

(a) See footnote (a) on preceding page. (b) Comprises gold refined at the Mint and gold contained in gold-bearing materials exported. (c) Includes amounts, totalling \$2,946,765 for the years 1952 to 1967, distributed by the Gold Producers' Association Ltd. from premiums on sales of Western Australian gold. Also includes net subsidy payments by the Commonwealth Government, under the *Gold Mining Industry Assistance Act 1954-1966*, totalling \$20,029,278 in the years 1955 to 1967. (d) From 1915 figures relate to year ended 30 June. (e) Prior to 1940 averages generally are based on exports of the previous season's wheat; from 1940 they relate to exports during the year ended 30 June. (f) Not available. (g) For six months ended 30 June. (h) Exports negligible; average Metropolitan Market price shown.

VALUE OF PRODUCTION

(\$'000)

Year (a)	Gross value of primary production (b)						Net value of all recorded production (c) (d)			
	Agri- culture	Dairying, poultry farming and bee keeping	Pastoral and trapping (c)	Mining and quarry- ing	Forestry	Fisheries	Total (b)	Primary	Manu- facturing	Total
1914	6,194	1,122	4,115	11,154						
1915	13,059	1,173	6,060	11,057						
1916	11,779	1,383	7,340	11,937						
1917	8,513	1,332	8,959	9,365						
1918	9,516	1,396	9,088	8,607						
1919	18,133	1,687	9,544	7,184	(e)	(e)	(e)	(e)	(e)	(e)
1920	17,466	2,065	9,008	6,592						
1921	13,853	2,265	8,032	5,845						
1922	12,992	2,350	10,584	5,739						
1923	15,076	2,483	13,027	5,446						
1924	22,367	2,726	13,419	5,340						
1925	19,510	2,507	11,537	5,010	4,126	970	43,661	30,140	(f) 19,222	(g) 49,362
1926	24,187	2,503	11,262	4,933	3,367	580	46,833	32,512	13,814	46,326
1927	26,068	2,687	14,687	4,698	2,906	516	51,563	36,228	15,380	51,608
1928	23,884	2,936	13,501	4,589	2,463	561	47,933	31,961	15,937	47,898
1929	24,504	3,443	10,800	4,496	2,159	544	45,945	26,746	14,976	41,722
1930	17,756	3,170	8,845	4,695	1,809	485	36,761	17,266	10,562	27,828
1931	20,985	3,311	8,023	6,911	1,312	427	40,969	23,822	9,212	33,034
1932	20,495	3,338	8,057	9,691	1,183	430	43,193	24,714	10,124	34,838
1933	19,022	3,315	13,369	10,606	1,648	406	48,366	29,976	10,889	40,864
1934	16,336	3,927	9,456	11,939	2,399	373	44,430	28,175	12,570	40,745
1935	17,045	3,897	12,639	12,402	2,653	372	49,008	32,352	15,008	47,360
1936	18,871	4,170	11,437	15,827	3,032	465	53,801	36,447	15,893	52,341
1937	21,071	4,494	10,139	18,845	2,957	592	58,100	38,821	17,125	55,945
1938	17,077	4,716	9,457	22,205	2,899	561	56,916	35,976	17,551	53,527
1939	23,198	4,855	11,602	25,035	2,680	562	67,911	46,344	18,055	64,399
1940	14,760	5,230	11,701	26,706	3,160	539	62,096	41,065	18,034	59,098
1941	22,219	5,960	12,234	24,843	2,950	479	68,685	46,459	20,201	66,660
1942	18,106	7,664	16,345	18,975	3,277	255	64,622	45,248	22,906	68,154
1943	18,505	7,971	18,381	12,801	3,150	347	61,155	42,495	25,023	67,518
1944	20,856	8,473	15,600	11,529	3,152	330	59,940	42,276	25,920	68,196
1945	26,310	8,709	16,228	11,797	3,358	438	66,840	47,342	27,653	75,495
1946	32,635	8,933	22,451	15,405	3,305	635	83,363	60,351	31,497	91,848
1947	64,699	9,790	37,430	17,728	3,649	1,135	134,431	107,206	36,768	143,975
1948	58,785	11,964	46,771	17,543	4,024	1,379	140,467	108,182	42,948	151,130
1949	69,686	12,975	59,079	19,707	4,501	1,432	167,381	131,728	52,088	183,816
1950	87,752	14,155	132,420	24,175	6,741	1,649	266,891	222,046	68,441	290,487
1951	86,791	18,778	80,443	26,975	8,517	2,505	224,010	171,002	85,491	256,493
1952	87,127	21,289	91,099	35,969	7,155	3,286	245,924	181,123	98,383	279,505
1953	86,533	22,328	102,176	40,996	7,678	3,808	263,519	194,208	110,294	304,502
1954	77,164	21,762	87,770	42,651	8,116	4,383	241,846	170,351	121,912	292,262
1955	109,709	22,433	89,654	41,199	10,474	4,915	278,383	200,428	139,466	339,893
1956	80,170	23,240	113,162	42,735	10,305	5,563	275,176	196,749	146,884	343,633
1957	87,293	23,500	94,293	44,382	11,046	6,530	287,044	183,077	150,624	333,701
1958	126,672	22,838	81,764	43,595	10,903	7,818	293,590	199,991	157,524	357,515
1959	131,052	24,696	100,543	46,487	10,919	8,621	322,318	223,895	172,747	396,642
1960	140,003	25,917	101,630	47,103	11,082	8,569	334,304	232,468	193,262	425,730
1961	148,765	26,400	105,821	48,535	11,104	10,689	351,314	247,367	196,083	443,950
1962	157,948	27,387	107,656	49,415	10,877	11,219	364,503	255,821	216,422	472,243
1963	123,342	28,723	149,333	47,468	11,462	10,187	370,515	266,670	230,511	497,181
1964	139,426	30,884	126,612	49,306	12,093	15,218	373,539	266,726	260,637	527,363
1965	215,949	32,899	158,085	53,842	12,731	15,733	489,239	363,490	288,803	652,293
1966	218,206	33,022	160,343	89,512	13,300	16,525	531,408	386,372	335,788	722,160

(a) Figures generally are for the season or financial period ending in the following year. (b) Represents the estimated value of recorded production based on wholesale prices realised at the principal market. (c) In addition, the following amounts were paid as interim distribution of profits under the 1939-1945 War-time Wool Disposals Plan: in 1949, \$3,629,478; in 1951, \$3,629,478; in 1952, \$2,325,324; in 1953, \$368,104; in 1954, \$2,120,460; and in 1955, \$1,797,090. Separate State figures are not available for distributions made from 1956 to 1958 when payments were virtually complete. (d) For primary production, net value of production is derived by deducting from the gross value all marketing costs and the cost of certain goods (seed, fertiliser, pickling, sprays, dips, fodder, fuel and oil, etc.) used in the processes of production. For manufacturing, net value of production is the value added in the course of manufacture. It is obtained by deducting from the selling value 'at the factory' the cost of materials used, fuel, power and light, lubricating oil and water, repairs to plant and buildings, tools replaced, and containers and materials used for packing. (e) Not available. (f) Eighteen months ended 30 June 1926. (g) See footnote (f).

