

# Part 8

## MANUFACTURING INDUSTRY

### *Historical Development*

1860-1914

Manufacturing first became an important industry in Victoria during the 1860's, when existing small-scale establishments concerned with rudimentary processing of raw materials began to develop and extend their activities. Many of these owed their origin to the gold rush of the previous decade. Types of manufacture, previously unknown in the colony and destined to become major industries in the future, were also introduced during these years. The first woollen mills, for instance, appeared in the late 1860's, and by the end of the decade, official statistics of the colony estimated the number of people employed in manufacturing of all types at nearly 20,000.

Checked only briefly by the recession at the end of the 1870's, manufacturing developed rapidly in the next twenty years until, at the peak in 1889, employment had trebled in two decades. For at least the latter half of that time growth of industry almost certainly outstripped that of the primary sector of the economy. Foremost in this development were the clothing and textile industries and there was also a marked increase in the output of food and drink, and in certain types of engineering activity of which iron founding and the assembly of coaches, waggons, and agricultural implements were the most important.

Victoria took an early lead over the other Australian colonies in the development of manufacturing industries, particularly intensive industries such as textiles. The reasons for this include the gold discoveries of the 1850's which swelled the population, perhaps sevenfold. The subsequent decline of profitable employment in gold mining provided a potential labour force for other economic activities in the colony.

There can be little doubt that it was the existence of this labour force that induced the Government to encourage industry by the imposition of tariff duties on imports of a large number of manufactured goods. The first of these was levied in 1867, and the degree of protection was increased in 1871 and in subsequent years. It is difficult to assess the importance of the tariff in stimulating the development of manufacturing which occurred. The industries which grew most rapidly were all heavily protected, but whether their growth could be attributed to heavy protection or the protection was a result of their growth is a matter for dispute. The fact that unprotected manufacturing in New South Wales, after a slower start, was of a comparable size to that in Victoria by the 1890's, makes it doubtful whether the tariff offers a complete explanation of manufacturing development in Victoria. The tariff probably stimulated an earlier development, not necessarily greater in the long run. It made for a larger scale in industry, and encouraged a concentration on clothing and textile industries.

The importance of large-scale immigration into Victoria in the 1870's, and especially in the 1880's, in relation to the rapid growth of manufacturing industry cannot be overlooked. The years of most rapid growth were those in which the number of migrants was at its highest. The large proportion of migrants who remained in Melbourne, the rapid construction of urban buildings and amenities, and the growth of manufacturing industry were all closely inter-related features of Victorian economic development at this time.

Manufacturing in Victoria suffered its first serious setback during the depression of the 1890's. All major industries were affected and employment fell by one-third before revival became evident in 1894. Although many former employees left the colony, a large number migrated to Western Australia, where they helped to provide a new export market for Victorian manufactures. The strain in the balance of payments also allowed Victorians a larger share of the local market and, partly as a result of this, manufacturing was quick to recover from the effects of the depression. By the end of the 1890's all ground lost during the depression had been recovered with the exception of industries supplying building materials, and those, such as brewing, which were handicapped by excess capacity. As before, the largest development occurred in the clothing and textile industries.

The revival preceded another long period of expansion in manufacturing during the first 30 years of the twentieth century. Large-scale immigration in the early years of the century increased both the work force available and the domestic market. It is also possible that greater agricultural productivity released additional resources for secondary industry. Cities grew as a result of new arrivals from overseas and by a drift from rural areas.

### 1914-1939

The First World War affected manufacturing development in that immigration ceased and many former employees went overseas in the armed forces. However, some industries benefited from the need to meet wartime demands and from the natural industrial protection afforded as a result of the war in Europe. The net result was some improvement in manufacturing employment in the later war years, although there can be little doubt that the growth of industry as a whole was retarded between 1914 and 1918. It is likely that the war was partly responsible for this shift in emphasis from Victoria's traditional manufacturing leaders in so far as it allowed local workmen and managers to acquire engineering skills and technical abilities in the execution of wartime contracts. However, account must also be taken of the new Commonwealth Tariff of 1921, itself partly a result of pressure to prevent the demise of the new wartime industries. By this measure many existing duties on manufactured goods were substantially increased and the Tariff Board was established to hear claims for additional protection for new industries. The resumption of immigration on a larger scale than before the war provided further possibilities for manufacturing development and the appearance of new demands for such services as motor transport and electricity gave an additional incentive to investors.

The 1920's are important, not only because they saw a continuation of the manufacturing development which had characterized the pre-war years, but also as there were signs in that decade of a growing diversity in the State's output of manufactured goods. The latter characteristic is reflected in the fact that industries classifiable under the general heading of "engineering" began to grow in importance, gaining ground from food and drink producers and, to a lesser extent, the dominant clothing and textiles group. This, in turn, was a concomitant of the establishment or coming of age of a number of major new industries. Motor car assembly, the production of electrical apparatus, and a growing maturity in the range of engineering activities all provided employment for large numbers of men. In addition, there was a substantial increase in the output of rubber goods, glass products, and chemicals.

The experience of Victorian manufacturing industry in the depression of the early 1930's was similar to that of the 1890's. The sharp drop in activity in 1930 had been presaged by a slowing down in manufacturing growth in the latter years of the 1920's. But recovery came quickly with the result that employment in Victorian factories was at an all time high in 1935. Losses had been heavy in the intervening years and many factory operatives had suffered from unemployment and reduced wages. However, lower costs and the devaluation of the Australian pound, as well as the fact that manufacturers were less dependent than primary producers on the conditions of demand overseas, seem to have allowed the industry to fare better in the 1930's than the state of the economy generally might have led one to suppose. By the outbreak of the Second World War, employment in Victorian factories, as defined for statistical purposes, had topped 200,000 and this represented an increase of over 30 per cent. on the pre-depression figure.

Underlying this continued growth was a further diversification in the range of manufacturing output along the lines noticeable in the 1920's. The clothing and textile industries continued to grow, but engineering industries grew faster. Special concessions in the sale of Crown Land by the Victorian Government were instrumental in the extension of motor car assembly plant and the clear establishment of Victoria as the centre of that industry in Australia. There was a simultaneous increase in the output of allied industries as well as other engineering and chemical goods.

### **From 1939 to 1960**

It will be apparent that the great development of secondary industry in Victoria since 1945 must be seen as the continuation of a long history of growth. A constant feature of the Victorian economy since the 1870's has been the good showing of manufacturing compared with other main industries in terms of its rate of growth. Further, the extension in the range of manufacturing activity, which has attracted attention since the Second World War, first became evident during the 1920's. The industry, therefore, was already approaching a certain degree of maturity before 1939.

The Second World War made unprecedented demands upon the industrial capacity of the State and expansion was temporarily halted in the period 1944–46. However, the experience gained in supplying war needs laid the foundations for the subsequent entry of industry into many fields of manufacture not previously covered.

When war broke out in September, 1939, Australia became a major source of supply for British countries east of Suez and in meeting their demands as well as those arising locally because of interruption of oversea importations, existing manufacturing industry expanded and new enterprises were developed rapidly for the production of all classes of munitions, aircraft, ships, many new kinds of machinery and metal manufactures, scientific equipment, textiles, chemicals, &c. The outbreak of war with Japan, the basing of Allied armed forces in Australia, and Australian responsibilities for supplies in the south-west Pacific Area gave added impetus to these developments, and manufacturing in Australia outstripped all previous levels.

The end of the Second World War saw the emergence of an economy in which primary production no longer featured to quite the extent it did in 1939. The proven ability of the country to manufacture products in the chemical, engineering, and textile fields had come to stay. For the first few years after 1945, there was a large demand at home for consumer goods which could not be supplied during the war years. Soon afterwards—in 1947—the Government's migration policy began to make itself felt. The yearly intake of migrants had a twofold effect: it increased the labour force in the manufacturing industries, often contributing new skills, and enlarged the market for industrial products.

Allied to the migration factor was the beginning of large-scale oversea investment in Victoria. The motor car, textile, and chemical industries were conspicuous examples of this. Again there was an increase in the number of factories, persons employed, and the market for their goods. At the beginning of the 1950's the prosperity of the State was still largely dependent on wool and wheat, especially at the time of the Korean War, when prices for primary commodities reached record heights.

Towards the end of the decade, however, the picture had altered a great deal. A mild economic recession in 1952–53 left the growth of secondary industry untouched and the influx of oversea capital began to gain momentum. A significant indicator of the growing importance of secondary industries has been the stock market valuation of sound industrial shares: this has tended to become more and more divorced from the fluctuations of wool and other primary produce prices and more allied to the growth prospects of industry. Furthermore, secondary industries were now exploring new markets in south-east Asia and Africa and already beginning to export such goods as motor cars, tractors, &c. The amount of factory building now proceeding would indicate that in the 1960's the importance of secondary industries in the State's economy is expected to increase still further. Already by 1958–59 the number of factories in Victoria had risen to 16,527 which employed 362,979 persons and for which the value of output was £1,431 mill.

The table below shows at intervals between 1901 and 1958-59 the development of manufacturing industry :—

VICTORIA—SUMMARY OF FACTORY DEVELOPMENT

Year	Factories	Employment*	Salaries and Wages Paid†	Value of—			
				Materials and Fuel Used	Output	Production‡	Land, Buildings, Plant and Machinery
	No.	No.	£'000	£'000	£'000	£'000	£'000
1901 .. ..	3,249	66,529	§	§	§	§	12,298
1920-21 .. ..	6,532	140,743	21,377	67,585	106,008	38,423	35,493
1940-41 .. ..	9,121	237,636	52,295	120,348	209,349	89,001	92,050
1950-51 .. ..	13,504	316,792	163,207	399,373	675,033	275,660	207,587
1951-52 .. ..	14,758	324,143	202,586	499,607	833,967	334,360	248,399
1952-53 .. ..	15,154	310,759	210,878	502,113	860,146	358,033	282,690
1953-54 .. ..	15,533	331,277	236,036	577,190	985,505	408,315	339,268
1954-55 .. ..	15,861	346,648	262,750	648,433	1,100,656	452,223	412,671
1955-56 .. ..	16,053	355,185	286,944	709,444	1,201,392	491,948	473,216
1956-57 .. ..	16,232	355,204	296,608	748,110	1,276,141	528,031	542,809
1957-58 .. ..	16,426	357,143	310,540	811,221	1,377,697	566,476	591,086
1958-59 .. ..	16,527	362,979	324,336	822,094	1,431,041	608,947	660,659

\* Average employment over whole year, including working proprietors.

† Excludes drawings of working proprietors.

‡ Value of output less value of materials, &c.

§ Not available.

Manufacturing Activity

General

Factory and Wages Board Legislation

The first Factories Act in Victoria was passed in 1873. Since then many other Acts dealing with the subject have been placed upon the statute-book. They have been consolidated in the *Labour and Industry Act 1958*. Under the Act registration of factories is compulsory and certain conditions relating to lighting, ventilation, fire escape, and sanitation must be fulfilled before registration is granted. The Act requires that departmental approval of plans be obtained before the commencement of the building of any factory premises or alteration or addition to it.

The general provisions of factory legislation, including Wages Boards, are further referred to on pages 404 to 430.

Decentralization of Manufacturing Industries

Following upon a report by the Secondary Industries Commission, the Commonwealth Government called a conference of Commonwealth and State Ministers in August, 1945, to formulate a national policy for the decentralization of secondary industries. It was agreed that the State Governments should seek to promote decentralization along the lines appropriate to each, providing necessary services, assistance, and concessions to the full extent of State resources. The Commonwealth undertook to collaborate in all matters of Commonwealth industrial policy affecting the development and location of

industry, to investigate in association with the States the prospects of developing secondary industries in selected areas, to advise the States of developments desirable for defence purposes, and to provide financial assistance for projects of national importance where the cost would be great relative to the State's resources.

The Commonwealth has assisted decentralization by allocating to private industry munitions and other defence buildings in decentralized areas and accommodating migrants in provincial centres with prospects of development. Oversea firms contemplating establishment in Australia are encouraged to select locations in rural areas or the less industrialized States.

#### *Commonwealth Division of Industrial Development*

The functions of the Division—formed in 1950 under the Ministry of National Development and administered by the Department of Trade since January, 1956—include the encouragement of industrial development, the exercising of Commonwealth responsibilities for the promotion of decentralization and regional development of manufacturing industries in Australia, and the promotion of industrial efficiency with special reference to the structure, capacity, and operation of these industries.

#### *Customs and Excise Tariffs and Bounties on Manufacture*

The Tariff Board, appointed by the Commonwealth Government, examines proposals for amending the tariff and makes recommendations relating to the necessity for new, increased, or reduced duties and, where necessary, advises regarding the necessity for granting bounties. It takes into consideration the effect of any changes on manufacturing industry in Australia.

Bounties are paid by the Commonwealth Government to encourage local manufacture of certain products. The statutory provisions usually fix a term of operation of the bounty, provide for payment at a rate varying according to changes in the corresponding customs duty, specify the annual maximum amount of bounty payable, and require the bounty to be withheld or reduced if a manufacturer's net profit in production of the commodity exceeds a certain rate or if rates of wages and conditions of employment in production of the commodity do not conform to prescribed standards.

### **Scientific Research and Standardization**

#### *Commonwealth Scientific and Industrial Research Organization*

The function of this Organization is to initiate and conduct research in connexion with industries in Australia, to train research workers, to establish industrial research studentships and fellowships, to make grants in aid of pure scientific research, to establish industrial research associations in various industries, to provide for testing and standardization of scientific equipment, to conduct an information service relating to scientific and industrial matters, and to act for Australia in liaison with other countries in matters of scientific research.

*Standards Association of Australia*

This Association acts as the national standardizing organization of Australia and issues standard specifications for materials and codes of practice. Specifications and codes are prepared and revised periodically in accordance with the needs of industry, and standards are evolved and accepted by general consent.

*National Association of Testing Authorities*

This Association organizes national testing facilities throughout Australia to serve private and governmental needs. Laboratories may register voluntarily in respect of tests within their competence and the Association ensures the maintenance of their standards of testing. It is expected that there will be general acceptance of certificates of tests issued in the name of the Association by the registered laboratories.

**Definitions in Factory Statistics**

The statistics relating to factories have been compiled from returns supplied annually by manufacturers under the authority of the Commonwealth Census and Statistics Act and the Victorian Statistics Act. A return must be supplied in respect of every factory, which is defined for this purpose as an establishment where four or more persons are employed or where power (other than manual) is used in any manufacturing process.

If a manufacturing business is conducted in conjunction with any other activity, particulars relating to the manufacturing section only are included in the statistics. Where two or more industries are conducted in the same establishment, a separate return is obtained for each industry, if practicable.

Manufacturers are requested to state in their returns particulars as to the number, age, wages, &c., of their employees, the value of premises and equipment and of factory stocks, the horse-power of machinery, the value, and in most cases the quantities of raw materials and fuel used, and quantities and values of principal materials and articles produced. The returns obtained from manufacturers are not intended to show a complete record of the income and expenditure of factories nor to show the profits or losses of factories collectively or individually.

The *average number of persons* employed is quoted on two different bases: the average during the period of operation and the average over the whole year. Of these, the former is simply the aggregate of the average number of persons employed in each factory during its period of operation (whether the whole or only part of the year). This average is used only for details dealing with the classification according to the number of persons employed. The latter, which is used in all other instances, is calculated by reducing the average number working in the factories (irrespective of period of operation) to the equivalent number working for a full year.

*Working proprietors* are included in all employment figures other than those dealing with monthly employment and age dissections, but salaries and wages paid in all cases exclude drawings by working proprietors.

The *value of factory output* is the value of the goods manufactured or their value after passing through the particular process of manufacture and includes the amount received for repair work, work done on commission and receipts for other factory work. The basis of valuation of the output is the selling value of the goods at the factory, exclusive of all delivery costs and charges and excise duties, but inclusive of bounty and subsidy payments to the manufacturer of the finished article.

The *value of production* is the value added to raw materials by the process of manufacture. It is calculated by deducting from the value of factory output the value (at the factory) of those items of cost specified on the factory statistical collection form, namely, materials used, containers and packing, power, fuel and light used, tools replaced, and materials used in repairs to plant (but not depreciation charges); the remainder constitutes the value added to raw materials in the process of manufacture, and represents the fund available for the payment of wages, taxation, rent, interest, insurance, &c., and profit.

It is considered that, owing to the duplication of materials used, the finished produce of one process of manufacture forming, as it often does, the raw material for another, an inaccurate impression would be obtained by using the total value of output of manufacturing industries in year to year comparisons. Woollen manufactures might be cited as an example. Greasy wool forms the raw material for the wool-scouring industry, the product of which is scoured wool. This is afterwards combed into wool tops which are used in the spinning mills for the manufacture of yarn. In due course the yarn is woven into cloth, the raw material for the clothing industry. If these processes are carried out separately in different factories it is evident that the value of the wool would be counted five times by using value of output as the basis for annual comparisons of manufacturing production.

The concept of value added prevents this double counting, gives a truer picture of the relative economic importance of industries, and also provides a good basis for estimating and comparing productive efficiency in manufacturing.

### Classification of Factories

#### *General*

In the compilation of statistical data relating to factories in Australia, a standard classification of manufacturing industries, formulated at a conference of Australian statisticians in 1902 and revised from time to time, was used until the year 1929–30. A new classification based on that used in Great Britain for census purposes was introduced in 1930–31, and this, revised and extended to a minor degree in regard to sub-classes of industry in accordance with decisions of the Statisticians' Conference, 1945, still obtains.

It should be noted that where a factory, engaged in the production of such goods as would entitle it to classification in more than one such sub-classes, it is classified to the predominant activity of such sub-class of industry, is unable to give separate production costs, &c., for factory.