FACTORIES (a)

Year (b)	Factories	Persons employed (c)	Salaries and wages (d)	Output (e)	Net production (f)	Production of selected commodities							
						Bricks (g)	Super- phosphate (h)	Timber from local logs (i)	Bacon and ham	Butter (j)	Flour (plain)	Electricity dis- tributed	Gas (Town) pro- duced
						'000	tons	'000 sup. ft	tons	tons	short tons (k)	million kWh	million cu ft
1897	487	9,689	(l)	—	—	36,564	—	85,053	—	121	7,314	—	—
1898	595	9,895	(l)	—	—	26,811	—	103,043	—	118	8,460	—	(l)
1899	603	10,206	2,496	(l)	(l)	18,565	—	118,052	—	132	10,042	—	53
1900	632	11,166	2,589	—	—	25,234	—	112,693	—	130	12,539	—	65
1906	802	13,739	3,244	—	—	37,893	—	136,295	—	170	26,977	(l)	80
1907	791	13,545	2,959	—	—	28,666	—	110,394	—	195	28,353	—	81
1908	774	13,276	3,116	8,958	5,213	23,842	—	168,414	—	163	31,424	—	82
1909	773	13,606	3,180	8,810	4,964	17,833	—	171,825	(l)	185	24,878	—	82
1910	822	14,894	3,532	10,158	5,472	23,162	—	174,528	—	286	36,818	—	93
1911	880	16,754	4,171	11,863	6,567	28,637	—	198,977	—	222	40,642	23	102
1912	891	17,425	4,579	13,652	7,165	34,432	—	217,696	—	200	40,310	25	111
1913	954	18,372	4,675	14,597	7,524	35,085	(l)	218,908	—	231	61,997	26	125
1914	989	18,799	4,949	14,445	7,667	34,854	—	227,297	—	201	61,922	28	135
1915	983	15,882	3,871	14,125	6,468	21,667	—	123,494	—	320	32,396	28	140
1916	953	13,844	3,600	14,693	6,294	18,585	—	100,356	—	482	70,912	27	157
1917	944	13,350	3,486	15,324	6,199	17,488	—	85,218	—	608	102,300	30	161
1918	862	13,849	3,726	16,799	6,318	15,672	—	94,990	1,028	397	119,876	30	169
1919	922	16,358	4,636	20,573	7,645	21,092	—	131,477	1,000	445	141,516	28	180
1920	998	16,942	6,073	26,283	9,708	31,838	—	137,934	837	544	120,125	33	194
1921	1,099	18,151	7,136	25,689	10,479	23,548	—	183,663	772	684	82,148	36	202
1922	1,323	18,743	7,426	25,741	11,580	28,509	—	179,050	801	678	94,316	41	182
1923	1,307	19,805	7,731	27,409	12,257	34,864	—	192,547	960	766	107,990	48	204
1924	1,293	21,671	8,673	31,453	13,917	34,930	—	207,137	1,164	741	122,192	55	217
1926 ^m	1,170	20,667	13,175	42,890	19,222	53,336	—	328,935	1,875	836	190,369	100	374
1927	1,216	19,403	8,803	31,343	13,814	45,204	182,621	229,195	1,123	1,100	133,919	78	294
1928	1,398	20,435	9,003	33,996	15,380	52,992	199,864	227,631	1,157	1,111	127,246	84	330
1929	1,469	20,913	9,351	34,009	15,937	60,568	254,977	174,324	1,089	1,617	119,550	92	362
1930	1,466	19,643	8,310	33,783	14,976	47,720	276,336	159,643	1,161	2,109	120,595	102	408
1931	1,455	14,619	5,774	24,707	10,562	13,630	191,137	112,484	1,300	3,171	132,090	98	424
1932	1,490	13,392	4,671	22,375	9,212	15,101	144,203	57,690	1,297	3,727	131,165	120	393
1933	1,490	14,810	5,083	24,655	10,124	25,673	231,245	69,254	1,542	4,224	127,574	138	389
1934	1,606	16,154	5,505	25,755	10,889	31,717	167,389	96,428	1,901	4,386	122,000	152	406
1935	1,658	17,769	6,222	29,283	12,570	37,552	190,627	130,497	2,035	4,992	124,130	164	448
1936	1,946	20,972	7,408	35,057	15,008	50,498	209,979	154,989	2,373	4,896	118,340	195	478
1937	2,032	22,712	8,315	36,626	15,893	53,270	264,457	176,321	1,941	4,751	122,723	224	507
1938	2,066	23,133	8,803	39,288	17,125	57,508	279,685	176,718	1,945	6,117	125,472	250	547
1939	2,129	23,211	9,147	39,097	17,551	53,062	298,180	161,315	1,881	6,542	137,553	278	561
1940	2,129	22,967	9,150	40,615	18,055	43,786	238,683	152,453	2,073	6,251	140,849	306	581
1941	2,056	22,734	9,441	43,650	18,034	45,505	206,161	146,847	2,288	6,352	149,925	320	629
1942	1,938	23,980	10,999	47,904	20,201	34,247	156,791	146,013	2,729	6,991	135,338	314	724
1943	1,799	25,813	12,956	53,475	22,906	8,926	121,144	138,878	4,106	6,442	126,274	283	860
1944	1,807	28,101	14,835	58,417	25,023	6,296	117,775	121,600	4,322	6,155	159,799	279	928
1945	1,931	29,146	15,228	63,481	25,920	10,003	198,092	116,330	4,971	5,676	161,690	292	1,003
1946	2,280	30,256	15,768	68,046	27,653	24,150	278,892	117,995	4,573	5,604	166,791	302	1,092
1947	2,615	33,806	18,210	76,540	31,497	37,758	266,332	139,842	4,603	5,956	176,726	339	1,127
1948	2,788	33,967	21,471	91,252	36,768	44,986	308,274	148,695	3,955	6,974	195,497	358	1,207
1949	2,925	38,354	25,856	106,335	42,948	50,378	381,013	142,285	3,553	6,966	181,466	354	1,250
1950	3,023	40,733	30,586	127,956	52,088	58,943	387,115	153,813	3,542	6,769	159,495	368	1,189
1951	3,111	43,761	39,316	168,862	68,441	67,312	416,997	176,207	3,558	6,797	217,845	402	1,392
1952	3,267	45,097	50,769	213,143	85,491	76,884	421,511	199,447	3,680	6,705	221,846	428	1,430
1953	3,424	45,188	66,667	238,620	98,383	86,043	417,727	223,325	3,693	6,480	224,330	469	1,443
1954	3,523	47,459	63,181	266,174	110,294	101,240	428,314	241,011	3,448	6,142	187,958	520	1,443
1955	3,727	49,314	69,476	299,169	121,912	115,412	472,787	251,493	3,316	7,145	165,767	583	1,448
1956	3,871	50,108	74,413	350,293	139,466	102,359	463,413	245,138	3,231	7,404	179,362	627	1,471
1957	3,935	48,748	73,833	375,272	146,884	101,209	482,049	228,427	3,054	7,462	160,535	652	1,451
1958	3,941	48,462	75,870	392,525	150,624	111,082	578,781	233,173	2,952	6,807	148,148	689	1,420
1959	4,125	48,417	77,464	392,405	157,524	101,521	529,799	237,779	2,955	6,166	139,702	732	1,418
1960	4,279	49,651	83,285	431,165	172,747	110,359	629,040	225,461	3,177	7,376	150,774	785	1,433
1961	4,334	50,666	90,255	481,140	193,262	119,998	660,501	210,316	3,163	7,661	168,237	870	1,450
1962	4,418	51,033	92,840	486,938	196,033	119,868	672,256	213,948	3,500	7,483	141,103	930	1,403
1963	4,492	53,435	99,880	517,899	216,422	131,176	751,574	205,835	3,837	6,963	135,911	1,020	1,401
1964	4,609	55,705	108,515	555,058	230,511	155,792	863,628	218,911	3,968	6,915	143,296	1,112	1,435
1965	4,734	58,097	119,978	616,422	260,637	146,057	867,205	233,254	3,983	7,762	134,378	1,241	1,458
1966	4,906	60,282	134,171	678,751	288,803	140,611	1,070,455	*233,747	4,288	8,095	113,665	1,372	1,483
1967	5,167	63,757	153,597	765,224	335,788	163,166	1,201,433	225,735	4,580	6,426	101,109	1,596	1,560

(a) For statistical purposes a factory is defined as any establishment engaged in the processes of manufacturing, assembling, treating or repairing and in which four or more persons are employed during any period of the year or power other than manual is used. (b) For 1924 and earlier, calendar year; from 1927, year ended 30 June. See also note (m). (c) Average over the whole year and includes working proprietors and, up to and including 1925-26, fallers and haulers employed by sawmills. (d) Figures for 1929-30 and later years exclude amounts drawn by working proprietors. (e) Selling value 'at factory door'. (f) Value added in course of manufacture, representing sum available for payment of wages, rent, depreciation, other sundry expenses and for interest and profit. (g) For years prior to 1964-65, figures include all types of standard size bricks. Prior to 1925-26, they also include firebricks and blocks. From 1964-65 figures represent clay bricks only (all sizes). (h) Prior to 1948-49, figures exclude quantities produced and used in own works. From 1948-49 figures include such quantities. (i) Includes plywood veneers in terms of superficial feet and hewn timber produced by agencies other than 'Factories'. (j) For 1917 and earlier years, includes butter made on farms. (k) Short ton = 2,000 lb. (l) Not available. (m) Eighteen months ended 30 June. * Revised.