The classes and sub-classes in the current classification of factories are as follows :—

CLASSIFICATION OF FACTORIES

CLASS I—TREATMENT OF NON-METALLIFEROUS MINE AND QUARRY PRODUCTS

Coke Works  
Briquetting and Pulverized Coal  
Carbide  
Lime, Plaster of Paris, and Asphalt  
Fibrous Plaster and Products  
Marble, Slate, &c.  
Cement, Portland  
Asbestos Cement Sheets and Mouldings  
Other Cement Goods  
Other

CLASS II—BRICKS, POTTERY, GLASS, ETC.

Bricks and Tiles  
Earthenware, China, Porcelain, and Terracotta  
Glass (Other than Bottles)  
Glass Bottles  
Other

CLASS III—CHEMICALS, DYES, EXPLOSIVES, PAINTS, OILS, GREASE Industrial and Heavy Chemicals and Acids

Pharmaceutical and Toilet Preparations  
Explosives (Including Fireworks)  
White Lead, Paints, and Varnish  
Oils, Vegetable  
Oils, Mineral  
Oils, Animal  
Boiling-down, Tallow-refining  
Soap and Candles  
Chemical Fertilizers  
Inks, Polishes, &c.  
Matches  
Other

CLASS IV—INDUSTRIAL METALS, MACHINES, CONVEYANCES

Smelting, Converting, Refining, Rolling of Iron and Steel  
Foundries (Ferrous)  
Plant, Equipment, and Machinery, &c.  
Other Engineering  
Extracting and Refining of Other Metals; Alloys  
Electrical Machinery, Cables, and Apparatus  
Construction and Repair of Vehicles (10 groups)  
Ship and Boat Building and Repairing, Marine Engineering (Government and Other)

CLASS IV—INDUSTRIAL METALS, MACHINES, CONVEYANCES—continued

Cutlery and Small Hand Tools  
Agricultural Machines and Implements  
Non-Ferrous Metals—  
Rolling and Extrusion  
Founding, Casting, &c.  
Iron and Steel Sheets  
Sheet Metal Working, Pressing, and Stamping  
Pipes, Tubes, and Fittings—Ferrous  
Wire and Wire Netting (Including Nails)  
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 V—PRECIOUS METALS, JEWELLERY, PLATE

Jewellery  
Watches and Clocks (Including Repairs)  
Electroplating (Gold, Silver, Chromium, &c.)

CLASS VI—TEXTILES AND TEXTILE GOODS (NOT DRESS)

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, &c.  
Bags and Sacks  
Textile Dyeing, Printing, and Finishing  
Other

CLASS VII—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, &c.

## CLASS VIII—CLOTHING (EXCEPT KNITTED)

Tailoring and Ready-made Clothing  
 Waterproof and Oilskin Clothing  
 Dressmaking, Hemstitching  
 Millinery  
 Shirts, Collars, and Underclothing  
 Foundation Garments  
 Handkerchiefs, Ties, and 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, &c.  
 Other

## CLASS IX—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  
 Pickles, Sauces, and Vinegar  
 Bacon Curing  
 Butter Factories  
 Cheese Factories  
 Condensed and Dried Milk Factories  
 Margarine  
 Meat and Fish Preserving  
 Condiments, Coffee, and Spices  
 Ice and Refrigerating  
 Salt  
 Aerated Waters, Cordials, &c.  
 Breweries  
 Distilleries  
 Wine-making  
 Cider and Perry  
 Malting  
 Bottling  
 Tobacco, Cigars, Cigarettes, and Snuff  
 Dehydrated Fruit and Vegetables  
 Ice Cream  
 Sausage Casings  
 Arrowroot  
 Other

## CLASS X—SAWMILLS, JOINERY, BOXES, ETC., WOOD TURNING AND CARVING

Sawmills  
 Plywood Mills (Including Veneers)  
 Bark Mills  
 Joinery  
 Cooperage  
 Boxes and Cases  
 Woodturning, Woodcarving, &c.

CLASS X—SAWMILLS, JOINERY, BOXES, ETC., WOOD TURNING AND CARVING—*continued*

Basketware and Wickerware (Including Sea-grass and Bamboo Furniture)  
 Perambulators (Including Pushers and Strollers)  
 Wall and Ceiling Boards (Not Plaster or Cement)  
 Other

## CLASS XI—FURNITURE OF WOOD, BEDDING, ETC.

Cabinet and Furniture Making (Including Billiard Tables and Upholstery)  
 Bedding and Mattresses (Not Wire)  
 Furnishing Drapery  
 Picture Frames  
 Blinds

## CLASS XII—PAPER, STATIONERY, PRINTING, BOOKBINDING, ETC

Newspapers and Periodicals  
 Printing—  
 Government  
 General, Including Bookbinding  
 Manufactured Stationery  
 Stereotyping, Electrotyping  
 Process and Photo Engraving  
 Cardboard Boxes, Cartons, and Containers  
 Paper Bags  
 Paper-making  
 Pencils, Penholders, Chalks, and Crayons  
 Other

## CLASS XIII—RUBBER

Rubber Goods (Including Tyres Made)  
 Tyre Retreading and Repairing

## CLASS XIV—MUSICAL INSTRUMENTS

Gramophones and Gramophone Records  
 Pianos, Piano-Players, and Organs  
 Other

## CLASS XV—MISCELLANEOUS PRODUCTS

Linoleum, Leather-cloth, Oil-cloth, &c.  
 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 (Including Developing and Printing)  
 Toys, Games, and Sports Requisites  
 Artificial Flowers  
 Other

## CLASS XVI—HEAT, LIGHT, AND POWER

Electric Light and Power  
 Gas Works

Factories According to Class of Industry

The following table contains a summary by class of industry in Victoria during the year ended 30th June, 1959 :—

VICTORIA—FACTORIES BY CLASSES : 1958–59

Class of Industry	Factories	Employment*	Rated Horse-power of Engines in Use	Salaries and Wages Paid†	Value of—	
					Production	Output
	No.	No.	h.p.	£'000	£'000	£'000
I. Treatment of Non-metalliciferous Mine and Quarry Products ..	450	6,522	66,337	6,522	13,305	29,341
II. Bricks, Pottery, Glass, &c. ..	160	5,846	35,725	5,696	9,649	16,946
III. Chemicals, Dyes, Explosives, Paints, Oils, Grease ..	361	17,392	155,341	18,080	55,164	161,712
IV. Industrial Metals, Machines, Conveyances ..	6,018	139,115	445,488	133,214	214,200	435,371
V. Precious Metals, Jewellery, Plate ..	265	2,150	4,238	1,815	3,163	5,290
VI. Textiles and Textile Goods (Not Dress) ..	754	37,500	107,052	29,398	53,553	123,508
VII. Skins and Leather (Not Clothing or Footwear)	275	4,559	19,558	3,896	6,200	17,344
VIII. Clothing (Except Knitted)	2,442	45,783	30,076	30,655	50,081	100,813
IX. Food, Drink, and Tobacco	2,178	37,383	213,373	32,545	70,902	259,773
X. Sawmills, Joinery, Boxes, &c., Wood Turning and Carving	1,382	15,092	126,597	12,944	22,648	50,860
XI. Furniture of Wood, Bedding, &c. ..	665	6,492	16,141	5,225	9,571	19,837
XII. Paper, Stationery, Printing, Bookbinding, &c.	892	22,846	114,956	22,626	45,860	99,012
XIII. Rubber ..	158	7,207	63,272	7,254	15,540	34,582
XIV. Musical Instruments ..	25	247	312	220	359	596
XV. Miscellaneous Products	431	9,863	27,405	8,599	16,904	37,440
Total, Classes I. to XV. ..	16,456	357,997	1,425,871	318,689	587,099	1,392,425
XVI. Heat, Light, and Power	71	4,982	1,803,865	5,647	21,848	38,616
GRAND TOTAL ..	16,527	362,979	3,229,736	324,336	608,947	1,431,041

\* Average employment over whole year, includes working proprietors.

† Excludes drawings of working proprietors.

“Industrial Metals, Machines, and Conveyances” with 139,115 or 35 per cent. of the total employment in factories during 1958–59, employed considerably more persons than any other class of industry. Next in order of employment was “Clothing” with 45,783 or 12 per cent., followed by “Textiles and Textile Goods” and “Food, Drink, and Tobacco” with 37,500 and 37,383 respectively or 10 per cent. of the total.

The total value of production (added value) in 1958–59 was £608,947,000. Of this amount the metals group contributed £214,200,000 which represented 35 per cent. of the total. The food group followed with £70,902,000 or 12 per cent., and next in order were chemicals, dyes, &c., with £55,164,000 or 9 per cent., textiles with £53,553,000 or 9 per cent., and clothing with £50,081,000 or 8 per cent.

The next table shows the number of factories in Victoria during the years 1954-55 to 1958-59 classified according to industry :—

### VICTORIA—NUMBER OF FACTORIES IN INDUSTRIAL CLASSES

Class of Industry	1954-55	1955-56	1956-57	1957-58	1958-59
I. Treatment of Non-metalliferous Mine and Quarry Products .. ..	438	447	445	442	450
II. Bricks, Pottery, Glass, &c. ..	150	151	161	159	160
III. Chemicals, Dyes, Explosives, Paints, Oils, Grease .. ..	343	344	345	350	361
IV. Industrial Metals, Machines, Conveyances .. ..	5,365	5,573	5,818	5,971	6,018
V. Precious Metals, Jewellery, Plate ..	245	255	273	266	265
VI. Textiles and Textile Goods (Not Dress) .. ..	741	738	740	748	754
VII. Skins and Leather (Not Clothing or Footwear) .. ..	303	293	297	289	275
VIII. Clothing (Except Knitted) .. ..	2,586	2,528	2,512	2,516	2,442
IX. Food, Drink, and Tobacco .. ..	2,053	2,043	1,999	2,022	2,178
X. Sawmills, Joinery, Boxes, &c., Wood Turning and Carving .. ..	1,428	1,431	1,387	1,407	1,382
XI. Furniture of Wood, Bedding, &c. ..	697	691	700	704	665
XII. Paper, Stationery, Printing, Book-binding, &c. .. ..	809	838	864	884	892
XIII. Rubber .. ..	143	146	146	151	158
XIV. Musical Instruments .. ..	27	31	30	28	25
XV. Miscellaneous Products .. ..	438	455	430	411	431
Total, Classes I. to XV. ..	15,766	15,964	16,147	16,348	16,456
XVI. Heat, Light, and Power .. ..	95	89	85	78	71
GRAND TOTAL	15,861	16,053	16,232	16,426	16,527

The size classification of factories is based on the average weekly number of persons employed during the period of operation (including working proprietors). The following table shows the number of factories classified according to the average number of persons employed, for each of the years 1949-50 to 1958-59 :—

### VICTORIA—FACTORIES CLASSIFIED ACCORDING TO NUMBER OF PERSONS EMPLOYED DURING PERIOD OF OPERATION

Year	Number of Factories Employing, on the Average, Persons Numbering—							
	Under 4	4	5 to 10	11 to 20	21 to 50	51 to 100	Over 100	Total
1949-50 .. ..	3,944	1,168	3,387	1,983	1,653	581	515	13,231
1950-51 .. ..	4,087	1,159	3,372	2,020	1,723	593	550	13,504
1951-52 .. ..	4,789	1,267	3,714	2,141	1,720	585	542	14,758
1952-53 .. ..	5,325	1,292	3,699	2,156	1,613	556	513	15,154
1953-54 .. ..	5,474	1,251	3,841	2,179	1,660	572	556	15,533
1954-55 .. ..	5,672	1,250	3,826	2,206	1,717	600	590	15,861
1955-56 .. ..	5,693	1,229	3,915	2,260	1,754	608	594	16,053
1956-57 .. ..	5,854	1,247	3,918	2,252	1,705	638	618	16,232
1957-58 .. ..	6,077	1,254	3,862	2,268	1,721	621	623	16,426
1958-59 .. ..	6,062	1,320	3,876	2,261	1,725	643	640	16,527

VICTORIA—AVERAGE NUMBER OF PERSONS EMPLOYED ACCORDING TO SIZE OF FACTORY DURING PERIOD OF OPERATION

Year	Average Number Employed (Including Working Proprietors)—							Total
	Under 4	4	5 to 10	11 to 20	21 to 50	51 to 100	Over 100	
1949-50 .. .. .	8,005	4,672	23,470	29,214	51,914	40,789	146,846	304,910
1950-51 .. .. .	8,346	4,636	23,615	29,567	53,883	42,202	155,765	318,014
1951-52 .. .. .	9,640	5,068	25,739	31,472	53,922	41,016	158,701	325,558
1952-53 .. .. .	10,478	5,168	25,691	31,718	50,820	39,165	149,348	312,388
1953-54 .. .. .	10,725	5,004	26,824	32,035	52,602	40,617	165,447	333,254
1954-55 .. .. .	11,070	5,000	26,885	32,151	53,410	41,620	178,132	348,268
1955-56 .. .. .	11,116	4,916	27,408	33,006	55,581	42,758	181,907	356,692
1956-57 .. .. .	11,730	4,988	27,444	33,219	53,729	44,427	180,976	356,513
1957-58 .. .. .	11,748	5,016	27,252	33,341	54,254	43,358	183,921	358,890
1958-59 .. .. .	12,314	5,280	27,604	33,184	54,311	44,817	187,467	364,977

The relative importance of large and small factories is illustrated in the above table. In 1958-59, 7,382 factories employing four or less employees had a total employment of 17,594 persons. Expressed in terms of percentages, 45 per cent. of factories—those employing four or less persons—employed 5 per cent. of the persons engaged in factories. The most numerous of the factories with less than four persons were motor repair workshops with 1,065 such establishments and 2,305 persons out of a total of 2,231 establishments employing 16,025 persons ; and bakeries (including cakes and pastry) with 785 establishments employing 1,555 persons out of a total of 1,253 bakeries with 6,072 persons. Other small factories worthy of note are classified under the "Other Engineering" sub-class—368 establishments with 728 persons out of a total of 815 establishments with 8,584 persons ; and "Boot Repairing"—325 establishments employing 485 persons out of a total of 377 establishments employing 915 persons.

A general indication of the geographical disposition of factories in the State is shown in the next table where secondary industry in Victoria for 1958-59 is classified according to statistical divisions :—

VICTORIA—FACTORIES IN STATISTICAL DIVISIONS, 1958-59

Statistical Division	Factories	Employment*	Salaries and Wages Paid†	Value of—			
				Materials and Fuel Used	Output	Production	Land, Buildings, Plant and Machinery
	No.	No.	£'000	£'000	£'000	£'000	£'000
Metropolitan ..	11,758	290,131	262,338	616,803	1,092,474	475,671	439,951
Central ..	1,048	23,974	21,685	79,713	129,026	49,313	66,328
North-Central ..	379	5,655	4,262	6,780	14,431	7,651	11,436
Western ..	981	14,390	11,561	31,899	51,799	19,900	22,716
Wimmera ..	372	2,187	1,478	4,106	6,682	2,576	2,477
Mallee ..	295	2,187	1,587	3,364	5,789	2,425	5,483
Northern ..	723	9,887	7,931	33,985	48,674	14,689	19,939
North-Eastern ..	432	5,036	3,937	10,288	18,562	8,274	22,525
Gippsland ..	539	9,532	9,557	35,156	63,604	28,448	69,804
Total ..	16,527	362,979	324,336	822,094	1,431,041	608,947	660,659

\* Average employment over the whole year, includes working proprietors.  
 † Excludes drawings of working proprietors.

Factories in the Metropolitan Area constituted 71 per cent. of the total number in Victoria in 1958-59, 80 per cent. of the persons employed, and 78 per cent. of the value of production.

For information regarding the actual location of the statistical divisions named in the table reference should be made to the map opposite page 100.

### Employment in Factories

All persons employed in the manufacturing activities of a factory, including proprietors working in their own businesses, and persons working regularly at home are counted as factory employees while those engaged in selling and distributing, such as salesmen, travellers, and carters employed on outward delivery of manufactured goods, are excluded. The grouping of occupations was varied in 1945-46 and now comprises (i) working proprietors; (ii) managerial and clerical staff including salaried managers and working directors; (iii) chemists, draftsmen, and other laboratory and research staff; (iv) foremen and overseers; (v) skilled and unskilled workers; and (vi) carters (excluding delivery), messengers, and persons working regularly at home.

The figures showing average employment in factories, since 1928-29, represent the equivalent average number of persons employed including working proprietors over a full year of 52 weeks. This method is used for all purposes except where factories are classified according to size (see pages 542-543), where the average number of persons employed is the average over the period of operation.

The following table shows the average number of persons employed in factories in each industrial class in Victoria for the years 1954-55 to 1958-59 :—

### VICTORIA—PERSONS EMPLOYED IN FACTORIES

Class of Industry	1954-55	1955-56	1956-57	1957-58	1958-59		
					Males	Females	Persons
I. Treatment of Non-metallic ferous Mine and Quarry Products ..	6,088	6,492	6,398	6,341	6,199	323	6,522
II. Bricks, Pottery, Glass, &c. ..	5,752	5,893	5,652	5,660	5,293	553	5,846
III. Chemicals, Dyes, Explosives, Paints, Oils, Grease ..	15,418	16,577	16,653	16,996	13,409	3,983	17,392
IV. Industrial Metals, Machines, Conveyances ..	125,289	132,270	131,299	134,221	122,383	16,732	139,115
V. Precious Metals, Jewellery, Plate ..	2,785	2,562	2,605	2,469	1,786	364	2,150
VI. Textiles and Textile Goods (Not Dress) ..	37,455	36,895	37,945	38,078	16,186	21,314	37,500
VII. Skins and Leather (Not Clothing or Footwear) ..	5,460	4,941	4,724	4,649	3,469	1,090	4,559
VIII. Clothing (Except Knitted) ..	47,571	46,889	47,093	45,764	14,028	31,755	45,783
IX. Food, Drink, and Tobacco	39,496	38,427	37,542	37,310	26,988	10,395	37,383
X. Sawmills, Joinery, Boxes, &c., Wood Turning, and Carving ..	15,259	15,428	15,093	14,815	14,269	823	15,092
XI. Furniture of Wood, Bedding, &c. ..	6,168	6,263	6,312	6,550	5,376	1,116	6,492
XII. Paper, Stationery, Printing, Bookbinding, &c. ..	20,061	21,111	21,619	22,113	17,134	5,712	22,846
XIII. Rubber ..	6,122	6,771	6,848	6,932	5,738	1,469	7,207
XIV. Musical Instruments ..	286	303	293	269	209	38	247
XV. Miscellaneous Products ..	9,081	9,827	10,313	10,357	6,432	3,431	9,863
Total, Classes I. to XV. ..	342,291	350,649	350,389	352,524	258,899	99,098	357,997
XVI. Heat, Light, and Power ..	4,357	4,536	4,815	4,619	4,948	34	4,982
<b>GRAND TOTAL</b> ..	<b>346,648</b>	<b>355,185</b>	<b>355,204</b>	<b>357,143</b>	<b>263,847</b>	<b>99,132</b>	<b>362,979</b>

The dominance of four classes, namely, Class IV—Industrial Metals, Machines, and Conveyances ; Class VI—Textiles and Textile Goods (Not Dress) ; Class VIII—Clothing ; and Class IX—Food, Drink, and Tobacco with 72 per cent. of factory employment, should be noted.