CONSUMER PRICE INDEX (a)

(Base of each index series: Year 1952-53 = 100)

Year (b)	Group index numbers— Perth (Metropolitan Area)					Combined index (all groups)— Capital Cities						
	Food	Clothing and drapery	Housing	Household supplies and equipment	Miscellaneous	Perth	Sydney	Melbourne	Brisbane	Adelaide	Hobart	Six Capital Cities (c)
1949	55.0	59.6	62.7	66.5	67.7	60.6	60.5	61.0	62.1	61.6	60.7	60.9
1950	61.0	68.8	66.4	71.1	69.5	66.2	65.6	66.2	67.1	66.2	64.7	66.0
1951	70.0	78.6	74.5	78.1	75.1	74.4	74.5	74.6	75.1	74.7	73.3	74.6
1952	87.2	95.3	87.2	92.7	90.7	90.4	91.9	91.0	91.8	91.4	90.4	91.4
1953	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1954	106.2	100.0	107.8	102.0	99.5	103.0	101.6	102.0	102.0	102.3	105.0	102.0
1955	109.3	100.1	119.2	102.0	99.5	105.2	102.3	102.0	102.9	103.5	104.9	102.6
1956	111.1	101.4	123.8	102.0	105.5	107.9	105.7	108.1	106.3	106.9	110.2	106.9
1957	116.0	103.1	123.6	104.5	117.0	112.9	112.9	114.0	112.0	111.1	116.9	113.1
1958	114.4	105.7	126.0	105.7	118.3	113.6	114.5	114.4	114.4	111.9	117.0	114.2
1959	115.2	107.2	130.3	105.9	118.7	114.7	115.3	116.6	118.2	114.5	118.7	116.0
1960	118.4	108.2	133.5	107.1	120.9	116.0	117.8	120.0	121.2	118.0	120.8	118.9
1961	124.4	110.8	141.7	107.3	125.2	121.2	122.1	125.9	125.4	122.9	127.5	123.8
1962	123.5	111.7	146.4	107.3	125.3	121.6	122.6	126.3	127.3	122.5	128.1	124.3
1963	123.9	112.0	150.9	107.0	125.5	122.2	123.2	126.2	127.7	122.1	128.0	124.5
1964	125.4	112.8	155.9	105.2	128.5	123.8	124.5	127.1	129.0	123.5	129.4	125.7
1965	130.5	114.1	160.0	106.4	134.2	127.6	128.8	132.2	133.9	128.6	133.6	130.4
1966	136.6	115.4	165.6	108.1	142.1	132.5	133.1	137.1	140.4	132.7	138.3	135.2
1967	143.5	117.9	173.7	110.0	149.1	137.9	136.3	140.7	144.0	136.9	141.2	138.8

(a) The index numbers shown are so designed as to measure periodically the movement in retail prices of the specified groups of items in each city individually. They do not provide a measure of differences in absolute price level as between cities, nor of comparative costs of the groups of items. (b) Year ended 30 June. (c) Weighted average.

CIVILIAN EMPLOYMENT

NEW BUILDINGS COMPLETED

Year (a)	Wage and salary earners in civilian employment (b) (excluding employees in rural in- dustry and private domestic service, and defence forces)			New buildings completed				
	Males	Females	Persons	Houses		Flats (c)		All buildings
				Number	Value (d)	Number	Value (d)	Value (d) (e)
1946	'000	'000	'000	860	\$'000 1,452	2	\$'000 4	\$'000 1,948
1947	.....	.....	.....	1,792	3,516	.....	.....	4,232
1948	.....	.....	.....	2,771	5,784	.....	.....	6,656
1949	.....	.....	.....	3,244	7,592	.....	.....	9,414
1950	(f)	(f)	(f)	3,509	8,974	101	194	10,704
1951	.....	.....	.....	5,160	15,032	305	606	17,896
1952	.....	.....	.....	6,577	24,466	215	300	23,852
1953	.....	.....	.....	7,965	37,988	100	334	45,836
1954	141.2	43.2	184.4	7,627	39,768	212	834	51,570
1955	144.5	45.1	189.6	8,792	48,422	316	1,176	68,192
1956	144.7	46.3	191.0	7,760	45,084	584	2,564	67,356
1957	143.3	46.1	189.4	5,030	29,054	365	1,502	46,848
1958	143.1	47.3	190.4	6,196	36,526	171	712	54,524
1959	144.9	48.4	193.3	5,846	34,410	212	840	60,524
1960	147.5	50.4	197.9	5,997	35,454	263	986	60,240
1961	148.5	51.2	199.7	5,973	38,102	440	1,580	72,050
1962	154.7	53.4	208.1	6,082	39,470	265	1,342	68,072
1963	159.4	55.5	214.9	6,593	45,780	642	2,984	86,428
1964	164.3	58.5	222.9	7,276	51,774	1,295	5,596	92,868
1965	171.5	62.7	234.2	7,445	57,238	1,841	9,046	107,100
1966	180.7	68.0	248.7	7,265	58,089	1,624	9,096	130,178
1967	183.9	72.4	256.3	8,272	78,078	1,742	9,322	162,135

(a) Employment estimates relate to the month of June; statistics of new buildings completed are for the year ended 30 June. (b) Estimated; figures subject to revision. (c) Individual living units. (d) Excludes the value of land. (e) Includes value of houses and flats shown in preceding columns. (f) Not available on basis comparable with that for 1954 and later.

STATE AND COMMONWEALTH BASIC WAGE RATES (a)

At 31 December	State basic wage		Commonwealth basic wage—Male rates (b)							Weighted average six Capital Cities
	Perth (c)		Perth	Sydney	Mel- bourne	Brisbane	Adelaide	Hobart		
	Male	Female								
1923	(\$ (d))	(\$ (d))	\$ 7.80	\$ 8.90	\$ 9.15	\$ 7.60	\$ 8.55	\$ 8.90	\$ 8.75	
1924	(\$ (d))	(\$ (d))	7.90	8.45	8.45	7.50	8.40	8.80	8.30	
1925	(\$ (d))	(\$ (d))	8.10	8.80	8.75	7.70	8.60	8.55	8.60	
1926	8.50	4.59	8.15	9.15	8.90	8.25	8.55	8.85	8.85	
1927	8.50	4.59	7.95	9.05	9.00	7.95	8.80	8.50	8.80	
1928	8.50	4.59	8.50	9.05	8.60	7.90	8.50	8.25	8.70	
1929	8.70	4.70	8.55	9.50	9.00	8.05	8.85	8.60	9.05	
1930	8.60	4.64	7.90	8.80	8.30	7.05	7.80	8.20	8.30	
1931	7.35	3.97	6.21	7.07	6.34	5.85	5.81	6.43	6.52	
1932	7.05	3.81	5.94	6.75	6.17	5.67	5.72	6.43	6.30	
1933	6.92	3.74	6.02	6.69	6.28	5.93	5.96	6.39	6.33	
1934	7.10	3.83	6.80	6.80	6.40	6.20	6.30	6.60	6.60	
1935	7.05	3.81	6.80	7.00	6.60	6.40	6.70	6.90	6.80	
1936	7.38	3.98	7.10	7.00	6.90	6.60	6.90	6.90	6.80	
1937	7.49	4.04	7.50	7.80	7.70	7.40	7.40	7.50	7.60	
1938	8.11	4.38	7.60	8.10	7.90	7.50	7.60	7.60	7.80	
1939	8.22	4.43	7.70	8.20	8.00	7.60	7.70	7.70	7.90	
1940	8.53	4.61	8.00	8.50	8.40	7.90	8.00	8.10	8.30	
1941	9.04	4.88	8.50	8.90	8.80	8.40	8.40	8.50	8.70	
1942	9.78	5.28	9.10	9.70	9.70	9.10	9.30	9.20	9.50	
1943	10.11	5.46	9.40	9.90	9.80	9.30	9.40	9.50	9.70	
1944	9.99	5.39	9.40	9.90	9.80	9.30	9.30	9.40	9.60	
1945	10.01	5.41	9.40	9.90	9.80	9.30	9.30	9.40	9.60	
1946	10.21	5.51	10.20	10.80	10.60	10.10	10.20	10.30	10.50	
1947	11.08	5.98	10.60	11.20	10.90	10.60	10.60	10.70	10.90	
1948	12.16	6.57	11.60	12.20	12.00	11.50	11.60	11.80	11.90	
1949	13.59	7.34	12.90	13.20	13.00	12.50	12.60	12.80	12.90	
1950	16.65	9.41	16.00	16.50	16.20	15.40	15.80	16.00	16.20	
1951	20.57	13.37	19.70	20.70	19.90	18.50	19.50	19.90	20.00	
1952	23.85	15.50	22.80	23.70	22.80	21.60	22.90	23.00	23.10	
1953	24.65	16.02	23.60	24.30	23.50	21.80	23.10	24.20	23.60	
1954	24.65	16.02	23.60	24.30	23.50	21.80	23.10	24.20	23.60	
1955	25.24	16.41	23.60	24.30	23.50	21.80	23.10	24.20	23.60	
1956	26.52	17.23	24.60	25.30	24.50	22.80	24.10	25.20	24.60	
1957	27.28	17.72	25.60	26.30	25.50	23.80	25.10	26.20	25.60	
1958	27.34	17.78	26.10	26.80	26.00	24.30	25.60	26.70	26.10	
1959	28.15	18.30	27.60	28.30	27.50	25.80	27.10	28.20	27.60	
1960	29.46	22.09	27.60	28.30	27.50	25.80	27.10	28.20	27.60	
1961	29.88	22.41	28.80	29.50	28.70	27.00	28.30	29.40	28.80	
1962	29.88	22.41	28.80	29.50	28.70	27.00	28.30	29.40	28.80	
1963	30.15	22.61	28.80	29.50	28.70	27.00	28.30	29.40	28.80	
1964	31.12	23.34	30.80	31.50	30.70	29.00	30.30	31.40	30.80	
1965	31.96	23.97	30.80	31.50	30.70	29.00	30.30	31.40	30.80	
1966	33.50	25.13	32.80	33.50	32.70	31.00	32.30	33.40	32.80	