27 per cent. of factory workers in 1958–59 were females. They exceeded males in Class VI—Textiles and Textile Goods (Not Dress) with 57 per cent. and Class VIII—Clothing (Except Knitted), with 69 per cent. of the Class total. Of the total females employed 32 per cent. were in Class VIII ; 22 per cent. in Class VI ; 17 per cent. in Class IV—Industrial Metals, Machines, and Conveyances ; and 10 per cent. in Class IX—Food, Drink, and Tobacco.

In the following table, the average number of persons employed in Victoria is classified according to the nature of their employment for the years 1949–50 to 1958–59 :—

VICTORIA—NATURE OF EMPLOYMENT IN FACTORIES\*

Year	Working Proprietors	Managerial and Clerical Staff	Chemists, Draftsmen, &c.	Foremen and Overseers	Workers in Factory (Skilled and Unskilled)	Carters (Excluding Delivery Only) and Messengers, &c.	Total
1949–50.. ..	11,456	29,469	3,462	12,615	244,052	2,422	303,476
1950–51.. ..	11,526	31,089	3,745	13,343	254,555	2,534	316,792
1951–52.. ..	12,851	32,846	4,019	13,866	258,251	2,310	324,143
1952–53.. ..	13,392	32,722	4,098	13,639	244,866	2,042	310,759
1953–54.. ..	13,722	33,789	4,299	14,193	262,916	2,358	331,277
1954–55.. ..	14,053	36,262	4,590	14,862	274,741	2,140	346,648
1955–56.. ..	14,056	38,287	5,511	15,262	279,848	2,221	355,185
1956–57.. ..	13,967	40,279	5,585	15,498	277,507	2,368	355,204
1957–58.. ..	13,934	40,951	5,751	16,262	278,110	2,135	357,143
1958–59.. ..	13,704	42,960	6,152	17,264	280,772	2,127	362,979

\* Average weekly employment during period of operation.

During the ten years reviewed in the previous table, the proportion of skilled and unskilled workers in factories declined from 80 per cent. to 77 per cent., managerial and clerical staffs increased from 10 per cent. to 12 per cent., chemists, draughtsmen, &c., increased from 1 per cent. to 2 per cent., and foremen increased from 4 per cent. to 5 per cent.

In 1958–59 there was an average of 362,979 persons employed in factories and of these 4 per cent. were working proprietors ; 14 per cent. comprised managerial, clerical, and technical staff ; and the balance, 82 per cent., consisted of persons engaged as foremen, workers in the processes of manufacture, and in sorting, and packing.

The following table shows the nature of employment in factories in 1958-59, according to the class of industry :—

VICTORIA—NATURE OF EMPLOYMENT IN FACTORIES BY CLASSES OF INDUSTRY, 1958-59

Class of Industry	Working Proprietors	Managerial and Clerical Staff	Chemists, Draftsmen, &c.	Foremen and Overseers	Workers in Factory (Skilled and Unskilled)	Carters and Messengers	Total
I. Treatment of Non-metallic Mine and Quarry Products ..	314	717	103	368	4,984	36	6,522
II. Bricks, Pottery, Glass, &c. ..	77	463	38	207	5,050	11	5,846
III. Chemicals, Dyes, Explosives, Paints, Oils, Grease ..	101	2,777	1,121	796	12,442	155	17,392
IV. Industrial Metals, Machines, Conveyances ..	4,796	19,591	3,333	6,820	104,250	325	139,115
V. Precious Metals, Jewellery, Plate ..	252	206	8	100	1,581	3	2,150
VI. Textiles and Textile Goods (Not Dress) ..	580	3,350	259	1,966	31,212	133	37,500
VII. Skins and Leather (Not Clothing or Footwear) ..	290	364	30	280	3,576	19	4,559
VIII. Clothing (Except Knitted) ..	2,495	2,963	26	1,437	38,587	275	45,783
IX. Food, Drink, and Tobacco ..	2,139	4,582	484	1,917	27,438	823	37,383
X. Sawmills, Joinery, Boxes, &c., Wood Turning, and Carving ..	1,093	1,600	37	676	11,535	151	15,092
XI. Furniture of Wood, Bedding, &c. ..	593	673	3	305	4,885	33	6,492
XII. Paper, Stationery, Printing, Bookbinding, &c. ..	624	3,046	147	1,010	17,920	99	22,846
XIII. Rubber ..	78	968	185	391	5,554	31	7,207
XIV. Musical Instruments ..	10	31	..	6	200	..	247
XV. Miscellaneous Products ..	253	1,309	245	678	7,359	19	9,863
Total, Classes I. to XV. ..	13,695	42,640	6,019	16,957	276,573	2,113	357,997
XVI. Heat, Light, and Power ..	9	320	133	307	4,199	14	4,982
GRAND TOTAL ..	13,704	42,960	6,152	17,264	280,772	2,127	362,979

It should be noted that while workers skilled and unskilled constitute 77 per cent. of the total numbers employed in factories, the percentage varies from 72 per cent. in Class III to 86 per cent. in Class II. Class III also has the highest percentage of managerial and clerical and research workers, 22 per cent., compared with the Victorian average of 14 per cent.

Where small factories predominate, there is usually a higher proportion of working proprietors than average and, as a working proprietor does much, or all, of the managerial and clerical work, a smaller than average managerial and clerical staff. This is particularly evident in Class V—Precious Metals and Jewellery, where working proprietors comprise 12 per cent. of the total number employed; Class X—Sawmills, Joinery, &c., with 7 per cent.; and Class XI—Furniture of Wood, Bedding, &c., with 9 per cent. The average for Victoria is 4 per cent.

The following table shows the age distribution of male and female factory employees on the last pay day in June in each of the years 1950 to 1959 :—

VICTORIA—DISTRIBUTION OF EMPLOYEES ACCORDING TO AGE  
(Excluding Working Proprietors)

Last Pay Day in June—	Males				Females			
	Under 16 Years	16 and under 21 Years	21 Years and Over	Total	Under 16 Years	16 and under 21 Years	21 Years and Over	Total
1950* .. ..	2,670	17,113	188,788	208,571	2,181	15,093	70,598	87,872
1951.. ..	2,790	16,274	198,053	217,117	2,139	14,550	75,508	92,197
1952.. ..	2,981	16,417	199,303	218,701	1,911	13,051	65,530	80,492
1953.. ..	2,972	17,890	200,533	221,395	2,432	13,546	67,056	83,034
1954.. ..	3,093	18,778	211,311	233,182	2,527	14,180	74,260	90,967
1955.. ..	2,908	19,417	220,582	242,907	2,381	14,316	76,863	93,560
1956.. ..	2,888	19,815	223,462	246,165	2,338	14,549	78,054	94,941
1957.. ..	2,966	20,446	222,402	245,814	2,480	14,571	77,282	94,333
1958.. ..	2,705	21,584	223,776	248,065	2,408	14,900	77,392	94,700
1959.. ..	2,595	22,203	229,285	254,083	2,535	15,774	79,213	97,522

\* Pay Day nearest 15th June.

VICTORIA—DISTRIBUTION OF EMPLOYEES ACCORDING TO AGE AT JUNE, 1959  
(Excluding Working Proprietors)

Age Group	Males	Females	Persons
Under 16 years .. ..	2,595	2,535	5,130
16 years .. ..	3,608	2,880	6,488
17 years .. ..	4,500	3,208	7,708
18 years .. ..	4,785	3,352	8,137
19 years .. ..	4,737	3,206	7,943
20 years .. ..	4,573	3,128	7,701
21 years and Over.. ..	229,285	79,213	308,498
Total .. ..	254,083	97,522	351,605

The numbers of males and females employed in factories, and the proportions of the mean male and female population working in factories in 1958-59 and earlier years are shown in the following table :—

VICTORIA—EMPLOYMENT OF MALES AND FEMALES IN FACTORIES

Year Ended 30th June—	Males		Females		Total	
	Number	Average per 10,000 of Male Population	Number	Average per 10,000 of Female Population	Number	Average per 10,000 of Total Population
1919 .. ..	81,357	1,188	40,992	550	122,349	855
1929 .. ..	104,648	1,195	51,920	586	156,568	889
1939 .. ..	136,218	1,470	65,613	692	201,831	1,076
1949 .. ..	208,184	1,996	83,822	781	292,006	1,380
1955 .. ..	251,675	2,012	94,973	767	346,648	1,393
1956 .. ..	258,006	1,995	97,179	764	355,185	1,385
1957 .. ..	258,119	1,937	97,085	743	355,204	1,345
1958 .. ..	259,404	1,901	97,739	728	357,143	1,319
1959 .. ..	263,847	1,888	99,132	720	362,979	1,308

The numbers of females employed in each industrial class and in certain significant sub-classes, and the percentage that such female employment bears to total class or sub-class employment, are shown in the following table :—

## VICTORIA—FEMALE EMPLOYMENT IN FACTORIES

Class of Industry	Females Employed					
	Number			Percentage of Total Employment in Each Class of Industry		
	1956-57	1957-58	1958-59	1956-57	1957-58	1958-59
I. Treatment of Non-metalliferous Mine and Quarry Products .. .. .	343	353	323	5·4	5·6	5·0
II. Bricks, Pottery, Glass, &c. .. .	539	505	553	9·5	8·9	9·5
III. Chemicals, Dyes, Explosives, Paints, Oils, Grease .. .. .	3,982	3,978	3,983	23·9	23·4	22·9
IV. Industrial Metals, Machines, Conveyances—	14,409	15,446	16,732	11·0	11·5	12·0
Plant Equipment and Machinery	2,560	2,609	2,548	10·5	10·7	10·3
Electrical Machinery, Cables, and Apparatus .. .. .	2,490	3,055	3,499	23·3	25·5	25·5
Sheet Metal Working .. .. .	1,673	1,737	2,069	20·9	20·4	20·5
Wireless and Amplifying Apparatus .. .. .	1,130	1,400	1,459	39·4	40·9	40·2
V. Precious Metals, Jewellery, Plate ..	462	408	364	17·7	16·5	16·9
VI. Textiles and Textile Goods (Not Dress)	21,162	21,289	21,314	55·8	55·9	56·8
Cotton Spinning and Weaving	1,971	1,958	2,021	51·5	50·5	51·9
Wool-Carding, Spinning, Weaving	6,439	6,430	5,916	53·6	53·3	53·8
Hosiery and Other Knitted Goods	10,372	10,483	10,790	68·1	69·7	70·6
VII. Skins and Leather (Not Clothing or Bootwear) .. .. .	1,049	1,055	1,090	22·2	22·7	23·9
VIII. Clothing (Except Knitted)	32,557	31,780	31,755	69·1	69·4	69·4
Tailoring and Ready Made Clothing .. .. .	7,224	6,914	7,280	71·1	70·7	86·1
Dressmaking, Hemstitching .. .. .	7,511	7,528	5,859	86·1	86·1	88·5
Boots and Shoes (Not Rubber)	5,743	5,721	5,769	51·6	51·6	51·4
Dyeworks and Cleaning &c. .. .	2,047	2,054	1,970	50·8	53·9	52·7
IX. Food, Drink, and Tobacco	10,351	10,329	10,395	27·6	27·7	27·8
Bakeries (Including Cakes and Pastry) .. .. .	1,310	1,287	1,458	23·0	23·5	24·1
Confectionery (Including Chocolate and Icing Sugar)	1,636	1,607	1,673	55·7	52·8	54·7
Jam, Fruit, and Vegetable Canning	1,850	1,817	1,549	44·3	43·1	40·7
Tobacco, Cigars, Snuff, Cigarettes	962	959	943	49·0	49·2	49·2
X. Sawmills, Joinery, Boxes, &c., Wood Turning and Carving .. .. .	747	759	823	5·0	5·1	5·5
XI. Furniture of Wood, Bedding, &c. ..	991	1,078	1,116	15·7	16·5	17·2
XII. Paper, Stationery, Printing, Book-binding, &c. .. .. .	5,291	5,504	5,712	24·5	24·9	25·0
XIII. Rubber .. .. .	1,360	1,409	1,469	19·9	20·3	20·4
XIV. Musical Instruments .. .. .	48	41	38	16·4	15·2	15·4
XV. Miscellaneous Products .. .. .	3,758	3,769	3,431	36·4	36·4	34·8
XVI. Heat, Light, and Power .. .. .	36	36	34	0·7	0·8	0·7
Total Classes Only .. .. .	97,085	97,739	99,132	27·3	27·4	27·3

In Class XVI—Heat, Light and Power, the percentage of females to total persons employed is at its lowest, 0·7 per cent. In Class VIII—Clothing (Except Knitted) females predominate and comprise 69 per cent. of the total number of persons employed. Within Class VIII, in the Dressmaking sub-class, nine out of every ten persons engaged are females. In Class IV—Industrial Metals, Machines, and Conveyances, females constitute 12 per cent. of the persons employed. In 1938-39 only 6 per cent. of the persons employed in Class IV were females.

*Child Labour in Factories*

The Labour and Industry Act of Victoria which supervises the operation of factories within the State debars the employment of female children under the age of fifteen years unless special permission is granted by the Chief Inspector of Factories on the grounds of poverty or hardship.

The Victorian Education Act makes daily attendance at school compulsory between the ages of six and fourteen years.

These provisos contribute to the very low incidence of child labour in this State.

**Salaries, Wages, and Other Costs**

*Salaries and Wages*

The next table gives comprehensive information regarding salaries and wages paid in the various classes of industry in Victoria in 1958-59. Amounts paid to managers, clerical staff, chemists, and draughtsmen, &c., are shown separately from those paid to foremen, overseers, workers in the factory, &c. There is also a dissection within these categories of the amounts paid to male and female employees.

It should be noted that in all tables of salaries and wages paid the amounts drawn by working proprietors are excluded.

VICTORIA—SALARIES AND WAGES PAID IN FACTORIES,  
1958-59

(Excludes Drawings of Working Proprietors)

(£'000)

Class of Industry	Managers, Clerical Staff, Chemists, Draftsmen, &c.		All Other Employees		Total		
	Males	Females	Males	Females	Males	Females	Persons
I. Treatment of Non-metalliferous Mine and Quarry Products ..	849	145	5,471	57	6,320	202	6,522
II. Bricks, Pottery, Glass, &c. ..	543	84	4,858	211	5,401	295	5,696
III. Chemicals, Dyes, Explosives, Paints, Oils, Grease ..	4,133	787	11,449	1,711	15,582	2,498	18,080
IV. Industrial Metals, Machines, Conveyances ..	22,637	4,318	100,434	5,825	123,071	10,143	133,214
V. Precious Metals, Jewellery, Plate ..	210	59	1,392	154	1,602	213	1,815
VI. Textiles and Textile Goods (Not Dress) ..	2,835	1,220	13,929	11,414	16,764	12,634	29,398
VII. Skins and Leather (Not Clothing or Footwear) ..	448	78	2,845	525	3,293	603	3,896
VIII. Clothing (Except Knitted) ..	2,282	1,174	9,894	17,305	12,176	18,479	30,655
IX. Food, Drink, and Tobacco ..	4,374	1,321	22,088	4,762	26,462	6,083	32,545
X. Sawmills, Joinery, Boxes, &c., Wood Turning and Carving ..	1,537	318	10,956	133	12,493	451	12,944
XI. Furniture of Wood, Bedding, &c. ..	584	189	4,009	443	4,593	632	5,225
XII. Paper, Stationery, Printing, Bookbinding, &c. ..	3,061	839	16,142	2,584	19,203	3,423	22,626

VICTORIA—SALARIES AND WAGES PAID IN FACTORIES  
1958-59—*continued*  
(Excludes Drawings of Working Proprietors)  
(£'000)

Class of Industry	Managers, Clerical Staff, Chemists, Draftsmen, &c.		All Other Employees		Total		
	Males	Females	Males	Females	Males	Females	Persons
XIII. Rubber .. .. .	1,035	244	5,267	708	6,302	952	7,254
XIV. Musical Instruments ..	21	6	177	16	198	22	220
XV. Miscellaneous Products ..	1,438	394	5,096	1,671	6,534	2,065	8,599
Total, Classes I. to XV.	45,987	11,176	214,007	47,519	259,994	58,695	318,689
XVI. Heat, Light, and Power ..	600	14	5,021	12	5,621	26	5,647
GRAND TOTAL .. .. .	46,587	11,190	219,028	47,531	265,615	58,721	324,336

Of the total amount of salaries and wages paid in Victoria in 1958-59—£324,336,000—the Industrial Metals, &c., group was responsible for £133,214,000 or 41 per cent., Food, Drink, &c., contributed £32,545,000 or 10 per cent., and Clothing, &c., £30,655,000 or 9 per cent.

The total amount of salaries and wages paid in industry in Victoria in each of the years 1949-50 to 1958-59 is shown below under similar headings to those in the preceding table. Additional information is given for the average amount of salaries paid to each employee.

VICTORIA—SALARIES AND WAGES PAID IN FACTORIES  
(Excludes Drawings by Working Proprietors)

Year	Salaries and Wages Paid to—				Total Salaries and Wages Paid to—		
	Managers, Clerical Staff, Chemists, Draftsmen, &c.		All Other Employees				
	Males	Females	Males	Females	Males	Females	Persons
<b>TOTAL AMOUNT PAID</b> (£'000)							
1949-50 .. .. .	14,806	3,600	90,329	21,520	105,135	25,120	130,255
1950-51 .. .. .	18,505	4,559	112,418	27,725	130,923	32,284	163,207
1951-52 .. .. .	23,286	5,833	140,402	33,065	163,688	38,898	202,586
1952-53 .. .. .	25,725	6,343	146,172	32,638	171,897	38,981	210,878
1953-54 .. .. .	27,875	6,877	162,698	38,586	190,573	45,463	236,036
1954-55 .. .. .	31,735	7,836	181,642	41,537	213,377	49,373	262,750
1955-56 .. .. .	37,312	8,946	197,472	43,214	234,784	52,160	286,944
1956-57 .. .. .	40,159	9,963	201,428	45,058	241,587	55,021	296,608
1957-58 .. .. .	43,363	10,347	209,979	46,851	253,342	57,198	310,540
1958-59 .. .. .	46,587	11,190	219,028	47,531	265,615	58,721	324,336
<b>AVERAGE PER EMPLOYEE</b> (£)							
1949-50 .. .. .	694	311	490	288	511	291	466
1950-51 .. .. .	817	374	586	353	610	356	535
1951-52 .. .. .	962	461	709	433	737	437	651
1952-53 .. .. .	1,052	513	760	478	793	483	679
1953-54 .. .. .	1,108	532	800	507	834	511	713
1954-55 .. .. .	1,178	563	855	524	891	530	790
1955-56 .. .. .	1,292	570	910	538	955	547	841
1956-57 .. .. .	1,326	640	934	566	982	578	869
1957-58 .. .. .	1,405	654	969	586	1,023	598	905
1958-59 .. .. .	1,439	668	996	593	1,053	606	929

*Power, Fuel, and Light Used*

The following table shows the cost of power, fuel, and light used during the five years 1954-55 to 1958-59 :—

**VICTORIA—COST OF POWER, FUEL, AND LIGHT USED IN FACTORIES**

(£'000)

Class of Industry	1954-55	1955-56	1956-57	1957-58	1958-59
I. Treatment of Non-metalliferous Mine and Quarry Products .. .. .	1,551	1,785	1,991	2,028	2,236
II. Bricks, Pottery, Glass, &c. .. .. .	1,903	1,997	1,961	1,974	2,043
III. Chemicals, Dyes, Explosives, Paints, Oils, Grease .. .. .	2,772	3,530	6,196	6,355	6,384
IV. Industrial Metals, Machines, Conveyances .. .. .	4,829	5,525	6,212	6,963	7,742
V. Precious Metals, Jewellery, Plate .. .. .	108	112	136	142	143
VI. Textiles and Textile Goods (Not Dress) .. .. .	1,789	1,848	2,158	2,367	2,424
VII. Skins and Leather (Not Clothing or Footwear) .. .. .	403	411	469	469	495
VIII. Clothing (Except Knitted) .. .. .	729	786	933	905	967
IX. Food, Drink, and Tobacco .. .. .	4,834	5,208	5,651	5,747	5,951
X. Sawmills, Joinery, Boxes, &c., Wood Turning and Carving .. .. .	564	607	649	663	782
XI. Furniture of Wood; Bedding, &c. .. .. .	84	93	111	121	133
XII. Paper, Stationery, Printing, Bookbinding, &c. .. .. .	1,388	1,502	1,705	1,792	1,927
XIII. Rubber .. .. .	834	888	983	1,088	1,166
XIV. Musical Instruments .. .. .	13	12	13	11	11
XV. Miscellaneous Products .. .. .	372	421	506	568	606
Total Classes I. to XV. .. .. .	22,173	24,725	29,674	31,193	33,010
XVI. Heat, Light, and Power .. .. .	9,595	9,873	10,707	11,569	10,368
GRAND TOTAL .. .. .	31,768	34,598	40,381	42,762	43,378

The next table gives in detail for each of the years 1954-55 to 1958-59 information relating to the cost of each type of fuel used. The cost of water and lubricating oil is also included.

**VICTORIA—COST OF ITEMS OF POWER, FUEL, AND LIGHT USED IN FACTORIES**

(£'000)

Commodity	1954-55	1955-56	1956-57	1957-58	1958-59
Coal—					
Black .. .. .	3,674	2,713	2,738	2,834	3,009
Brown .. .. .	6,301	7,025	7,540	7,882	7,582
Brown Coal Briquettes .. .. .	2,285	2,347	1,696	1,737	1,464
Coke .. .. .	918	1,137	1,121	1,012	842
Wood .. .. .	731	680	637	563	560
Fuel Oil .. .. .	6,575	7,704	11,616	12,201	11,272
Tar (Fuel) .. .. .	318	238	257	255	164
Electricity .. .. .	7,982	9,122	10,841	11,970	13,910
Gas .. .. .	804	911	986	1,082	1,120
Other (Charcoal, &c.) .. .. .	415	789	833	878	1,061
Water .. .. .	1,051	1,172	1,314	1,485	1,543
Lubricating Oils .. .. .	714	760	802	863	851
Total .. .. .	31,768	34,598	40,381	42,762	43,378

Over the five years shown in the above table the cost of fuel oil, electricity, and gas respectively showed the largest proportionate increases in that order. In 1958-59, electricity, fuel oil, and brown coal represented 32, 26, and 17 per cent. respectively of the total cost of power, fuel, and light.

Particulars of the quantities of the various fuels used in factories over the five year period 1954-55 to 1958-59 are given below :—

VICTORIA—QUANTITIES OF FUEL USED IN FACTORIES

Commodity	Unit of Quantity	1954-55	1955-56	1956-57	1957-58	1958-59
Coal—						
Black .. ..	'000 tons ..	536	411	408	453	483
Brown .. ..	'000 tons ..	7,829	8,551	9,058	9,127	10,576
Brown Coal						
Briquettes ..	'000 tons ..	514	487	347	357	305
Coke .. ..	'000 tons ..	98	142	131	111	86
Wood .. ..	'000 tons ..	436	377	324	266	275
Fuel Oil .. ..	'000 gallons	105,235	132,901	212,291	222,813	204,068
Tar Fuel.. ..	'000 gallons	6,288	4,893	4,985	4,550	2,996

Cost of Materials Used

The cost of materials used in factories is shown by classes for the last five years in the next table. "Materials Used" includes the value of containers, &c., the cost of tools replaced, and repairs to plant.

VICTORIA—COST OF MATERIALS USED IN FACTORIES\*  
(£'000)

Class of Industry	1954-55	1955-56	1956-57	1957-58	1958-59
I. Treatment of Non-metalliferous Mine and Quarry Products .. ..	9,829	10,984	11,639	12,370	13,800
II. Bricks, Pottery, Glass, &c. ..	4,376	5,216	5,054	5,102	5,254
III. Chemicals, Dyes, Explosives, Paints, Oils, Grease .. ..	63,291	77,018	90,825	98,261	100,164
IV. Industrial Metals, Machines, Conveyances .. ..	160,792	182,134	175,401	202,772	213,429
V. Precious Metals, Jewellery, Plate..	2,717	2,660	3,156	2,871	1,984
VI. Textiles and Textile Goods (Not Dress) .. ..	58,862	61,582	71,068	77,985	67,531
VII. Skins and Leather (Not Clothing or Footwear) .. ..	12,399	11,092	12,570	11,129	10,649
VIII. Clothing (Except Knitted) .. ..	45,980	47,467	47,648	48,160	49,765
IX. Food, Drink, and Tobacco .. ..	157,859	165,265	174,978	183,714	182,920
X. Sawmills, Joinery, Boxes, &c., Wood Turning and Carving .. ..	23,243	24,671	24,513	26,946	27,430
XI. Furniture of Wood, Bedding, &c. ..	8,047	8,634	8,974	10,123	10,133
XII. Paper, Stationery, Printing, Book-binding, &c. .. ..	35,155	38,803	42,933	46,425	51,225
XIII. Rubber .. ..	14,499	17,457	15,455	17,415	17,876
XIV. Musical Instruments .. ..	261	262	305	251	226
XV. Miscellaneous Products .. ..	13,066	15,378	16,815	18,556	19,930
Total, Classes I. to XV. .. ..	610,376	668,623	701,334	762,080	772,316
XVI. Heat, Light, and Power .. ..	6,290	6,223	6,395	6,379	6,400
GRAND TOTAL .. ..	616,666	674,846	707,729	768,459	778,716

\* Includes containers, packing, &c., tools replaced, and repairs to plant.

## Value of Output and Production

Value of factory output by classes of industry in each of the years 1954-55 to 1958-59 is shown in the following table :—

VICTORIA—VALUE OF FACTORY OUTPUT  
(£'000)

Class of Industry	1954-55	1955-56	1956-57	1957-58	1958-59
I. Treatment of Non-metalliferous Mine and Quarry Products .. ..	20,682	23,176	24,734	26,220	29,341
II. Bricks, Pottery, Glass, &c. ..	13,401	15,075	14,750	15,844	16,946
III. Chemicals, Dyes, Explosives, Paints, Oils, Grease .. ..	99,129	120,507	144,750	153,180	161,712
IV. Industrial Metals, Machines, Conveyances .. ..	322,848	361,813	361,874	408,199	435,371
V. Precious Metals, Jewellery, Plate ..	5,994	6,148	6,314	6,436	5,290
VI. Textiles and Textile Goods (Not Dress) .. ..	104,575	108,719	123,493	130,872	123,508
VII. Skins and Leather (Not Clothing or Footwear) .. ..	19,390	17,942	19,007	17,607	17,344
VIII. Clothing (Except Knitted) .. ..	89,933	93,070	95,936	97,411	100,813
IX. Food, Drink, and Tobacco .. ..	219,943	230,694	245,863	260,893	259,773
X. Sawmills, Joinery, Boxes, &c., Wood Turning and Carving .. ..	42,750	45,143	45,216	49,640	50,860
XI. Furniture of Wood, Bedding, &c. ..	15,237	16,648	17,224	19,308	19,837
XII. Paper, Stationery, Printing, Book-binding, &c. .. ..	67,830	72,606	80,931	90,058	99,012
XIII. Rubber .. ..	25,282	29,771	29,035	31,959	34,582
XIV. Musical Instruments .. ..	578	651	651	699	596
XV. Miscellaneous Products .. ..	25,319	29,132	32,643	35,107	37,440
Total, Classes I. to XV. .. ..	1,072,891	1,171,095	1,242,421	1,343,433	1,392,425
XVI. Heat, Light, and Power .. ..	27,765	30,297	33,720	34,264	38,616
GRAND TOTAL .. ..	1,100,656	1,201,392	1,276,141	1,377,697	1,431,041

In the next table the value of production in Victoria is given according to the various classes of industry for each of the last five years :—

VICTORIA—VALUE OF PRODUCTION OF FACTORIES  
(£'000)

Class of Industry	1954-55	1955-56	1956-57	1957-58	1958-59
I. Treatment of Non-metalliferous Mine and Quarry Products .. ..	9,302	10,407	11,104	11,822	13,305
II. Bricks, Pottery, Glass, &c. ..	7,122	7,862	7,735	8,768	9,649
III. Chemicals, Dyes, Explosives, Paints, Oils, Grease .. ..	33,067	39,959	47,729	48,563	55,164
IV. Industrial Metals, Machines, Conveyances .. ..	157,227	174,154	180,261	198,464	214,200
V. Precious Metals, Jewellery, Plate ..	3,169	3,376	3,022	3,423	3,163
VI. Textiles and Textile Goods (Not Dress) .. ..	43,924	45,289	50,267	50,520	53,553
VII. Skins and Leather (Not Clothing or Footwear) .. ..	6,588	6,439	5,968	6,009	6,200
VIII. Clothing (Except Knitted) .. ..	43,224	44,817	47,355	48,347	50,081
IX. Food, Drink, and Tobacco .. ..	57,250	60,221	65,234	71,433	70,902
X. Sawmills, Joinery, Boxes, &c., Wood Turning and Carving .. ..	18,943	19,865	20,054	22,031	22,648
XI. Furniture of Wood, Bedding, &c. ..	7,106	7,921	8,139	9,063	9,571
XII. Paper, Stationery, Printing, Book-binding, &c. .. ..	31,287	32,301	36,293	41,841	45,860
XIII. Rubber .. ..	9,949	11,426	12,597	13,457	15,540
XIV. Musical Instruments .. ..	304	377	333	437	359
XV. Miscellaneous Products .. ..	11,881	13,333	15,322	15,983	16,904
Total, Classes I. to XV. .. ..	440,343	477,747	511,413	550,161	587,099
XVI. Heat, Light, and Power .. ..	11,880	14,201	16,618	16,315	21,848
GRAND TOTAL .. ..	452,223	491,948	528,031	566,476	608,947

Value of production—the value added to raw materials by the process of manufacture—and not the value of output, is used in measuring the relative importance of various industries or the value of the manufacturing industries as a whole. A definition of “value of production” will be found on page 538.

### Relation of Costs to Output and Production

Certain costs of production, the value of output, and the balance available for profit, interest, rent, taxation, and depreciation, &c., in each class of manufacturing industry during the year 1958–59 are given in the following tables :—

#### VICTORIA—FACTORY COSTS AND OUTPUT, 1958–59 (£'000)

Class of Industry	Costs of—			Balance between Value of Output and Specified Costs‡	Value of Output
	Materials Used*	Fuel, Light, and Power Used†	Salaries and Wages Paid		
I. Treatment of Non-metalliferous Mine and Quarry Products .. .. .	13,800	2,236	6,522	6,783	29,341
II. Bricks, Pottery, Glass, &c. ..	5,254	2,043	5,696	3,953	16,946
III. Chemicals, Dyes, Explosives, Paints, Oils, Grease .. .. .	100,164	6,384	18,080	37,084	161,712
IV. Industrial Metals, Machines, Conveyances .. .. .	213,429	7,742	133,214	80,986	435,371
V. Precious Metals, Jewellery, Plate ..	1,984	143	1,815	1,348	5,290
VI. Textile and Textile Goods (Not Dress)	67,531	2,424	29,398	24,155	123,508
VII. Skins and Leather (Not Clothing or Footwear) .. .. .	10,649	495	3,896	2,304	17,344
VIII. Clothing (Except Knitted) ..	49,765	967	30,655	19,426	100,813
IX. Food, Drink, and Tobacco ..	182,920	5,951	32,545	38,357	259,773
X. Sawmills, Joinery, Boxes, &c., Wood Turning and Carving .. .. .	27,430	782	12,944	9,704	50,860
XI. Furniture of Wood, Bedding, &c.	10,133	133	5,225	4,346	19,837
XII. Paper, Stationery, Printing, Book-binding, &c. .. .. .	51,225	1,927	22,626	23,234	99,012
XIII. Rubber .. .. .	17,876	1,166	7,254	8,286	34,582
XIV. Musical Instruments .. .. .	226	11	220	139	596
XV. Miscellaneous Products .. .. .	19,930	606	8,599	8,305	37,440
TOTAL, Classes I. to XV. .. .. .	772,316	33,010	318,689	268,410	1,392,425
XVI. Heat, Light, and Power .. .. .	6,400	10,368	5,647	16,201	38,616
GRAND TOTAL .. .. .	778,716	43,378	324,336	284,611	1,431,041

\* Includes containers, tools replaced, and material used in repairs to plant.

† Includes cost of lubricants and of water.

‡ Balance available to provide for all other costs and overhead expenses such as rent, interest, insurance, pay-roll tax, income tax, depreciation, &c., as well as drawings by working proprietors and profit.

VICTORIA—PROPORTIONATE VALUE OF COSTS, ETC., TO PRODUCTION IN FACTORIES, 1958-59

(Per Cent.)

Class of Industry	Proportion of Costs, &c., to Total Value of Output				
	Materials Used*	Fuel, Light, and Power Used†	Salaries and Wages Paid	Balance between Value of Output and Specified Costs‡	Total
I. Treatment of Non-metalliferous Mine and Quarry Products ..	47·1	7·6	22·2	23·1	100·0
II. Bricks, Pottery, Glass, &c. ..	31·0	12·1	33·6	23·3	100·0
III. Chemicals, Dyes, Explosives, Paints, Oils, Grease ..	61·9	4·0	11·2	22·9	100·0
IV. Industrial Metals, Machines, Conveyances ..	49·0	1·8	30·6	18·6	100·0
V. Precious Metals, Jewellery, Plate ..	37·5	2·7	34·3	25·5	100·0
VI. Textiles and Textile Goods (Not Dress) ..	54·7	2·0	23·8	19·5	100·0
VII. Skins and Leather (Not Clothing or Footwear) ..	61·4	2·8	22·5	13·3	100·0
VIII. Clothing (Except Knitted) ..	49·4	0·9	30·4	19·3	100·0
IX. Food, Drink, and Tobacco ..	70·4	2·3	12·5	14·8	100·0
X. Sawmills, Joinery, Boxes, &c., Wood Turning and Carving ..	53·9	1·5	25·5	19·1	100·0
XI. Furniture of Wood, Bedding, &c. ..	51·1	0·7	26·3	21·9	100·0
XII. Paper, Stationery, Printing, Book-binding, &c. ..	51·7	1·9	22·9	23·5	100·0
XIII. Rubber ..	51·7	3·4	21·0	23·9	100·0
XIV. Musical Instruments ..	37·9	1·9	36·9	23·3	100·0
XV. Miscellaneous Products ..	53·2	1·6	23·0	22·2	100·0
TOTAL, Classes I. to XV. ..	55·4	2·4	22·9	19·3	100·0
XVI. Heat, Light, and Power ..	16·6	26·8	14·6	42·0	100·0
GRAND TOTAL ..	54·4	3·0	22·7	19·9	100·0

For Footnotes see page 554.