(a) See *Special Note* below. (b) In the period from December 1950 to June 1967 the female basic wage was fixed at 75 per cent of the male rate; previously it had ranged from 54 per cent up to 75 per cent of the male rate. (c) The rates shown for 1964 and later apply uniformly throughout the State. (d) The first State basic wage operated from 1 July 1926.

Special Note. The latest wage rates shown in the 'State' section of this table are those which applied until a decision of The Western Australian Industrial Commission dated 27 June 1967. The terms of this decision were that the minimum weekly wage payable to adult male workers under certain awards be increased from \$36.55 to \$37.55; that the wage rates for adult workers not in receipt of the "minimum wage" be increased by 60 cents per week; and that other wage rates be adjusted as if the basic wage for males and the basic wage for females had been increased by that amount. These increases were declared to operate from the beginning of the first pay-period commencing on or after 1 July 1967. A further increase of \$1.35 a week for adult males and adult females was granted by the Industrial Commission in October 1968 to operate from the beginning of the first pay-period commencing on or after 25 October 1968. As from 22 November 1968 the rates of \$35.45 for adult males and \$27.08 for adult females were prescribed under the provisions of the *Industrial Arbitration Act Amendment Act, 1968*. The latest wage rates shown in the 'Commonwealth' section of the table applied until a decision of the Commonwealth Conciliation and Arbitration Commission in June 1967 to eliminate basic wages and margins from its awards and to introduce total wages to operate from the beginning of the first pay-period commencing on or after 1 July 1967. Total wages for adult males and adult females were increased by \$1 a week from the same date. In October 1968 a further increase of \$1.35 a week for adult males and adult females was granted by the Commission to operate from the beginning of the first pay-period commencing on or after 25 October 1968.

APPENDIX

CHAPTER III—CONSTITUTION AND GOVERNMENT

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The Governor-General of Australia

The Right Honourable Richard Gardiner, Baron Casey, P.C., K.G., G.C.M.G., C.H., D.S.O., M.C., K.St.J., retired from the position of Governor-General of Australia on 30 April 1969. He was succeeded by the Right Honourable Sir Paul Hasluck, P.C., G.C.M.G., who was sworn in as Governor-General by the Chief Justice of the High Court of Australia, the Right Honourable Sir Garfield Barwick, P.C., G.C.M.G., on the same date.

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The House of Representatives

At a by-election held on 19 April 1969, Mr Ransley Victor Garland (Liberal Party) was elected to the House of Representatives for the electorate of Curtin to fill the vacancy in the Federal Parliament caused by the resignation of the Right Honourable P.M.C. (now Sir Paul) Hasluck.

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The Supreme Court of Western Australia

The Chief Justice, the Honourable Sir Albert Wolff, K.C.M.G., retired on 30 April 1969 and he was succeeded by the Honourable Sir Lawrence Jackson who was formerly Senior Puisne Judge of the Supreme Court. Two further vacancies in the Court occurred early in 1969 due to the deaths of the Honourable O. J. Negus (2 January 1969) and the Honourable G. B. D'Arcy (8 April 1969). Mr Francis Theodore Page Burt, Q.C., was appointed a Judge of the Supreme Court by a Royal Commission dated 19 February 1969 and the appointment of Mr John Martin Lavan was announced by the Premier on 23 April 1969. The third vacancy in the judiciary was filled on 7 May 1969 when the Minister for Justice announced the appointment of Mr John Leonard Clifton Wickham, Q.C.

**LIST OF SPECIAL ARTICLES AND MISCELLANEOUS MATTER CONTAINED
IN PREVIOUS ISSUES**

(Commencing with New Series: No. 1-1957)

This list refers to special articles and other more or less important miscellaneous matter which have appeared in previous issues of the Year Book but which are not included, or are included in an abbreviated form only, in the present issue. Owing to considerations of space, the deletions are necessary to make room for new material and the list will be revised each year to provide readers with a cumulative index of special articles or topics.

Article or Topic	Year Book
Basic wage, historical summary—	
Commonwealth	1957, pp. 304-6 1960, pp. 355-9 1962, pp. 364-8 1964, pp. 385-9 1965, pp. 401-4 1967, pp. 411-15 1968, pp. 396-401
State	1957, pp. 308-9 1960, pp. 359-60 1962, pp. 368-9 1964, pp. 391-3 1965, pp. 407-8 1967, pp. 418-19 1968, pp. 403-5
Flora of Western Australia—	
Acacia	1964, pp. 59-60 1965, pp. 59-60
‘ Christmas tree ’ (<i>Nuytsia floribunda</i>)	1957, p. 44 1960, p. 50 1962, p. 51
Economic value of the flora	1957, p. 52 1960, p. 58 1962, p. 59 1965, pp. 65-6 1967, pp. 68-9 1968, pp. 54-5
Orchids	1967, pp. 62-3 1968, pp. 48-9
Special features of the flora	1957, pp. 44-5 1960, pp. 50-1 1962, pp. 51-2
Governors and Administrators of Western Australia—	
1828 to 1951	1957, p. 65
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1901 to 1951	1962, p. 83
1901 to 1963	1965, p. 97
1901 to 1963	1967, p. 101
1901 to 1963	1968, p. 89
Governor Stirling’s Commission dated 4 March 1831, text of	1965, pp. 452-4