There are considerable variations in the proportions which the cost of materials and the expenditure on wages bear to the value of the output in the different classes of industries. These are, of course, due to the difference in the treatment required to convert the materials to their final form. Thus, in Class II, the sum paid in wages represents 33·6 per cent. and the cost of raw materials 31 per cent. of the values of the finished articles, whilst, in Class IX, the expenditure on wages amounts to 12·5 per cent. and that on raw materials to 70·4 per cent. of the value of the output.

In the next table specified costs of production, the value of the output of factories, and the balance available for profit and miscellaneous expenses are compared for each of the years 1949–50 to 1958–59 :—

VICTORIA—SPECIFIED COSTS OF PRODUCTION, ETC., AND VALUE OF OUTPUT OF FACTORIES

(£'000)

Year Ended 30th June—	Specified Costs of Production			Balance between Value of Output and Specified Costs‡	Total Value of Output
	Materials Used*	Fuel, Light, and Power Used†	Salaries and Wages		
1950.. ..	293,527	13,694	130,255	88,990	526,466
1951.. ..	382,002	17,371	163,207	112,453	675,033
1952.. ..	477,617	21,990	202,586	131,774	833,967
1953.. ..	476,487	25,626	210,878	147,155	860,146
1954.. ..	548,111	29,080	236,036	172,278	985,505
1955.. ..	616,665	31,768	262,750	189,473	1,100,656
1956.. ..	674,846	34,598	286,944	205,004	1,201,392
1957.. ..	707,729	40,381	296,608	231,423	1,276,141
1958.. ..	768,459	42,762	310,540	255,936	1,377,697
1959.. ..	778,716	43,378	324,336	284,611	1,431,041

For Footnotes see page 554.

In the following table these figures are converted to their respective percentages of the value of output :—

VICTORIA—PERCENTAGE OF SPECIFIED COSTS OF PRODUCTION, ETC., TO VALUE OF OUTPUT OF FACTORIES

(Per Cent.)

Year Ended 30th June—	Materials Used*	Fuel, Light, and Power Used†	Salaries and Wages	Balance between Value of Output and Specified Costs‡	Total
1950.. ..	55·8	2·6	24·7	16·9	100·0
1951.. ..	56·6	2·6	24·2	16·6	100·0
1952.. ..	57·3	2·6	24·3	15·8	100·0
1953.. ..	55·4	3·0	24·5	17·1	100·0
1954.. ..	55·6	2·9	24·0	17·5	100·0
1955.. ..	56·0	2·9	23·9	17·2	100·0
1956.. ..	56·2	2·9	23·9	17·0	100·0
1957.. ..	55·5	3·2	23·2	18·1	100·0
1958.. ..	55·8	3·1	22·5	18·6	100·0
1959.. ..	54·4	3·0	22·7	19·9	100·0

For Footnotes see page 554.

### Land, Buildings, Plant, and Machinery

The following statement shows the value of land and buildings used in connexion with the various classes of manufacturing industries for the years 1954-55 to 1955-59 :—

#### VICTORIA—FACTORIES : VALUE OF LAND AND BUILDINGS (£'000)

Class of Industry	1954-55	1955-56	1956-57	1957-58	1958-59
I. Treatment of Non-metalliferous Mine and Quarry Products ..	2,696	3,309	3,937	4,365	5,212
II. Bricks, Pottery, Glass, &c. ..	2,295	2,624	3,401	3,603	4,051
III. Chemicals, Dyes, Explosives, Paints, Oils, Grease .. ..	16,973	21,737	24,964	28,851	29,873
IV. Industrial Metals, Machines, Conveyances .. ..	60,417	70,716	85,848	95,603	106,642
V. Precious Metals, Jewellery, Plate ..	1,384	1,538	1,704	1,721	1,581
VI. Textiles and Textile Goods (Not Dress) .. ..	16,845	18,079	20,803	22,475	26,671
VII. Skins and Leather (Not Clothing or Footwear) .. ..	2,643	2,468	2,859	2,806	3,001
VIII. Clothing (Except Knitted) ..	11,779	13,239	15,329	16,516	18,609
IX. Food, Drink, and Tobacco ..	29,951	35,345	39,343	43,318	46,878
X. Sawmills, Joinery, Boxes, &c., Wood Turning and Carving .. ..	5,546	6,154	6,976	7,590	8,379
XI. Furniture of Wood, Bedding, &c.	2,954	3,367	3,709	4,490	4,818
XII. Paper, Stationery, Printing, Book-binding, &c. .. ..	12,822	14,462	15,578	17,362	19,696
XIII. Rubber.. ..	2,857	3,570	3,927	4,680	4,979
XIV. Musical Instruments .. ..	134	166	150	183	229
XV. Miscellaneous Products .. ..	3,993	4,644	5,372	5,851	6,378
Total, Classes I. to XV. ..	173,289	201,418	233,900	259,414	286,997
XVI. Heat, Light, and Power .. ..	13,035	13,503	18,124	20,793	26,233
GRAND TOTAL .. ..	186,324	214,921	252,024	280,207	313,230

The values recorded in the above table and in the table which follows are generally the values shown in the books of the individual firms after allowance has been made for depreciation, but they include estimates of the capital value of premises and plant rented. The totals shown in the tables consequently do not represent the actual amount of capital invested in industry.

Where land and buildings, &c., and plant and machinery, &c., are rented by the occupiers of factories, their capital value has been computed by capitalizing the rent paid at fifteen years' and ten years' purchase respectively.

In the following table the depreciated book values of machinery and plant used in the various classes of manufacturing industries is shown for each of the years 1954-55 to 1958-59 :—

**VICTORIA—FACTORIES : VALUE OF PLANT AND MACHINERY**  
(£'000)

Class of Industry	1954-55	1955-56	1956-57	1957-58	1958-59
I. Treatment of Non-metalliferous Mine and Quarry Products .. ..	3,533	4,586	6,174	6,569	8,315
II. Bricks, Pottery, Glass, &c. ..	2,483	2,854	3,054	3,005	3,286
III. Chemicals, Dyes, Explosives, Paints, Oils, Grease .. ..	37,325	46,930	48,540	51,435	58,002
IV. Industrial Metals, Machines, Conveyances .. ..	44,967	53,270	62,505	69,561	83,490
V. Precious Metals, Jewellery, Plate ..	510	544	625	588	540
VI. Textiles and Textile Goods (Not Dress) .. ..	17,079	17,951	17,948	19,420	21,696
VII. Skins and Leather (Not Clothing or Footwear) .. ..	1,474	1,469	1,479	1,407	1,490
VIII. Clothing (Except Knitted) .. ..	5,705	6,165	7,234	6,850	7,501
IX. Food, Drink, and Tobacco .. ..	27,270	32,253	35,587	38,525	39,848
X. Sawmills, Joinery, Boxes, &c., Wood Turning and Carving .. ..	4,786	5,228	5,401	5,237	6,684
XI. Furniture of Wood, Bedding, &c. ..	1,010	1,056	1,129	1,189	1,271
XII. Paper, Stationery, Printing, Book-binding, &c. .. ..	18,977	20,581	21,124	20,925	22,064
XIII. Rubber .. ..	3,040	4,846	4,202	4,603	4,529
XIV. Musical Instruments .. ..	81	89	114	106	72
XV. Miscellaneous Products .. ..	3,492	4,045	4,510	5,246	5,064
Total, Classes I. to XV. .. ..	171,732	201,867	219,626	234,666	263,852
XVI. Heat, Light, and Power .. ..	54,615	56,428	71,159	76,213	83,577
GRAND TOTAL .. ..	226,347	258,295	290,785	310,879	347,429

Motive power classified in the tables which follow relates to the "rated horse-power" of engines used. Engines in reserve or idle are the subject of a separate table, but obsolete engines are completely excluded from any information shown.

**VICTORIA—TOTAL RATED HORSE-POWER OF ENGINES AND ELECTRIC MOTORS ORDINARILY IN USE IN FACTORIES\*, 1958-59**

Class of Industry	Steam		Internal Combustion			Water	Motors Driven by Electricity		Total without Duplication
	Reci-procating	Tur-bine	Gas	Petrol or Other Light Oils	Heavy Oils		Pur-chased	Own Generation	
I. Treatment of Non-metalliferous Mine and Quarry Products .. ..	1,290	23,400	..	594	142	20	28,240	12,651	53,686
II. Bricks, Pottery, Glass, &c. .. ..	1,045	..	..	174	70	..	34,426	10	35,715
III. Chemicals, Dyes, Explosives, Paints, Oils, Grease .. ..	1,810	20,074	1,920	787	..	50	121,220	9,480	145,861
IV. Industrial Metals, Machines, Conveyances .. ..	1,311	12	39	5,639	797	..	436,043	1,647	443,841
V. Precious Metals, Jewellery, Plate .. ..	30	..	..	..	..	..	4,208	..	4,238
VI. Textiles and Textile Goods (Not Dress) .. ..	291	30	..	601	578	9	105,466	77	106,975

VICTORIA—TOTAL RATED HORSE-POWER OF ENGINES AND ELECTRIC MOTORS ORDINARILY IN USE IN FACTORIES\*, 1958-59—continued

Class of Industry	Steam		Internal Combustion			Water	Motors Driven by Electricity		Total without Duplication
	Reciprocating	Turbine	Gas	Petrol or Other Light Oils	Heavy Oils		Purchased	Own Generation	
VII. Skins and Leather (Not Clothing or Footwear) ..	825	105	..	233	12	..	17,402	981	18,577
VIII. Clothing (Except Knitted) ..	228	20	11	235	271	..	29,305	6	30,070
IX. Food, Drink, and Tobacco ..	4,601	2,588	489	2,536	2,934	830	194,366	5,029	208,344
X. Sawmills, Joinery, Boxes, &c., Wood Turning and Carving	5,701	231	376	18,950	4,311	10	95,438	1,580	125,017
XI. Furniture of Wood, Bedding, &c. ..	..	..	..	170	29	..	15,942	..	16,141
XII. Paper, Stationery, Printing, Book-binding, &c. ..	850	23,500	..	33	283	..	68,021	22,269	92,687
XIII. Rubber ..	255	162	..	122	200	..	62,533	..	63,272
XIV. Musical Instruments ..	..	..	..	..	..	..	312	..	312
XV. Miscellaneous Products	225	..	..	507	..	..	26,673	..	27,405
Total, Classes I. to XV. ..	18,462	70,122	2,835	30,581	9,627	919	1,239,595	53,730	1,372,141
XVI. Gas Works ..	2,870	1,272	22	1,096	..	..	11,708	80	16,968
GRAND TOTAL	21,332	71,394	2,857	31,677	9,627	919	1,251,303	53,810	1,389,109

\* Includes gas works, but excludes central electric stations.

The total rated horse-power in reserve or idle during 1958-59 and not included above was 200,532.

Motors driven by purchased electricity comprised approximately 87 per cent. of the total horse-power used in factories other than central electric stations in 1958-59, while steam turbines were next in demand with 5 per cent.

A comparison over the ten year period 1949-50 to 1958-59 of the total rated horse-power used to drive engines and electric motors ordinarily in use in factories is given in the table which follows:—

VICTORIA—TOTAL RATED HORSE-POWER OF ENGINES AND ELECTRIC MOTORS ORDINARILY IN USE IN FACTORIES\*

Year	Steam		Internal Combustion			Water	Motors Driven by Electricity		Total without Duplication
	Reciprocating	Turbine	Gas	Petrol or Other Light Oils	Heavy Oils		Purchased	Own Generation	
1949-50 ..	23,974	36,414	1,954	10,858	14,134	1,175	774,566	34,493	863,075
1950-51 ..	23,210	39,442	1,959	13,661	17,096	1,508	835,755	34,541	932,631
1951-52 ..	24,929	41,149	1,642	17,544	20,922	1,261	891,480	39,184	998,927
1952-53 ..	23,626	41,224	1,616	18,807	22,318	1,269	933,703	38,616	1,042,563
1953-54 ..	24,516	42,467	1,680	23,950	19,629	1,317	976,138	75,070	1,089,697
1954-55 ..	23,983	49,397	2,084	24,849	17,985	1,241	1,045,472	46,739	1,165,011
1955-56 ..	24,757	57,185	1,864	27,650	18,428	1,288	1,122,883	54,145	1,254,055
1956-57 ..	22,905	67,270	1,764	27,750	14,330	1,079	1,190,000	60,433	1,325,098
1957-58 ..	21,749	60,317	3,508	30,453	12,721	1,118	1,195,521	67,246	1,325,387
1958-59 ..	21,332	71,394	2,857	31,677	9,627	919	1,251,303	53,810	1,389,109

\* Includes gas works, but excludes central electric stations.

The following table shows the total rated horse-power for each year from 1949-50 to 1958-59 for engines and electric motors in reserve or idle. It includes engines which are used only occasionally, or during periods of breakdown to own engines or power supply.

VICTORIA—TOTAL RATED HORSE-POWER OF ENGINES AND ELECTRIC MOTORS IN RESERVE OR IDLE IN FACTORIES\*

Year	Rated Horse-power of Engines, &c., in Reserve or Idle			Year	Rated Horse-power of Engines, &c., in Reserve or Idle		
	Purchased Electricity	All Other Types	Total		Purchased Electricity	All Other Types	Total
1949-50	66,023	47,071	113,094	1954-55	96,493	67,787	164,280
1950-51	73,667	46,220	119,887	1955-56	98,660	59,227	157,887
1951-52	84,760	57,480	142,240	1956-57	111,049	63,011	174,060
1952-53	86,488	62,723	149,211	1957-58	117,976	72,190	190,166
1953-54	90,317	64,998	155,315	1958-59	123,644	76,888	200,532

\* Includes gas works, but excludes central electric stations.

Particulars of the type and capacity of engines and generators installed in central electric stations in Victoria during 1958-59 are given in the following table :—

VICTORIA—POWER EQUIPMENT INSTALLED IN CENTRAL ELECTRIC STATIONS, 1958-59

Particulars	H.P.	Capacity of Engines and Generators					Total
		Steam Turbine	Internal Combustion			Water	
			Gas	Petrol or Other Light Oils	Heavy Oils		
Engines Installed	1,403,929	4,016	1,306	55,616	321,950	1,786,817	
Generators Installed—							
Kilowatt Capacity—							
Total Installed .. kW.	1,030,325	2,660	846	39,405	236,515	1,309,751	
Effective Capacity .. kW.	1,015,400	2,515	837	37,036	221,000	1,276,788	
Horse-power Equivalent—							
Total Installed .. H.P.	1,380,635	3,564	1,134	52,803	316,930	1,755,066	
Effective Capacity .. H.P.	1,360,636	3,370	1,122	49,628	296,140	1,710,896	

The number of establishments classified as central electric stations in 1958-59 was 44.

Similar information to that shown in the preceding table, but giving a comparison over the years 1954-55 to 1958-59 is shown below :—

VICTORIA—POWER EQUIPMENT INSTALLED IN CENTRAL ELECTRIC STATIONS

Particulars		1954-55	1955-56	1956-57	1957-58	1958-59
Central Electric Stations ..	No.	62	57	53	51	44
Engines Installed ..	Rated H.P.	1,319,327	1,332,095	1,568,721	1,565,409	1,786,817
Generators Installed—						
Kilowatt Capacity—						
Total Installed ..	kW.	944,032	988,712	1,163,030	1,160,196	1,309,751
Effective Capacity ..	kW.	921,958	966,218	1,093,568	1,087,053	1,276,788
Horse-power Equivalent—						
Total Installed ..	H.P.	1,265,003	1,324,874	1,558,460	1,554,663	1,755,066
Effective Capacity ..	H.P.	1,235,424	1,294,732	1,465,381	1,456,651	1,710,896

## Principal Factory Products

## Annual Quantity and Value

The next table lists the principal articles of manufacture in Victoria during 1958-59, irrespective of the sub-class of industry in which production took place. Due to the limited number of producers it is not permissible under statute to publish particulars regarding some articles of manufacture which would otherwise appear below.