Article or Topic	Year Book
Historical review: chronological notes from 1829	1957, pp. 2-18 1960, pp. 2-22 1962, pp. 2-24, 404-9 1964, pp. 2-32 1965, pp. 2-31, 444-51 1967, pp. 2-33
Land settlement schemes, government	1957, pp. 172-3 1960, pp. 206-8 1962, pp. 215-17 1964, pp. 231-2 1965, pp. 237-9 1967, pp. 243-5 1968, pp. 244-6
Land tenure system, origin and development of	1957, pp. 164-5 1960, pp. 198-9
Legislation, summary of—	1960, pp. 87-9 1962, pp. 89-96 1964, pp. 104-11 1965, pp. 107-14 1967, pp. 111-15 1968, pp. 99-106
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1966	1968, pp. 99-106
Meteorological services—	1960, pp. 34-5 1962, pp. 36-7 1964, pp. 44-5 1965, pp. 44-5 1966, pp. 46-7
History of	1960, pp. 34-5
Provision of	1962, pp. 36-7
Railways—	1957, pp. 274-5 1960, pp. 319-20 1962, pp. 328-9 1964, pp. 350-1 1965, pp. 360-1 1967, pp. 371-2 1968, pp. 360-1
Origin and development	1957, pp. 274-5 1960, pp. 319-20 1962, pp. 328-9 1964, pp. 350-1 1965, pp. 360-1 1967, pp. 371-2 1968, pp. 360-1
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Timber	1957, p. 277 1960, p. 323 1962, p. 333 1964, p. 355 1965, p. 365 1967, pp. 374-5 1968, pp. 363-4

Article or Topic	Year Book
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Wheat, development of production	1957, p. 185 1960, pp. 224-5 1962, pp. 231-2 1964 p. 252 1965, p. 260 1967, p. 269 1968, p. 270

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Electricity supplies	1967, <i>facing</i> p. 320
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Production, main areas of	1957, p. 73
Railways and road services—routes operated	1965, p. 364 1967, <i>facing</i> p. 384
Railways road services—routes operated	1962, p. 332 1964, p. 354
Roads, main and important secondary	1968, <i>facing</i> p. 368
Vegetation Provinces	1957, p. 46 1960, p. 52 1962, p. 53 1964, p. 61 1965, p. 61 1967, p. 65 1968, p. 51

(1) All maps listed refer to Western Australia.

COMPUTER SERVICE CENTRE PERTH

In September 1966 the Perth Office of the Commonwealth Bureau of Census and Statistics took delivery of a medium-scale Control Data 3200 computer system. For many years the Bureau had used conventional punched card equipment for its tabulating processes, but the growth in the demand for statistics in ever-widening fields and the volume of data to be processed required more effective methods of processing.

The computer in the Perth Office, which is part of an Australia-wide Bureau network comprising thirteen machines located in Canberra and all State capital cities, is a fast, powerful system incorporating such peripheral devices as high speed magnetic tapes, card and paper tape input-output devices, and a high speed printer. The Bureau is constantly reviewing its equipment to keep it as up to date as possible and has provided in the larger centres such items as a graph plotter, random access mass storage devices and remote visual displays.

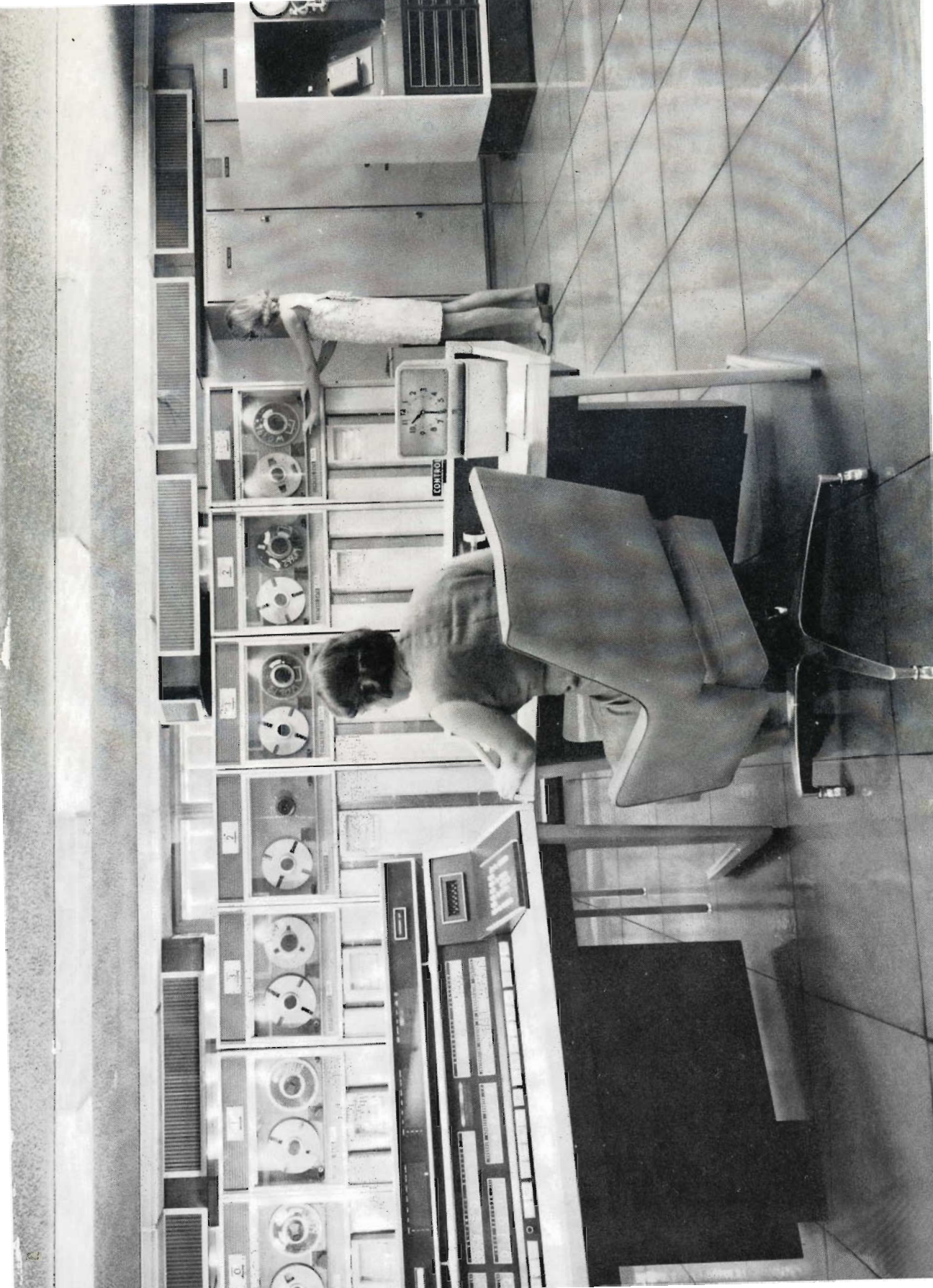
The computer's main function is to process the Bureau's own statistical work, and many of the tables in this Year Book have been produced by the computer. The aim of the Bureau is to have as many facets as possible of statistical collections being processed by, or under the control of, the computer. Thus, the computer will be involved from the initial stages of preparing and maintaining lists of informants and addressing forms, to maintaining control of the subsequent receipt of returns, sending reminders to informants, processing the data received, editing, querying, amending and coding it as necessary, and finally producing the tables and other information to be published.

The Perth Office has a small team of programmers who are responsible, in conjunction with the appropriate statistical officers, for designing and developing computer systems for collections which are peculiar to the State. Applications which are Commonwealth-wide are programmed by a large team of programmers located in the Central Office of the Bureau in Canberra.

In addition to processing the Bureau's own work, the Computer Service Centre provides a processing service to some other Commonwealth Departments in Perth, notably Taxation, Treasury, and Health. The Bureau in Western Australia also provides, in its role as Office of the State Government Statistician, a limited service to some State Government Departments. Data preparation for all Bureau applications processed in Perth, whether State or Commonwealth, is handled by a data preparation pool comprising both paper tape and punched card machines.

The installation of a large computer system was a most significant event in the history of the Bureau and one which has already resulted in considerable changes to the Bureau's work. Computers have increased the timeliness of statistics, improved their reliability and accuracy and provided the means of utilising socio-economic models and other research techniques. The tremendous increase in processing capabilities, which must benefit all users of statistics, highlights the Bureau's policy of continual improvement in its statistical service.

Part of the equipment installed in the Computer Service Centre, Perth is shown in the accompanying photograph. The complete installation comprises a central processor with core storage of 16,384 24-bit words, a desk console with typewriter, a card reader and punch, a paper tape reader and punch, a 1,000 line per minute printer and seven magnetic tape transports.



COMPUTER SERVICE CENTRE

Portion of the Control Data 3200 computer system installed at the office of the Commonwealth Bureau of Census and Statistics, Perth. Illustrated are the control console, magnetic tape units, and paper tape reader/punch.

NOTE ON STATISTICAL DIVISIONS

Western Australia is divided into a number of municipal districts for the purposes of local government administration. At 31 December 1966 there were 144 such districts, which are used as the basis of presentation of data derived not only from the population census but also from many of the regular statistical collections. Information presented in this way is valuable when considering activities in particular local government areas but is often more detailed than is required for a broader geographical assessment. For this reason, the municipal districts are combined into Statistical Divisions which provide significant areas for the publication of statistics in a convenient and readily appreciable summary form.

The partition of the Australian States into Statistical Divisions originated from a resolution of a conference of 1928 between the Federal Health Council of Australia and the Statisticians of the Commonwealth and the States concerning the need for the delineation of areas appropriate for the purposes of statistical tabulation. They first became operative in 1929 after consultation between the Commonwealth Statistician, the Statisticians of the States in collaboration with the State health authorities, and the Commonwealth Department of Health. Although Statistical Divisions were devised initially for use in the compilation and presentation of vital statistics, the advantages of extending the system to other fields of statistical investigation were recognised at once and it soon came to have general application in cases where consideration of geographic areas was relevant.

The Statistical Divisions of Western Australia and their component local government areas as at 31 December 1966 are listed on the following pages and are shown on the map of the State following the Index. The population of each Division as recorded at each of the four most recent Population Censuses is shown in the following table. The areas of the Divisions at 30 June 1968 are also given.

STATISTICAL DIVISIONS—POPULATION (a) AND AREA

Statistical Division	Population at Census of 30 June—				Area at 30 June 1968
	1947	1954	1961	1966	
	persons	persons	persons	persons	square miles
Perth	302,968	395,049	475,398	558,821	2,073
South-West	51,973	68,553	71,637	72,823	11,030
Southern Agricultural	24,948	36,125	41,623	44,528	22,024
Central Agricultural	43,790	55,924	57,594	58,396	30,270
Northern Agricultural	24,665	32,068	35,785	38,269	33,920
Eastern Goldfields	37,722	34,578	34,142	33,930	249,036
Central	6,370	4,794	3,959	3,486	218,011
North-West	2,638	4,220	4,563	8,355	75,731
Pilbara	1,651	2,650	3,243	7,383	171,462
Kimberley	2,774	3,543	5,668	7,644	162,363
Migratory (b)	2,981	2,267	3,017	3,038	....
WHOLE STATE	502,480	639,771	736,629	836,673	975,920

(a) Excluding full-blood Aborigines. (b) Refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

LIST OF STATISTICAL DIVISIONS

with component Local Government Areas at 31 December 1966

PERTH**Cities**

FREMANTLE
NEDLANDS
PERTH
SOUTH PERTH
SUBIACO

Towns

CLAREMONT
COTTESLOE
EAST FREMANTLE
MELVILLE
MIDLAND
MOSMAN PARK

Shires

Armadale-Kelmscott
Bassendean
Bayswater
Belmont
Canning
Cockburn
Gosnells
Kalamunda
Kwinana
Mundaring
Peppermint Grove
Perth
Rockingham
Serpentine-Jarrahdale
Swan-Guildford
Wanneroo

SOUTH-WEST**Town**

BUNBURY

Shires

Augusta-Margaret River
Balingup
Boddington
Bridgetown
Busselton
Capel
Collie
Dardanup
Donnybrook
Greenbushes
Harvey
Mandurah
Manjimup
Murray
Nannup
Upper Blackwood
Waroona

SOUTHERN AGRICULTURAL**Town**

ALBANY

Shires

Albany
Broomehill
Cranbrook
Denmark
Dumbleyung
Gnowangerup
Katanning
Kojonup
Lake Grace
Nyabing-Pingrup
Plantagenet
Tambellup
Wagin
West Arthur
Woodanilling

CENTRAL AGRICULTURAL**Towns**

NARROGIN
NORTHAM

Shires

Beverley
Brookton
Bruce Rock
Corrigin
Cuballing
Cunderdin
Dowerin
Goomalling
Kellerberrin
Kondinin
Koorda
Kulin
Merredin
Mount Marshall
Mukinbudin
Narembeen
Narrogin
Northam
Nungarin
Pingelly
Quairading
Tammin
Toodyay
Trayning
Wandering
Westonia
Wickepin
Williams
Wyalkatchem
York

EASTERN GOLDFIELDS**Towns**

BOULDER
KALGOORLIE

Shires

Coolgardie
Dundas
Esperance
Kalgoorlie
Laverton
Leonora
Menzies
Ravensthorpe
Yilgarn

CENTRAL**Shires**

Cue
Meekatharra
Mount Magnet
Murchison
Sandstone
Wiluna
Yalgoo

NORTH-WEST**Shires**

Ashburton
Carnarvon
Exmouth
Shark Bay
Upper Gascoyne

NORTHERN AGRICULTURAL**Town**

GERALDTON

Shires

Carnamah
Chapman Valley
Chittering
Coorow
Dalwallinu
Dandaragan
Gingin
Greenough
Irwin
Mingenew
Moora
Morawa
Mullewa
Northampton
Perenjori
Three Springs
Victoria Plains
Wongan-Ballidu