VICTORIA—PRINCIPAL ARTICLES MANUFACTURED,  
1958-59

Article	Unit of Quantity	Quantity	Value £'000
Acid—Sulphuric .. .. .	ton	308,516	*
Aerated and Carbonated Waters	'000 gal.	18,004	4,555
Beer† (Excluding Waste) ..	'000 gal.	70,265	*
Biscuits .. .. .	'000 lb.	51,440	5,076
Blankets .. .. .	pair	449,538	2,670
Bolts and Nuts .. .. .	..	..	2,854
Paperboard Boxes and Cartons‡	..	..	12,824
Boxes and Cases—Wooden ..	..	..	1,816
Bread—2 lb. Loaves .. ..	'000	206,147	12,790
Bricks—Clay .. .. .	'000	257,870	4,863
Briquettes—Brown Coal ..	ton	642,590	1,894
Butter .. .. .	ton	88,143	32,425
Cakes, Pastry, Pies, &c. ..	..	..	8,917
Cans, Canisters, Containers—			
Metal .. .. .	..	..	14,079
Plastic .. .. .	..	..	925
Cheese .. .. .	ton	17,441	3,845
Cigarettes .. .. .	'000,000	6,775,535	15,308
Cloth Piece Goods Woven—			
Woollen or Predominantly			
Woollen .. .. .	'000 sq. yd.	9,063	5,391
Worsted or Predominantly			
Worsted .. .. .	'000 sq. yd.	5,836	*
Confectionery—			
Chocolate Base .. .. .	'000 lb.	25,272	6,059
Other without Chocolate ..	'000 lb.	36,807	4,465
Electrical Appliances—			
Portable Tools .. .. .	..	..	786
Regulating, Starting, and			
Controlling .. .. .	..	..	3,887
Electricity Generated .. ..	mill. kWh.	5,614	*
Fibrous Plaster Sheets .. ..	'000 sq. yd.	8,297	2,698
Flour, Plain—Wheaten .. ..	short ton	414,791	*
Footwear : Boots, Shoes, and			
Sandals§—			
Men's and Youths' .. ..	'000 pair	2,709	5,896
Women's and Maids' .. ..	'000 pair	7,247	14,578
Children's .. .. .	'000 pair	2,670	2,769
Slippers .. .. .	'000 pair	5,697	3,001
Fruit : Preserved—			
Peaches .. .. .	'000 lb.	47,764	3,234
Pears .. .. .	'000 lb.	85,367	5,496
Furniture and Office Equipment—			
Metal .. .. .	..	..	4,162
Wooden .. .. .	..	..	9,618
Gas—Town .. .. .	mill. cu. ft.	17,306	12,249
Ice .. .. .	ton	111,112	427
Ice Cream .. .. .	'000 gal.	3,483	1,916
Jams, Fruit Spreads, Fruit Butters,			
&c... .. .	'000 lb.	33,639	2,272

For footnotes see page 562.

VICTORIA—PRINCIPAL ARTICLES MANUFACTURED  
1958-59—continued

Article	Unit of Quantity	Quantity	Value
			£'000
Leather—			
Dressed and Upper from Hides			3,851
Sole and Belting .. ..	'000 lb.	12,434	2,129
Machinery : Industrial—			
Conveyor (and Appliances)	.. ..	.. ..	1,888
Hoists, Cranes, Lifting .. ..	.. ..	.. ..	2,111
Food Processing and Canning .. ..	.. ..	.. ..	2,228
Metal Working .. ..	.. ..	.. ..	2,880
Mining .. ..	.. ..	.. ..	1,721
Pumping (Including Pumps) .. ..	.. ..	.. ..	2,593
Malt—Barley .. ..	'000 bus.	5,677	5,746
Mattresses—All Types .. ..	No.	394,173	3,375
Meat—Canned .. ..	'000 lb.	91,753	9,930
Medicines, &c. (Proprietary) .. ..	.. ..	.. ..	4,706
Milk—			
Condensed .. ..	'000 lb.	88,402	5,889
Powdered : Full Cream .. ..	'000 lb.	24,481	*
Paints (Not Water) and Enamels	'000 gal.	3,465	6,068
Pipes—Concrete (Excluding Agriculture)	.. ..	.. ..	2,141
Pollard .. ..	short ton	89,190	*
Ropes and Cables (Excluding Wire)	cwt.	69,667	1,092
Sauce—Tomato .. ..	'000 pint	11,965	1,439
Sausage Casings—Sheep and Lamb	.. ..	.. ..	1,929
Shirts (Men's and Boys') .. ..	doz.	722,495	*
Sinks—Stainless Steel .. ..	No.	96,471	1,236
Soap—			
Household and General Washing .. ..	cwt.	573,012	3,853
Personal Toilet .. ..	cwt.	88,772	939
Socks and Stockings—Men's and Children's .. ..	'000 doz. pair	1,739	*
Stockings—Women's .. ..	'000 doz. pair	1,840	7,517
Soup—Tomato .. ..	'000 pint	20,310	1,439
Steam, Gas, and Water Fittings, Valves, &c. (Non-Ferrous) .. ..	.. ..	.. ..	4,814
Steel : Structural—Fabricated .. ..	ton	75,173	10,221
Tiles : Roofing—			
Cement .. ..	'000	20,633	772
Terra Cotta .. ..	'000	16,827	765
Timber Produced from Logs—			
Australian .. ..	'000 sup. ft.	344,038	*
Trailers .. ..	No.	1,941	*
Transformers, Chokes, &c. .. ..	No.	209,634	2,052
Tyres Retreaded and Recapped .. ..	No.	782,463	*
Underwear : Knitted Garments—			
Men's and Boys' .. ..	'000 doz.	714	*
Women's and Girls' .. ..	'000 doz.	1,339	*
Vegetables Canned or Bottled† .. ..	'000 lb.	25,664	2,152
Window Frames—Metal .. ..	.. ..	.. ..	2,626
Wool—Scoured or Carbonized .. ..	'000 lb.	59,928	*
Wool Tops .. ..	'000 lb.	18,227	*

\* Quantity only available.

† As recorded by Department of Customs and Excise.

‡ Includes composite wood and paper board butter boxes.

§ Excluding wholly of rubber.

|| Value of gas sold.

¶ Excludes pickles and pickled vegetables.

Monthly Production Statistics

Statistics of monthly production had their origin in the wartime controls of rationed goods when details of piece goods, footwear, and foodstuffs were collected by the Departments immediately concerned with the war effort. In 1948, the Commonwealth Bureau of Census and Statistics opened a permanent Branch Office in Victoria and transferred certain monthly collections taken over from other departments to the Victorian Branch. By arrangement, as collections were abandoned by wartime and building control authorities, they were modified and taken over by the Bureau to provide statistics of value to government as indicators of business activity. The process of taking over collections commenced by other governmental authorities is continuing and recently monthly statistical collections previously undertaken by the Wheat Board and Meat Board were taken over by the Bureau's State branches. The various monthly production series derived from the collections were also found to be of value to the business community and requests were made for dissections of existing collections and the introduction of new items. The forms used are subject to annual review to keep abreast of technical developments and new demands.

At present, although the list of items published includes only a small proportion of all the items produced in factories, it nevertheless relates directly to items accounting for possibly up to 35 per cent. of the total value of factory output.

A service is provided to persons who complete monthly production returns and to others interested in monthly production. Australian totals of commodities which they produce are made available to them within a few weeks of the month to which they relate. A list of the subjects included in these "Production Summaries" follows :—

AUSTRALIA—PRODUCTION SUMMARIES

Ref. No.	Subject	Ref. No.	Subject
2	Chemicals, &c.	24	Men's, Youths', and Boys' Outer Clothing
4	Paints and Pigments	25	Foundation Garments
6	Soap, Detergents, and Glycerine	27	Gloves (Other than Rubber) and Felt Hats
7	Internal Combustion Engines	28	Footwear (Excluding Sandshoes, Goloshes, and Gum, &c., Boots of Rubber)
8	Lawn Mowers	29	Biscuits, Ice Cream, and Confectionery
8A	Storage Batteries	32	Perambulators (Including Pushers and Strollers)
9	Electric Motors, Electrical Appliances, Wireless, Television, &c.	34	Radios, Television, and Cabinets
10	Motor Bodies and Trailers	35	Mattresses
10A	Assembly of Motor Vehicle Chassis	36	Preserved Milk Products
11	Pedal Cycles	38	Preserved Fish
12	Meters	39	Jams and Preserved Fruit and Vegetables
13	Building Fittings	40	Cereal Breakfast Foods, Other Cereal Products, and Flour Milling
14	Cotton Goods	41	Margarine
15	Woolscouring, Carbonizing, and Felling-mongering	42	Malt and Beer
16	Woollen and Worsted Carding, Combing, and Spinning	45	Gramophone Records
17	Wool Weaving	48	Sports Goods
18	Hosiery	49	Building Materials
19	Men's and Boys' Shirts, Pyjamas, Under-clothing, &c.	51	Hides and Skins Used in Tanneries
19A	Women's and Girls' Knitted Outerwear, Nightwear, and Underwear	54	Flour Milling
20	Rayon and Synthetic Fibre Woven Fabrics	55	Butter and Cheese
22	Floor Coverings	56	Canned Meat

In addition, Australian totals for a greater range of commodities than that issued in the Production Summaries are published in the monthly Bulletin of Production Statistics. Victorian figures are published in the Victorian Monthly Production Bulletin.

### *Individual Industries*

#### **Introductory**

Particulars on pages 542 and 543 give a general view of the size of industries in the sixteen groups adopted by the Conference of Statisticians in 1930. While it is not possible, within the limits of this book, to give a detailed account of each industry, particular industries dealt with are of special importance because of the employment they provide for labour and capital or for other features of special interest. Where there are only one or two establishments in a particular industry in the State, details of activities are not published, but are combined with some other factory group so that operations of individual concerns will not be disclosed.

#### **Details of Industries**

The industrial and heavy chemical industry expanded considerably during the five year period 1954–55 to 1958–59 as the particulars below indicate :—

#### VICTORIA—INDUSTRIAL AND HEAVY CHEMICALS AND ACIDS

Particulars	1954–55	1955–56	1956–57	1957–58	1958–59
Number of Factories .. ..	64	69	69	74	79
Number of Persons Employed ..	2,205	2,270	2,308	2,723	3,035
Salaries and Wages Paid £'000	2,145	2,370	2,754	3,171	3,554
Value of Power, Fuel, &c., Used					
£'000	417	463	640	706	826
Value of Materials Used £'000	6,524	7,514	9,408	10,104	10,115
Value of Production .. £'000	4,714	5,164	6,925	6,873	9,269
Value of Output .. £'000	11,655	13,141	16,973	17,683	20,210
Value of Land and Buildings £'000	1,552	1,954	2,127	4,333	4,679
Value of Plant and Machinery £'000	2,604	3,128	3,781	6,344	7,103
Horse-power of Engines Ordinarily in Use .. H.P.	17,313	18,274	19,296	22,531	26,834

Particulars of the pharmaceutical and toilet preparation industry are given below :—

### VICTORIA—PHARMACEUTICAL AND TOILET PREPARATIONS

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	64	61	59	59	57
Number of Persons Employed ..	2,359	2,435	2,537	2,665	2,748
Salaries and Wages Paid £'000	1,755	1,937	2,202	2,376	2,577
Value of Power, Fuel, &c., Used					
£'000	113	145	192	241	601
Value of Materials Used £'000	4,776	4,936	6,006	6,499	6,591
Value of Production .. £'000	4,035	4,229	5,468	5,945	6,786
Value of Output .. £'000	8,924	9,310	11,666	12,685	13,978
Value of Land and Buildings £'000	2,973	3,476	3,881	5,224	4,780
Value of Plant and Machinery £'000	1,026	1,453	1,432	1,706	2,811
Horse-power of Engines Ordinarily in Use .. H.P.	7,897	8,981	9,234	8,738	9,504

Production in this sub-class of industry includes proprietary medicines, cosmetics, creams and lotions, hair preparations, &c.

Mineral oil treatment has now become a most important industry in Victoria particularly in relation to the refining of petroleum. Details of the industry for years 1954-55 to 1958-59 are shown below :—

### VICTORIA—MINERAL OILS

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	15	17	19	18	18
Number of Persons Employed ..	1,383	1,734	1,485	1,443	1,459
Salaries and Wages Paid £'000	1,363	1,893	1,762	1,799	1,863
Value of Power, Fuel, &c., Used					
£'000	1,169	1,781	4,163	4,058	3,476
Value of Materials Used £'000	26,246	35,985	45,835	46,129	45,732
Value of Production .. £'000	6,990	11,708	15,537	15,235	17,254
Value of Output .. £'000	34,405	49,474	65,535	65,422	66,462
Value of Land and Buildings £'000	4,073	6,832	7,171	7,263	7,635
Value of Plant and Machinery £'000	23,363	30,311	30,310	28,999	32,691
Horse-power of Engines Ordinarily in Use .. H.P.	28,120	47,110	53,258	49,029	44,799

The growth of this industry can be appreciated from the fact that in 1938-39 it gave employment to only 164 persons and the total horse-power of engines used was 817, while 1,459 persons were employed in 1958-59 and the horse-power of engines used totalled 44,799.

*Oil Refining Industry in Victoria*

Of the secondary industries which have assumed significant proportions in the Australian economy since the end of the Second World War, few are as important, or represent so great an investment of capital, as oil refining. The lion's share of this investment, which now stands at nearly £130 million, has come to Victoria where two of the four major refineries built in Australia since 1951 are located.

Victoria also has the distinction of being the State in which the first refinery to process crude oil in Australia was established. This was the refinery built at Laverton. The Laverton plant, which came on stream in 1924, and the refinery which began operating at Clyde, New South Wales, in 1925 were the only two refineries in Australia capable of processing crude oil when war broke out in 1939. Their combined output met only a fraction of the nation's demand, a demand which grew rapidly as wartime requirements increased.

It had long been the policy of the world's major oil-producing companies to refine crude oil at or near the source of supply, but the disadvantages of this policy were forcibly brought home both during the war and after, when political instability in certain countries, especially in the Middle East, where enormous capital investment in refining facilities had been made, proved a severe handicap. It was natural that, as this policy was revised, Australia should rank high on the list of countries in which the international oil companies would build new refineries, not only because it was a friendly nation enjoying the requisite political stability, but also because its internal market for petroleum products was growing apace as the country's transport system and secondary industries underwent expansion and modernization.

The first two refineries built in Australia after the war were relatively small. One was established at Matraville, near Sydney, and came on stream in 1948; in the following year a plant designed primarily to produce lubricating oil and bitumen began operating at Altona near Melbourne. Output of petroleum products from Australian refineries in 1949 was 163 million gallons, compared with consumption of 1,093 million gallons. Since then consumption has risen by nearly 150 per cent., but the operations of the four major refineries have increased output to such an extent that now only about 10 per cent. of Australia's requirements of petroleum products has to be imported.

The two major refineries built in Victoria are the plant at Corio Bay, 5 miles north of Geelong, and the refinery at Altona, the nucleus for which was the refining plant completed in 1949. The other two major refineries are at Kwinana, Western Australia, and at Kurnell, New South Wales.

*Geelong Refinery*

The Geelong refinery was the first of the four to come on stream, in March, 1954. By 1959, the refinery had cost £33 million and its capacity had been progressively raised to 2,400,000 tons of crude oil a year. The refinery is linked by an 8 in. pipe-line (costing £550,000) with its metropolitan distribution centre at Newport 33 miles away. The pipe-line can carry 225 million gallons of products a year. Apart

from atmospheric and vacuum distillation plants, its main units are a fluid catalytic cracker, a catalytic reformer, a catalytic polymerizer, and a bitumen plant. A liquefied petroleum gas installation and a sulphuric acid plant—the first of its kind in the southern hemisphere—were installed in 1958, and a hydro-desulphurizer was added in 1959. The latter unit enables the refinery to produce high quality fuels of reduced sulphur content for diesel engines and also to provide feedstock for the sulphuric acid plant.

In 1958, a new lubricating oil-blending plant at Newport terminal installation was opened and this can blend 100,000 gallons at one time.

Crude oil for the Geelong refinery comes from British Borneo and the Persian Gulf. The main channel of the port of Geelong has been deepened at a cost of £2 mill. enabling supplies to be brought in by super-tankers. The first of these arrived in August, 1958. Cargoes of crude oil for the refinery represent around three-quarters of total imports at Geelong, Victoria's second biggest port.

#### *Expansion at Altona*

The refinery at Altona, which to date has cost about £25 million, came on stream in January, 1955. It was built in the remarkably short time of 22 months by an American firm whose new industrial techniques had a very beneficial impact on Australian construction methods and labour relations.

The capacity of the Altona refinery, initially 1,750,000 tons of crude oil a year, has now been raised to 2,100,000 tons a year. The principal units (apart from distillation) are a catalytic cracker, a platformer, an alkylation plant and a hydro-desulphurizer. It is the only refinery in Australia capable of producing high octane aviation gasoline. Its construction brought a revival of shipping traffic to the old port of Williamstown, where berthing facilities were built for the tankers which bring supplies of crude oil for the refinery, which is linked by pipe-line to storage tanks at Breakwater Pier.

A sulphur recovery plant was installed at the refinery during 1959 and is producing 40 tons of sulphur a day. This unit assists in processing automotive and diesel fuels to the highest degree of purity. The production of sulphur at the Altona and Geelong refineries has greatly reduced Victoria's reliance on imports of this product, an essential ingredient of fertilizers and many other chemicals.

Another important development at Altona in 1959 was a modification to the catalytic cracking unit, which increased its height to 298 feet and its production capacity by 32 per cent. The tower dominates the western horizons of Port Phillip Bay. Crude oil for the Altona refinery is brought principally from the Persian Gulf and Indonesia in tankers of up to 42,000 tons d.w. but there are plans to bring giant tankers of 86,500 tons when a new refinery at Hallett's Cove, South Australia, comes into operation in 1962.

Continual expansion of refining capacity has been necessary not only to meet the rapidly growing demand for petroleum products in Victoria—for the eight main products, consumption rose from 654 million gallons in 1957 to 721 million gallons in 1959—but also to provide higher quality products, as seen in the progressive increases in the octane ratings of motor spirit in recent years.

To assess the full importance of having two modern refineries in the State one must first go back to the period when they were being built, that is from 1951 to 1954. When, in 1952-53, employment in Australia slackened, the building of these refineries provided employment opportunities not only on the sites but also in a wide range of industries manufacturing components and supplying materials.

Again, the heavy importation of capital required to build the refineries greatly assisted Australia's overseas reserves position during a period of low export income. Further, the State's gain in imports of capital to build the refineries was but the forerunner of continuous savings in foreign exchange, amounting to many millions of pounds a year, made possible by the operations of the refineries themselves.

#### *Petrochemical Industry*

However, the advantages accruing from the establishment of the refineries do not end there. They represent an important defence asset, and the fact that they can now meet almost the whole of the country's requirements of refined products means that in the event of major oil discoveries in Australia, dependence on overseas sources of supply would virtually vanish, enabling further savings of more than £100 million a year in foreign exchange. In addition, their operations have introduced new products to Australia. Every day they supply millions of cubic feet of high calorific value gas for the enrichment of town gas supplies. Liquefied petroleum gas, a powerful, versatile fuel with a wide range of domestic and industrial uses, is now marketed in every State and has been welcomed in particular by country residents who previously had no access to a gas supply.

But easily the most important side effect of the establishment of large-scale refining capacity is that Victoria now has the nucleus of a petrochemical industry, the potentialities of which can hardly be over-estimated. Petrochemical projects already completed in Victoria are the erection at Altona of a carbon black factory which obtains its raw materials from the adjacent refinery, and the installation of sulphur recovery units at both refineries.

During 1961 it is anticipated that a series of five plants, constituting the largest petrochemical manufacturing complex in Australia, will begin operating at Altona. Now under construction near the refinery there, the central unit, costing £12½ million, will produce the basic chemicals, ethylene and butadiene. Of the other plants, one will produce ethylene dichloride, the raw material for the manufacture, to be undertaken at another plant, of the versatile plastic polyvinyl chloride (P.V.C), and styrene, a component of another series of plastics and of synthetic rubber, to be manufactured at a fourth plant. The remaining plant will produce polyethylene, in many respects the most important of all plastics. At the refinery at Geelong yet another petrochemical plant, to manufacture detergent alkylate for use by the soap and detergents industry, will also begin operating next year.

All these activities, the capital expenditure for which amounts to nearly £30 million, represent a solid, broad base for the rapid development of the chemical industry and associated secondary

industries in Victoria. It is certain that as these industries grow in response to the demands of an increasing population, the petrochemical industry will make an outstanding contribution to the economic strength of the State, just as has already been made by the source of its raw materials—modern, efficient oil refineries.

Outstanding expansion has taken place in Industrial Metals, Machines, and Conveyances, &c., which is by far the largest of the sixteen classes into which secondary industry is divided. This development was accelerated by the necessity of meeting war requirements. Victoria now produces a very wide field of goods including motor vehicles, construction and earth-moving equipment, precision instruments, aircraft, &c., and many other types of manufactures which in earlier years were not attempted.

The relative importance of the principal sub-classes within this industry is shown in the following table :—

VICTORIA—CLASS IV : INDUSTRIAL METALS, MACHINES,  
AND CONVEYANCES : INDIVIDUAL INDUSTRIES, 1958-59  
(£'000)

Particulars	Number of Factories	Persons Employed	Salaries and Wages Paid	Value of—						Horse-power of Engines Ordinarily in Use
				Power, Fuel, and Light	Materials Used	Production	Output	Land and Buildings	Plant and Machinery	
Foundries (Ferrous) . . .	193	2,722	2,726	371	2,856	3,922	7,149	1,531	1,049	10,891
Plant, Equipment and Machinery &c. . . . .	714	24,712	25,059	1,110	41,754	41,164	84,028	19,000	14,585	90,834
Other Engineering . . .	815	8,557	8,252	309	8,798	13,923	23,030	6,141	5,394	27,046
Electrical Machinery, Cables, and Apparatus . . .	384	13,734	12,969	810	27,166	19,720	47,696	10,960	8,297	37,445
Tramcars and Railway Rolling Stock	22	7,391	6,429	222	5,479	8,683	14,384	2,138	1,429	22,881
Motor Vehicle Construction and Assembly	16	11,208	12,100	1,023	17,813	24,836	43,672	10,517	9,823	43,515
Motor Repairs	2,231	15,937	12,152	400	12,657	18,794	31,851	18,888	3,688	18,387
Motor Bodies . .	420	7,546	7,282	296	7,386	9,942	17,624	4,451	1,832	15,174
Motor Accessories . .	89	3,521	3,228	201	4,594	5,610	10,405	2,469	1,968	10,701
Aircraft . . .	18	6,480	6,843	246	5,019	8,876	14,141	5,495	2,469	16,637
Agricultural Machines and Implements . .	91	5,761	5,802	422	8,892	8,992	18,306	2,709	2,525	20,399
Non-ferrous Metals— Founding, Casting, &c.	178	3,959	3,661	290	6,171	6,483	12,944	2,142	1,548	10,789
Sheet Metal Working— Pressing and Stamping . . .	396	10,098	9,380	544	22,287	15,828	38,659	8,018	5,673	30,688
Wire and Wire Working (In- cluding Nails)	70	2,400	2,381	184	8,047	4,734	12,965	2,766	1,666	8,174
Wireless and Amplifying Apparatus . .	55	3,627	3,270	93	10,530	4,712	15,335	1,583	1,315	2,768
Other Sub-Class	326	11,462	11,680	1,221	23,980	17,981	43,182	7,834	20,229	79,159
Total, Class IV.	6,018	139,115	133,214	7,742	213,429	214,200	435,371	106,642	83,490	445,488

Further particulars of certain of the industries listed in the table on page 569 are given on this and the following two pages.

As production in some factories in this class is of a variable nature, their classification may vary from year to year, since each factory is classified according to the predominant item of production. Under these circumstances comparability may be disturbed.

The table which follows combines particulars appertaining to two sub-classes of manufacture, Electrical Machinery, Cables; &c., and Wireless and Amplifying Apparatus respectively :—

### VICTORIA—ELECTRICAL MACHINERY, CABLES, AND APPARATUS

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	370	379	417	409	439
Number of Persons Employed ..	11,540	12,131	13,562	15,394	17,361
Salaries and Wages Paid £'000	8,954	10,237	11,357	13,639	16,239
Value of Power, Fuel, &c., Used £'000	329	385	504	672	903
Value of Materials Used £'000	18,851	20,198	22,255	31,765	37,696
Value of Production .. £'000	13,225	14,011	16,657	20,827	24,432
Value of Output .. £'000	32,405	34,594	39,416	53,264	63,031
Value of Land and Buildings £'000	4,887	5,795	8,856	10,084	12,543
Value of Plant and Machinery £'000	3,125	3,601	5,405	7,326	9,612
Horse-power of Engines Ordinarily in Use .. H.P.	19,483	20,050	24,743	30,993	40,213

The principal items of production in these industries were : electric and telephone cables, electric apparatus and equipment, and domestic appliances such as refrigerators, washing machines, and wireless and television sets, and parts thereof.

The next table represents the activities of government controlled workshops in regard to railways and tramways :—

### VICTORIA—TRAMCARS AND RAILWAY ROLLING STOCK

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	22	22	22	22	22
Number of Persons Employed ..	7,281	7,363	7,580	7,554	7,391
Salaries and Wages Paid £'000	6,094	6,581	6,554	6,487	6,429
Value of Power, Fuel, &c., Used £'000	210	207	204	229	222
Value of Materials Used £'000	4,659	4,946	5,417	5,168	5,479
Value of Production .. £'000	7,839	8,835	8,878	8,603	8,683
Value of Output .. £'000	12,708	13,988	14,499	14,000	14,384
Value of Land and Buildings £'000	1,829	1,883	1,918	2,064	2,138
Value of Plant and Machinery £'000	987	1,115	1,075	1,108	1,429
Horse-power of Engines Ordinarily in Use .. H.P.	20,521	21,391	23,005	23,416	22,881

The work performed in this sub-class of industry was for the most part in maintenance and replacement of rolling stock.

In the following table the particulars of the Motor Industry as a whole have been presented by aggregating the following sub-classes : Motor Vehicle Construction and Assembly, Motor Bodies, Motor Repairs, and Motor Accessories. It should be noted, however, that the manufacture of particular parts may be included in other sub-classes of industry.

## VICTORIA—MOTOR VEHICLES

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	2,344	2,476	2,656	2,751	2,756
Number of Persons Employed ..	32,449	35,176	36,406	37,080	38,212
Salaries and Wages Paid £'000	25,521	29,850	30,520	32,502	34,762
Value of Power, Fuel, &c., Used £'000	975	1,197	1,513	1,744	1,920
Value of Materials Used £'000	39,458	46,422	39,308	43,829	42,450
Value of Production .. £'000	36,789	41,462	45,270	52,454	59,182
Value of Output .. £'000	77,222	89,081	86,091	98,027	103,552
Value of Land and Buildings £'000	18,423	21,840	21,198	31,851	36,325
Value of Plant and Machinery £'000	9,172	11,530	16,539	17,222	17,311
Horse-power of Engines Ordinarily in Use .. H.P.	57,320	65,577	76,472	79,776	87,777

The relative importance of each sub-class of the motor vehicle industry is shown in the following table for 1958-59 :—

## VICTORIA—MOTOR VEHICLES : SUB-CLASSES, 1958-59

Particulars	Motor Vehicle Construction and Assembly	Motor Repairs	Motor Bodies	Motor Accessories	Total
Number of Factories .. ..	16	2,231	420	89	2,756
Number of Persons Employed ..	11,208	15,937	7,546	3,521	38,212
Salaries and Wages Paid £'000	12,100	12,152	7,282	3,228	34,762
Value of Power, Fuel, &c., Used £'000	1,023	400	296	201	1,920
Value of Materials Used £'000	17,813	12,657	7,386	4,594	42,450
Value of Production .. £'000	24,836	18,794	9,942	5,610	59,182
Value of Output .. £'000	43,672	31,851	17,624	10,405	103,552
Value of Land and Buildings £'000	10,517	18,888	4,451	2,469	36,325
Value of Plant and Machinery £'000	9,823	3,688	1,832	1,968	17,311
Horse-power of Engines Ordinarily in Use .. H.P.	43,515	18,387	15,174	10,701	87,777

The information in the above table indicates that while motor repair workshops accounted for 81 per cent. of the number of factories and 42 per cent. of the persons employed, in the case of horse-power in use, factories engaged in construction and assembly predominated with 50 per cent. of the total.

Agricultural Machinery and Implements are the subject of the next table :—

VICTORIA—AGRICULTURAL MACHINES AND IMPLEMENTS

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	80	84	97	100	91
Number of Persons Employed ..	6,487	6,338	5,060	5,299	5,761
Salaries and Wages Paid £'000	5,798	5,868	4,668	5,085	5,802
Value of Power, Fuel, &c., Used £'000	446	430	345	385	422
Value of Materials Used £'000	8,879	8,404	6,447	7,742	8,892
Value of Production .. £'000	8,165	8,280	7,622	8,672	8,992
Value of Output .. £'000	17,490	17,114	14,414	16,799	18,306
Value of Land and Buildings £'000	2,137	2,313	2,454	2,731	2,709
Value of Plant and Machinery £'000	2,557	2,689	2,726	2,649	2,525
Horse-power of Engines Ordinarily in Use .. H.P.	19,844	20,361	20,970	20,821	20,399

Particulars relating to founding and casting of non-ferrous metals are shown in the next table :—

VICTORIA—NON-FERROUS METALS: FOUNDING, CASTING, ETC.

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	149	153	155	153	178
Number of Persons Employed ..	3,017	3,261	3,359	3,430	3,959
Salaries and Wages Paid £'000	2,373	2,768	2,895	3,113	3,661
Value of Power, Fuel, &c., Used £'000	158	197	222	249	290
Value of Materials Used £'000	3,749	4,706	4,378	4,816	6,171
Value of Production .. £'000	4,140	4,425	4,974	4,920	6,483
Value of Output .. £'000	8,047	9,328	9,574	9,985	12,944
Value of Land and Buildings £'000	1,612	1,797	2,005	2,187	2,142
Value of Plant and Machinery £'000	1,248	1,397	1,492	1,378	1,548
Horse-power of Engines Ordinarily in Use .. H.P.	7,867	8,696	9,449	9,372	10,789

Articles produced in this industry include : steam, gas and water fittings, aluminium window frames, slide fasteners, and furniture fittings, &c.

Sheet metal working and allied manufacturing activities are the subject of the table which follows :—

VICTORIA—SHEET METAL WORKING, PRESSING, AND STAMPING

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	327	332	359	363	396
Number of Persons Employed ..	7,199	7,663	8,022	8,493	10,098
Salaries and Wages paid £'000	5,587	6,225	7,066	7,825	9,380
Value of Power, Fuel, &c., Used £'000	217	247	344	405	544
Value of Materials Used £'000	14,161	14,635	16,639	20,051	22,287
Value of Production .. £'000	9,328	10,991	12,413	12,931	15,828
Value of Output .. £'000	23,706	25,873	29,396	33,387	38,659
Value of Land and Buildings £'000	3,571	4,372	5,744	5,916	8,018
Value of Plant and Machinery £'000	2,658	3,203	3,945	5,062	5,673
Horse-power of Engines Ordinarily in Use .. H.P.	15,890	16,486	20,420	23,700	30,688

Packers' cans, canisters and containers, building fittings, viz., baths, sinks, hot water services, and refrigeration and air-conditioning equipment are amongst the items produced in this sub-class of industry.

Wool carding, spinning, and weaving is the subject of the next table :—

#### VICTORIA—WOOL CARDING, SPINNING, AND WEAVING

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	88	81	84	88	87
Number of Persons Employed ..	11,322	11,273	12,013	12,055	10,995
Salaries and Wages Paid £'000	7,373	7,634	8,925	9,065	8,475
Value of Power, Fuel, &c., Used £'000	652	716	812	811	798
Value of Materials Used £'000	19,139	20,364	24,716	25,218	20,295
Value of Production .. £'000	11,522	12,643	14,674	13,432	14,047
Value of Output .. £'000	31,313	33,723	40,202	39,461	35,140
Value of Land and Buildings £'000	4,172	4,363	5,533	5,543	6,579
Value of Plant and Machinery £'000	6,081	6,287	6,264	6,583	6,386
Horse-power of Engines Ordinarily in Use .. H.P.	39,199	42,123	42,803	41,081	43,084

Victorian woollen mills are responsible for more than half the total Australian woollen mill production. The full range of activities in these factories is covered from the scouring of greasy wool to the weaving of cloth.

Particulars of the hosiery, &c., industry for the last five years are given below :—

#### VICTORIA—HOSIERY AND OTHER KNITTED GOODS

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	427	429	429	427	438
Number of Persons Employed ..	15,851	15,105	15,224	15,039	15,285
Salaries and Wages Paid £'000	9,736	9,883	10,521	10,658	10,979
Value of Power, Fuel, &c., Used £'000	413	452	491	514	549
Value of Materials Used £'000	19,485	19,680	22,112	24,541	21,820
Value of Production .. £'000	17,486	17,695	18,997	17,969	20,846
Value of Output .. £'000	37,384	37,827	41,600	43,024	43,215
Value of Land and Buildings £'000	5,825	6,257	6,666	7,320	8,240
Value of Plant and Machinery £'000	5,494	5,612	5,504	5,766	6,529
Horse-power of Engines Ordinarily in Use .. H.P.	13,815	13,272	13,555	14,227	15,560

Factories in Victoria contribute more than two-thirds of the total production of knitted goods in Australia. Amongst the more important articles produced are socks and stockings, knitted underwear, cardigans and pullovers.

Information in the next table deals with industries associated with the manufacture of clothing, except waterproof clothing, knitted goods, and boots and shoes. The figures shown represent for each of the past five years the sum of the statistical sub-classes of industry mentioned below—tailoring and ready-made clothing, dressmaking, millinery, shirts, underclothing, foundation garments, handkerchiefs, ties, scarves, hats and caps, and gloves.

VICTORIA—CLOTHING (DRESS), EXCLUDING WATERPROOF CLOTHING, KNITTED GOODS, AND BOOTS AND SHOES

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	1,638	1,591	1,565	1,569	1,481
Number of Persons Employed ..	30,314	29,828	29,358	28,496	28,310
Salaries and Wages Paid £'000	17,083	17,255	17,946	18,002	18,127
Value of Power, Fuel, &c., Used					
£'000	319	326	358	362	389
Value of Materials Used £'000	31,399	32,173	31,918	32,084	31,257
Value of Production .. £'000	27,061	27,715	28,606	29,058	29,472
Value of Output .. £'000	58,779	60,214	60,882	61,504	61,118
Value of Land and Buildings £'000	7,487	8,554	9,651	10,515	11,769
Value of Plant and Machinery £'000	2,548	2,594	2,725	2,791	2,906
Horse-power of Engines Ordinarily in Use .. H.P.	10,653	11,217	10,840	11,008	11,599

In the following table the industries combined in the preceding table are shown in detail for 1958-59 :—

Particulars	Tailoring Ready-made	Dress-making	Millinery Hats, and Caps	Shirts, Under-clothing	Founda-tion Garments	Hand-kerchiefs, Ties, and Gloves	Total
Number of Factories .. ..	575	573	83	169	33	48	1,481
Number of Persons Employed ..	9,713	8,452	1,125	6,621	1,753	646	28,310
Salaries and Wages Paid £'000	6,536	5,148	741	4,142	1,163	397	18,127
Value of Power, Fuel, &c., Used							
£'000	155	103	28	70	25	8	389
Value of Materials Used £'000	12,977	6,493	912	7,845	2,204	826	31,257
Value of Production .. £'000	10,466	8,097	1,226	7,108	1,913	662	29,472
Value of Output .. £'000	23,598	14,693	2,166	15,023	4,142	1,496	61,118
Value of Land and Buildings £'000	4,134	3,867	636	1,855	952	325	11,769
Value of Plant and Machinery							
£'000	1,140	743	132	636	201	54	2,906
Horse-power of Engines ordinarily in Use .. H.P.	3,436	3,207	1,089	2,799	864	204	11,599

Tailoring and ready-made clothing, and dressmaking together represented 78 per cent. of the factories, 64 per cent. of employment, and 57 per cent. of the horse-power in use ; shirts and underclothing contributed 11 per cent., 23 per cent., and 24 per cent. respectively.