PILBARA**Shires**

Marble Bar
Nullagine
Port Hedland
Roebourne
Tableland

KIMBERLEY**Shires**

Broome
Halls Creek
West Kimberley
Wyndham-East Kimberley

LIST OF LOCAL GOVERNMENT AREAS
at 31 December 1966

Local government area	City (C) Town (T) Shire (S)	Statistical Division in which situated	Local government area	City (C) Town (T) Shire (S)	Statistical Division in which situated
ALBANY	T.	Southern Agricultural	Marble Bar	S.	Pilbara
Albany	S.	Southern Agricultural	Meekatharra	S.	Central
Armadale-Kelmscott	S.	Perth	MELVILLE	T.	Perth
Ashburton	S.	North-West	Menzies	S.	Eastern Goldfields
Augusta-Margaret River	S.	South-West	Merredin	S.	Central Agricultural
Balingup	S.	South-West	MIDLAND	T.	Perth
Bassendean	S.	Perth	Mingenew	S.	Northern Agricultural
Bayswater	S.	Perth	Moora	S.	Northern Agricultural
Belmont	S.	Perth	Morawa	S.	Northern Agricultural
Beverley	S.	Central Agricultural	MOSMAN PARK	T.	Perth
Boddington	S.	South-West	Mount Magnet	S.	Central
BOULDER	T.	Eastern Goldfields	Mount Marshall	S.	Central Agricultural
Bridgetown	S.	South-West	Mukinbudin	S.	Central Agricultural
Brookton	S.	Central Agricultural	Mullewa	S.	Northern Agricultural
Broome	S.	Kimberley	Mundaring	S.	Perth
Broomehill	S.	Southern Agricultural	Murchison	S.	Central
Bruce Rock	S.	Central Agricultural	Murray	S.	South-West
BUNBURY	T.	South-West	Nannup	S.	South-West
Busselton	S.	South-West	Narembeen	S.	Central Agricultural
Canning	S.	Perth	NARROGIN	T.	Central Agricultural
Capel	S.	South-West	Narrogin	S.	Central Agricultural
Carnamah	S.	Northern Agricultural	NEDLANDS	C.	Perth
Carnarvon	S.	North-West	NORTHAM	T.	Central Agricultural
Chapman Valley	S.	North-West	Northam	S.	Central Agricultural
Chittering	S.	Northern Agricultural	Northampton	S.	Northern Agricultural
CLAREMONT	T.	Perth	Nullagine	S.	Pilbara
Cockburn	S.	Perth	Nungarin	S.	Central Agricultural
Collie	S.	South-West	Nyabing-Pingrup	S.	Southern Agricultural
Coolgardie	S.	Eastern Goldfields	Peppermint Grove	S.	Perth
Coorow	S.	Northern Agricultural	Perenjori	S.	Northern Agricultural
Corrigin	S.	Central Agricultural	PERTH	C.	Perth
COTTESLOE	T.	Perth	Perth	S.	Perth
Cranbrook	S.	Southern Agricultural	Pingelly	S.	Central Agricultural
Cuballing	S.	Central Agricultural	Plantagenet	S.	Southern Agricultural
Cue	S.	Central	Port Hedland	S.	Pilbara
Cunderdin	S.	Central Agricultural	Quairading	S.	Central Agricultural
Dalwallinu	S.	Northern Agricultural	Ravensthorpe	S.	Eastern Goldfields
Dandaragan	S.	Northern Agricultural	Rockingham	S.	Perth
Dardanup	S.	South-West	Roebourne	S.	Pilbara
Denmark	S.	Southern Agricultural	Sandstone	S.	Central
Donnybrook	S.	South-West	Serpentine-Jarrahdale	S.	Perth
Dowerin	S.	Central Agricultural	Shark Bay	S.	North-West
Dumbleyung	S.	Southern Agricultural	SOUTH PERTH	C.	Perth
Dundas	S.	Eastern Goldfields	SUBIACO	C.	Perth
EAST FREMANTLE	T.	Perth	Swan-Guildford	S.	Perth
Esperance	S.	Eastern Goldfields	Tableland	S.	Pilbara
Exmouth	S.	North-West	Tambellup	S.	Southern Agricultural
FREMANTLE	C.	Perth	Tammin	S.	Central Agricultural
GERALDTON	T.	Northern Agricultural	Three Springs	S.	Northern Agricultural
Gingin	S.	Northern Agricultural	Toodyay	S.	Central Agricultural
Gnowangerup	S.	Southern Agricultural	Traying	S.	Central Agricultural
Goonalling	S.	Central Agricultural	Upper Blackwood	S.	South-West
Gosnells	S.	Perth	Upper Gascoyne	S.	North-West
Greenbushes	S.	South-West	Victoria Plains	S.	Northern Agricultural
Greenough	S.	Northern Agricultural	Wagin	S.	Southern Agricultural
Halls Creek	S.	Kimberley	Wandering	S.	Central Agricultural
Harvey	S.	South-West	Wanneroo	S.	Perth
Irwin	S.	Northern Agricultural	Waroona	S.	South-West
Kalamunda	S.	Perth	West Arthur	S.	Southern Agricultural
KALGOORLIE	T.	Eastern Goldfields	West Kimberley	S.	Kimberley
Kalgoorlie	T.	Eastern Goldfields	Westonia	S.	Central Agricultural
Katanning	S.	Southern Agricultural	Wickepin	S.	Central Agricultural
Kellerberrin	S.	Central Agricultural	Williams	S.	Central Agricultural
Kojonup	S.	Southern Agricultural	Wiluna	S.	Central
Kondinin	S.	Central Agricultural	Wongan-Ballidu	S.	Northern Agricultural
Koorda	S.	Central Agricultural	Woodanilling	S.	Southern Agricultural
Kulin	S.	Central Agricultural	Wyalkatchem	S.	Central Agricultural
Kwinana	S.	Perth	Wyndham-East Kimberley	S.	Kimberley
Lake Grace	S.	Southern Agricultural	Yalgoo	S.	Central
Laverton	S.	Eastern Goldfields	Yilgarn	S.	Eastern Goldfields
Leonora	S.	Eastern Goldfields	York	S.	Central Agricultural
Mandurah	S.	South-West			
Manjimup	S.	South-West			

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Issued by the Deputy Commonwealth Statistician and Government Statistician,
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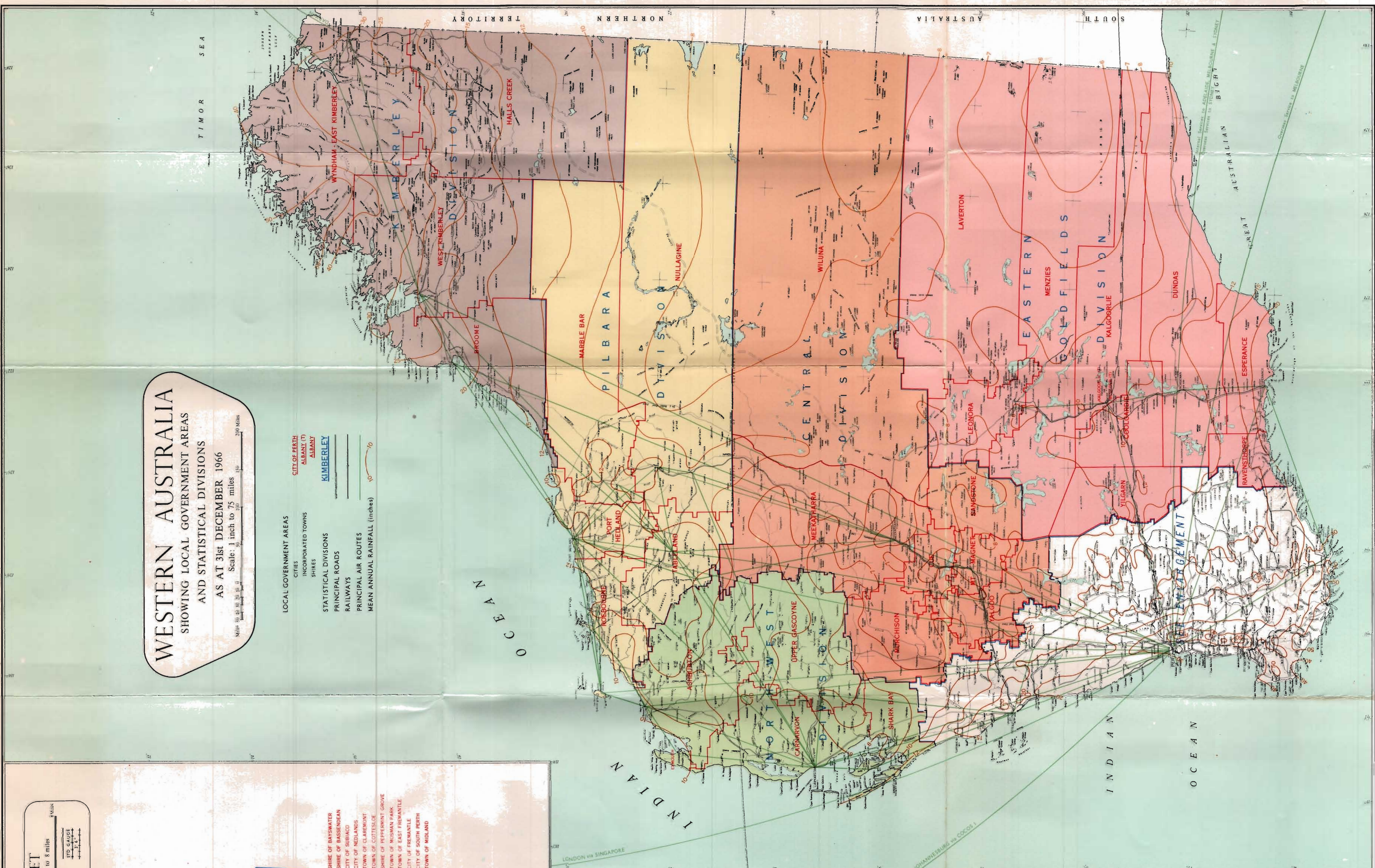
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WESTERN AUSTRALIA

SHOWING LOCAL GOVERNMENT AREAS AND STATISTICAL DIVISIONS AS AT 31st DECEMBER 1966

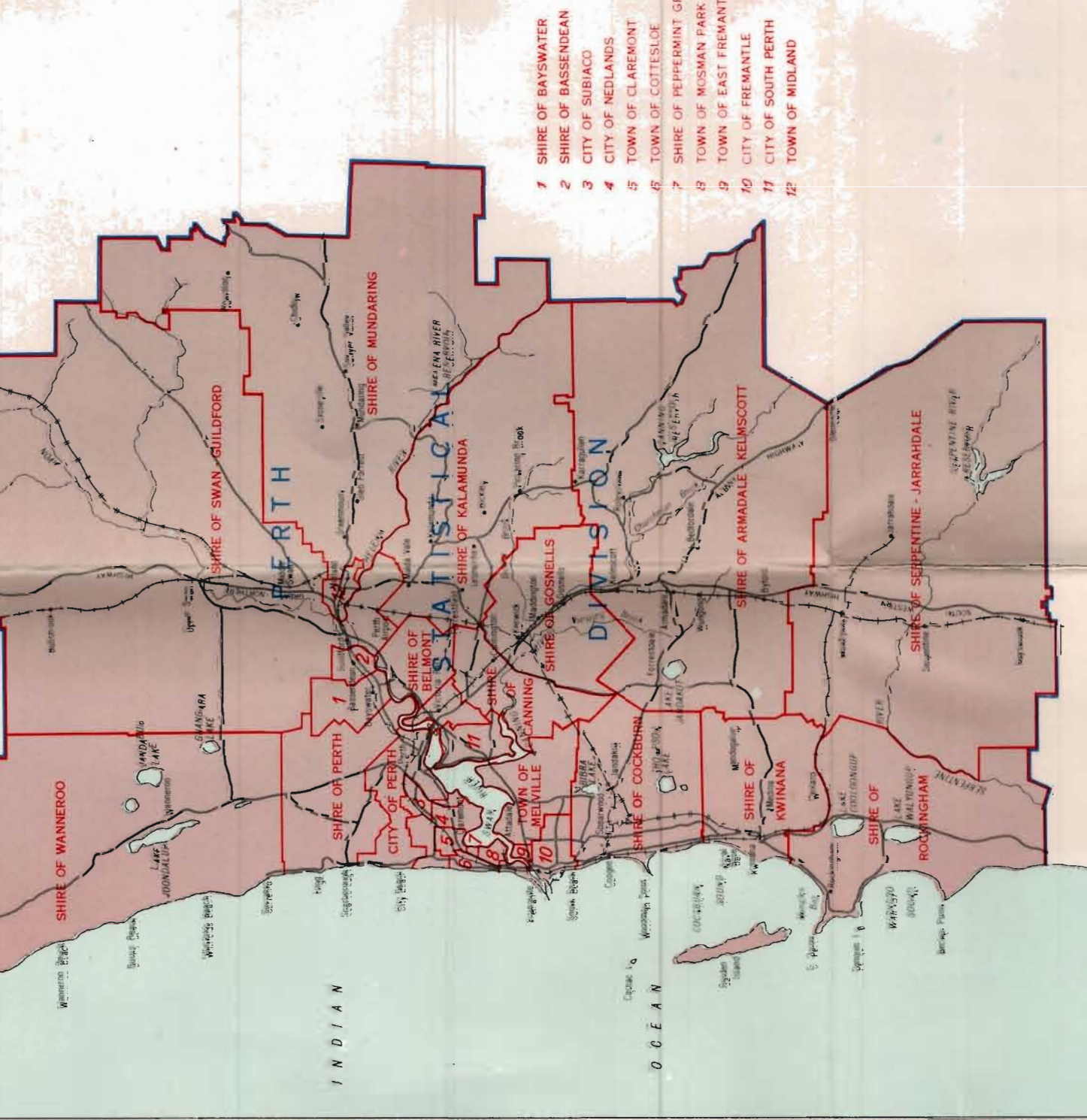
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Scale: 1 inch to 5 miles

- LOCAL GOVERNMENT AREAS
- CITIES
- INCORPORATED TOWNS
- STATISTICAL DIVISIONS
- PRINCIPAL ROADS
- RAILWAYS
- PRINCIPAL AIR ROUTES
- MEAN ANNUAL RAINFALL (inches)

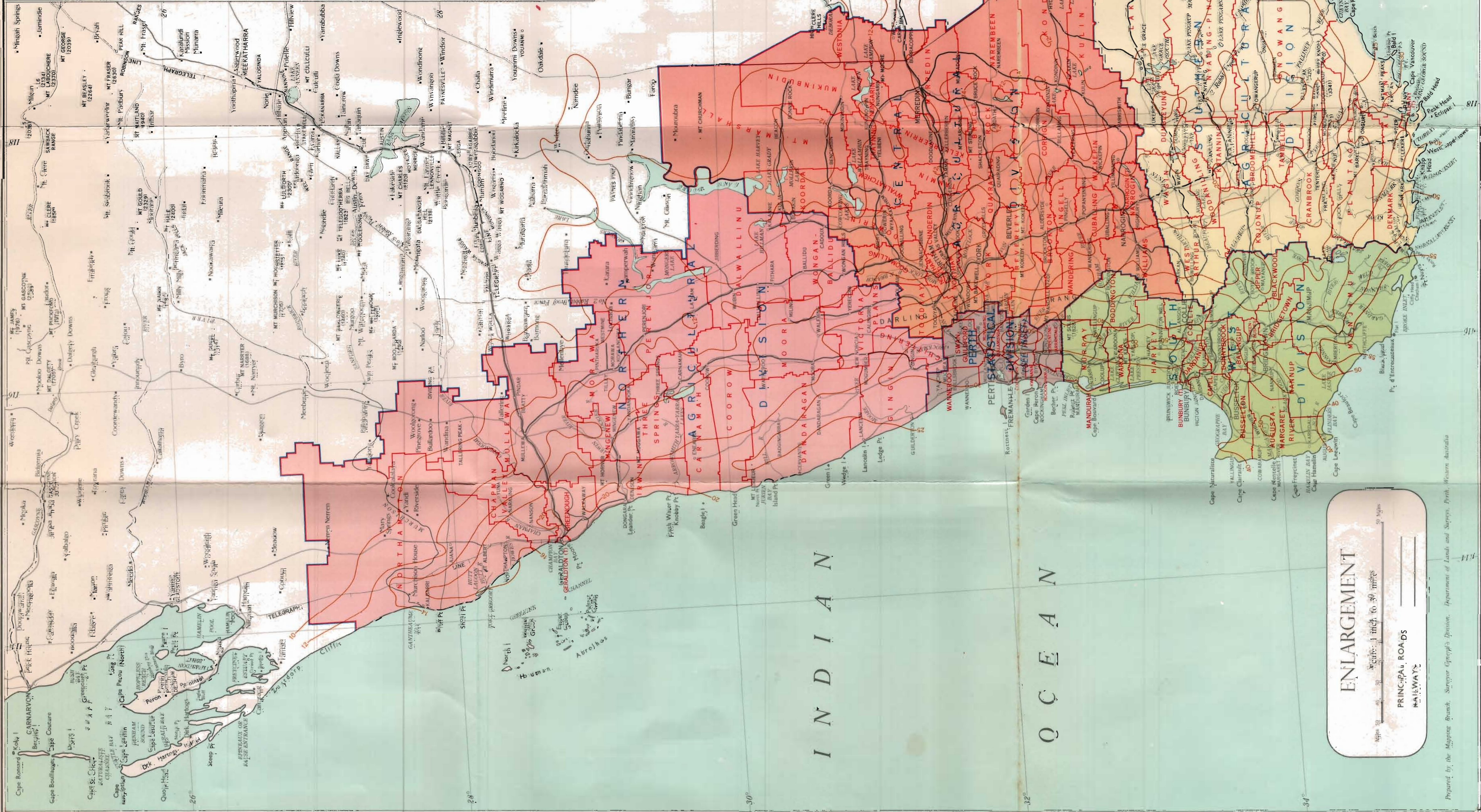


INSET

Scale: 1 inch to 5 miles
Scale: 1 inch to 1 mile



- 1 SHIRE OF SWAN
- 2 SHIRE OF WANNEROO
- 3 SHIRE OF BASSENDEN
- 4 CITY OF PERTH
- 5 CITY OF INDIAN
- 6 TOWN OF CLARKE
- 7 TOWN OF COOTING
- 8 SHIRE OF BUNBURY
- 9 SHIRE OF EAST FREMANTLE
- 10 CITY OF SOUTH PERTH
- 11 TOWN OF MELBOURNE



ENLARGEMENT

Scale: 1 inch to 50 miles
Scale: 1 inch to 1 mile

- PRINCIPAL ROADS
- RAILWAYS

Prepared by the Mapping Branch, Surveyor-General's Office, Department of Lands and Survey, Perth, Western Australia.