Boots and shoes (not rubber) manufacture is the subject of the next table :—

### VICTORIA—BOOTS AND SHOES (NOT RUBBER)

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	239	226	222	221	215
Number of Persons Employed ..	11,422	10,939	11,136	11,092	11,231
Salaries and Wages Paid £'000	7,326	7,270	7,974	8,005	8,328
Value of Power, Fuel, &c., Used £'000	109	114	134	143	156
Value of Materials Used £'000	11,690	12,055	12,028	12,641	14,786
Value of Production .. £'000	10,147	10,291	11,170	11,935	12,731
Value of Output .. £'000	21,946	22,460	23,332	24,719	27,673
Value of Land and Buildings £'000	1,767	1,818	2,023	2,276	2,915
Value of Plant and Machinery £'000	1,832	2,033	2,081	2,281	2,684
Horse-power of Engines Ordinarily in Use .. H.P.	9,787	9,508	9,265	9,202	10,153

A feature of this industry is the large proportion of females it employs. Numbering 5,769, they represented 51 per cent. of the total employed in 1958-59.

The details shown above relate generally to footwear made of leather. They are exclusive of the operation of boot repairers. Footwear is also produced in the rubber and plastic moulding industries respectively.

Bakeries which make bread, pastry, and cakes, &c., are the subject of the table which follows :—

### VICTORIA—BAKERIES (INCLUDING CAKES AND PASTRY)

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	1,058	1,075	1,052	1,075	1,253
Number of Persons Employed ..	5,411	5,553	5,694	5,472	6,043
Salaries and Wages Paid £'000	3,002	3,294	3,618	3,605	3,820
Value of Power, Fuel, &c., Used £'000	535	589	661	668	745
Value of Materials Used £'000	9,521	10,007	10,682	10,884	12,081
Value of Production .. £'000	6,909	7,476	8,824	7,845	9,032
Value of Output .. £'000	16,965	18,072	20,167	19,397	21,858
Value of Land and Buildings £'000	4,224	4,767	5,728	5,923	7,041
Value of Plant and Machinery £'000	2,691	2,975	3,325	3,470	3,753
Horse-power of Engines Ordinarily in Use .. H.P.	6,972	7,018	7,493	8,001	8,030

The details shown above for 1958-59 include the operations of a number of smaller bakehouses which had not been included previously in the statistical collection.

In the following table two sub-classes of industry are combined, namely, jam, fruit, and vegetable canning ; and pickles, sauces, and vinegar :—

**VICTORIA—JAM, FRUIT, AND VEGETABLE CANNING ;  
PICKLES, SAUCES, AND VINEGAR**

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	61	60	60	63	60
Number of Persons Employed ..	4,498	4,475	4,965	4,903	4,425
Salaries and Wages Paid £'000	3,390	3,621	4,321	4,462	4,002
Value of Power, Fuel, &c., Used £'000	322	371	481	472	468
Value of Materials Used £'000	14,082	14,533	20,747	22,054	19,829
Value of Production .. £'000	7,368	7,220	9,229	10,407	8,440
Value of Output .. £'000	21,772	22,124	30,457	32,933	28,737
Value of Land and Buildings £'000	2,664	5,091	5,633	6,085	6,858
Value of Plant and Machinery £'000	2,421	4,696	5,297	5,617	5,451
Horse-power of Engines Ordinarily in Use .. H.P.	15,225	20,239	27,465	29,012	28,565

Female employment is strongly represented in the canning industry which, to a great extent, operates in country areas near the orchards and gardens from which fruit and vegetables used for processing are gathered. Seasonal conditions influence greatly the quantity of goods produced.

Three sub-classes of industry, namely, butter, cheese, condensed and processed milk have been combined in the figures shown below, as some factories producing butter are also engaged in the production of cheese and condensed products and are unable to render separate returns in respect of these activities :—

**VICTORIA—BUTTER, CHEESE, CONDENSED AND  
PROCESSED MILK FACTORIES**

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	134	130	131	131	127
Number of Persons Employed ..	5,229	5,443	5,620	5,417	5,452
Salaries and Wages Paid £'000	4,563	5,035	5,381	5,345	5,465
Value of Power, Fuel, &c., Used £'000	1,332	1,521	1,598	1,532	1,528
Value of Materials Used £'000	46,549	50,252	51,561	50,558	51,382
Value of Production .. £'000	8,037	10,679	10,567	11,617	11,799
Value of Output .. £'000	55,918	62,452	63,726	63,707	64,709
Value of Land and Buildings £'000	4,870	5,161	5,836	6,233	6,763
Value of Plant and Machinery £'000	5,787	6,168	7,031	7,524	7,995
Horse-power of Engines Ordinarily in Use .. H.P.	36,644	38,204	41,094	42,537	39,310

Almost all of this industry is to be found in country areas. The particulars in the above table relate only to factory production. There is also a comparatively small amount of butter and cheese made on farms. Further reference to the Dairying Industry will be found on page 497.

Details of the operation of the following sub-classes of industry are given below, viz., sawmills, joinery, boxes and cases, wood turning and carving, and cabinet and furniture making :—

### VICTORIA—SAWMILLS, WOODWORKING, FURNITURE, ETC.

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	1,890	1,883	1,840	1,874	1,816
Number of Persons Employed ..	19,036	19,332	19,028	18,819	18,991
Salaries and Wages Paid .. £'000	13,338	14,509	15,003	15,664	16,158
Value of Power, Fuel, &c., Used .. £'000	609	660	705	724	794
Value of Materials Used .. £'000	26,848	28,217	28,237	31,340	31,715
Value of Production .. .. £'000	22,804	24,173	24,658	27,339	28,170
Value of Output .. .. £'000	50,261	53,050	53,600	59,403	60,679
Value of Land and Buildings .. £'000	7,127	8,039	8,955	10,107	11,009
Value of Plant and Machinery .. £'000	5,334	5,770	5,942	5,782	5,892
Horse-power of Engines Ordinarily in Use .. .. H.P.	133,704	136,361	136,919	132,941	133,058

The following table indicates the relative particulars for 1958-59 of the individual industries combined in the preceding table :—

### VICTORIA—SAWMILLS, WOODWORKING, FURNITURE, ETC.: INDIVIDUAL INDUSTRIES

Particulars	Sawmills	Joinery	Boxes and Cases	Wood Turning and Carving	Furniture Making, &c.	Total
Number of Factories .. ..	547	574	77	113	505	1,816
Number of Persons Employed ..	7,194	5,167	836	1,078	4,716	18,991
Salaries and Wages Paid .. .. £'000	6,318	4,376	702	876	3,886	16,158
Value of Power, Fuel, &c., Used .. £'000	517	119	25	32	101	794
Value of Materials Used .. .. £'000	15,176	8,033	1,697	1,096	5,713	31,715
Value of Production .. .. £'000	11,810	7,063	1,027	1,692	6,578	28,170
Value of Output .. .. £'000	27,503	15,215	2,749	2,820	12,392	60,679
Value of Land and Buildings .. .. £'000	2,985	3,378	480	657	3,509	11,009
Value of Plant and Machinery .. .. £'000	3,262	1,273	232	283	842	5,892
Horse-power of Engines Ordinarily in Use .. .. H.P.	83,221	23,939	6,727	5,546	13,625	133,058

The activities combined in the above table embrace general milling, re-sawing, moulding and planing, turning, the manufacture of floorboards, weatherboards, boxes and cases, tool handles, toys, &c.

The newspaper and periodicals industry is the subject of the following table :—

### VICTORIA—NEWSPAPERS AND PERIODICALS

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	114	112	111	106	128
Number of Persons Employed ..	3,395	3,508	3,348	2,924	3,317
Salaries and Wages Paid .. £'000	3,028	3,393	3,300	2,951	3,471
Value of Power, Fuel, &c., Used .. £'000	102	118	119	115	135
Value of Materials Used .. .. £'000	6,723	7,048	7,563	7,268	8,660
Value of Production .. .. £'000	5,172	5,677	5,727	5,224	6,173
Value of Output .. .. £'000	11,997	12,843	13,409	12,607	14,968
Value of Land and Buildings .. £'000	1,278	1,372	1,616	1,517	2,350
Value of Plant and Machinery .. £'000	2,910	2,854	2,795	1,791	2,212
Horse-power of Engines Ordinarily in Use .. .. H.P.	10,366	10,456	10,484	9,862	10,020

Some "job" printing is included in this industry but where newspapers, periodicals, &c., are printed for the proprietor by an outside firm such particulars are included under "Printing, General" below.

General printing (including bookbinding) is the subject of the following table :—

### VICTORIA—PRINTING, GENERAL (INCLUDING BOOKBINDING)

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	497	513	537	549	539
Number of Persons Employed ..	7,265	7,602	7,964	8,381	8,515
Salaries and Wages Paid £'000	5,603	6,129	6,681	7,461	7,718
Value of Power, Fuel, &c., Used					
£'000	139	163	200	228	247
Value of Materials Used £'000	7,997	8,426	8,932	10,436	11,180
Value of Production .. £'000	9,511	10,335	11,888	13,304	14,217
Value of Output .. £'000	17,647	18,924	21,020	23,968	25,644
Value of Land and Buildings £'000	3,920	4,652	5,132	5,982	6,433
Value of Plant and Machinery £'000	4,352	5,174	5,587	6,109	6,155
Horse-power of Engines Ordinarily in Use .. H.P.	11,667	11,632	12,554	13,108	13,357

The above table does not include particulars of the operations of Government printing establishments.

Particulars relating to the manufacture of cardboard boxes, cartons, and containers are detailed in the next table :—

### VICTORIA—CARDBOARD BOXES, CARTONS, AND CONTAINERS

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	53	56	49	52	51
Number of Persons Employed ..	2,155	2,053	2,007	2,125	2,297
Salaries and Wages Paid £'000	1,555	1,639	1,598	1,748	2,024
Value of Power, Fuel, &c., Used					
£'000	54	54	67	81	93
Value of Materials Used £'000	5,689	5,543	5,485	6,138	7,214
Value of Production .. £'000	3,619	3,558	3,542	4,318	4,660
Value of Output .. £'000	9,362	9,155	9,094	10,537	11,967
Value of Land and Buildings £'000	1,200	1,241	1,373	1,784	2,414
Value of Plant and Machinery £'000	1,320	1,377	1,505	1,676	1,744
Horse-power of Engines Ordinarily in Use .. H.P.	4,108	4,291	4,179	4,358	4,643

The following table gives particulars of rubber goods manufacture :—

### VICTORIA—RUBBER GOODS (INCLUDING TYRES MADE)

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	51	54	54	54	56
Number of Persons Employed ..	5,505	6,122	6,182	6,254	6,529
Salaries and Wages Paid £'000	4,978	5,819	5,982	6,280	6,669
Value of Power, Fuel, &c., Used £'000	767	815	901	991	1,056
Value of Materials Used £'000	13,442	16,170	14,088	15,910	16,418
Value of Production .. £'000	9,051	10,268	11,327	12,001	14,066
Value of Output .. £'000	23,260	27,253	26,316	28,902	31,540
Value of Land and Buildings £'000	2,297	2,949	3,211	3,735	3,759
Value of Plant and Machinery £'000	2,650	4,405	3,757	4,028	3,855
Horse-power of Engines Ordinarily in Use .. H.P.	45,196	50,882	53,254	55,214	60,379

Tyres and tubes, shoes, soles and heels, hose, toys, belting, sponge and foam rubber are amongst the wide range of articles produced in the above-mentioned industry.

Plastic moulding and products are the subject of the next table :—

### VICTORIA—PLASTIC MOULDING AND PRODUCTS

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	119	128	147	145	152
Number of Persons Employed ..	4,010	4,412	4,891	5,006	5,267
Salaries and Wages Paid £'000	2,954	3,331	3,918	4,342	4,934
Value of Power, Fuel, &c., Used £'000	200	228	304	353	440
Value of Materials Used £'000	6,853	7,737	9,613	10,876	13,797
Value of Production .. £'000	6,044	6,460	7,562	8,819	10,653
Value of Output .. £'000	13,097	14,425	17,479	20,048	24,890
Value of Land and Buildings £'000	1,557	2,014	2,718	2,958	3,261
Value of Plant and Machinery £'000	2,154	2,495	2,844	3,381	3,740
Horse-power of Engines Ordinarily in Use .. H.P.	11,679	14,440	19,136	20,694	20,781

Introduced as a new sub-class in 1945-46, plastic moulding now contributes substantially to the secondary production of the State. A wide variety of articles is produced, including plastic film and sheet, household accessories, garden hose, piping and tubing, toys, &c.

The following table shows particulars of the operations of electricity generating stations :—

### VICTORIA—ELECTRIC LIGHT AND POWER

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. ..	62	57	53	51	44
Number of Persons Employed ..	2,891	3,007	3,186	3,247	3,398
Salaries and Wages Paid £'000	2,791	3,315	3,534	3,599	3,851
Value of Power, Fuel, &c., Used					
£'000	9,461	9,737	10,513	11,153	9,971
Value of Materials Used £'000	457	524	605	677	600
Value of Production .. £'000	9,142	11,214	13,824	13,706	18,529
Value of Output .. £'000	19,060	21,475	24,942	25,536	29,100
Value of Land and Buildings £'000	12,411	12,844	15,114	17,444	22,949
Value of Plant and Machinery £'000	47,397	49,071	57,017	63,659	70,244
Total Installed Horse-power of Engines Used to Drive Generators .. .. H.P.	1,375,817	1,373,574	1,669,757	1,672,275	1,840,358

Because of the extension of services by the State Electricity Commission to areas previously served by other authorities or individuals, the number of factories decreased considerably during the period under review.

The above particulars refer only to electric light and power generation by all central electric stations in Victoria and do not include details of distribution, &c. They are compiled from factory returns submitted in accordance with the Commonwealth Census and Statistics Act and the Victorian Statistics Act.

Included in the above figures are those of the State Electricity Commission of Victoria which supplies practically all of the electricity generated.

#### *State Electricity Commission of Victoria*

##### *Early Development*

Electricity was first used in Victoria in 1863 in three arc lamps at a display to celebrate the marriage of the Prince of Wales (the future Edward VII). Nearly twenty years later—in 1880—a company established a small power station in Melbourne to light the Eastern Market and the Athenaeum. Subsequently, electricity supply was developed in Melbourne, Geelong, Ballarat, Bendigo and the larger country towns. Except for the larger towns, however, no country centres had electricity.

During the latter years of the First World War it became evident that a grave shortage of power was imminent in the Metropolitan Area. Furthermore, the known inadequacy of Victoria's black coal resources and interruptions in the supply of New South Wales coal due to recurring industrial troubles emphasized the danger of continued dependence

upon imported fuel for electricity generation. By the First World War, Victoria was known to possess large and readily accessible deposits of brown coal. In 1917, the Brown Coal Advisory Committee appointed by the Victorian Government of the day investigated the reservation, protection, and utilization of brown coal. The Committee concluded it was commercially practicable to utilize brown coal for electricity generation and recommended the establishment of such a power station near Morwell, with a transmission line to Melbourne. The recommendations of this committee form the beginning of Victoria's State electricity system as it exists today, and in the closing weeks of 1918 the Victorian Parliament passed the historic Act creating a State electricity authority, the chief function of which was to co-ordinate and extend on an economic basis the supply of electricity throughout Victoria.

#### *Commission's Powers*

By the 1918 Act and subsequent amending Acts this authority—known since 1921 as the State Electricity Commission of Victoria—is vested with power to erect, own, and operate electrical undertakings; acquire existing electricity undertakings; supply electricity retail to individual consumers or in bulk to any corporation or public institution; establish brown coal open cuts; own and operate briquette works; and develop the State's water-power resources for electricity generation. Incidental to its main operations, the Commission owns and operates the tramway systems in Ballarat and Bendigo.

The Commission is the controlling authority for all electricity undertakings in Victoria. It is responsible for the registration of electrical contractors, the licensing of electrical mechanics, the control of installation methods and material, and the testing and approval of electrical equipment and appliances.

#### *State Generating System*

The Commission's State wide system now generates 99 per cent. of all the electricity produced in Victoria and serves about 96 per cent. of the population through a supply network covering more than two-thirds of the populated area of the State. Electricity generated in this system totalled 5,534 million kilowatt-hours in 1958-59, two-thirds of Victoria's electricity being generated from brown coal used either in its raw state or in the form of briquettes. Hydro-stations produced almost 12 per cent. of the State's electricity.

Inclusive of generator capacity available to the Victorian system from outside the State, the total installed capacity of the State generating system at 30th June, 1959, was 1,319,000 kilowatts. Except for 24,550 kilowatts of plant in the Mildura sub-region, all power stations are interconnected. The largest power station in this interconnected system is Yallourn, which alone generates almost half Victoria's electricity. Other stations in the interconnected system comprise steam power stations at Morwell and in Melbourne, Geelong, and Ballarat; hydro-electric stations at Kiewa and Eildon and on the Rubicon and Royston Rivers; and internal combustion power stations

at Shepparton and Warrnambool. The transmission and distribution system at 30th June, 1959, comprised 29,779 miles of high and low voltage power lines, fifteen terminal stations and almost 21,000 distribution sub-stations.

#### *Snowy Mountains Hydro-power*

Victoria is entitled to one-third of the electricity from the Snowy Mountains scheme—after the Commonwealth has taken the power it needs for the Australian Capital Territory and within the Snowy Mountains area. Output from the Snowy scheme was scheduled to be available to Victoria in the latter months of 1959 via a new 330,000-volt transmission line connecting with the Victorian system at Dederang. Victoria also shares (with New South Wales) the electricity generated at Hume Power Station on the River Murray.

#### *Consumers Served*

At 30th June, 1959, the State system served 831,068 consumers in Victoria (649,704 retail and the remainder—181,364—through eleven metropolitan councils which buy electricity in bulk). In addition, bulk supply was given to several New South Wales municipalities and irrigation settlements bordering the River Murray. The State system supplies all the Melbourne Metropolitan Area and nearly 1,500 other centres of population. Rural electrification is now more than four-fifths completed. Outside the State system at 30th June, 1959, there were 21,401 other consumers served by local country undertakings.

#### *Brown Coal and Briquettes*

The Commission is the largest individual fuel producer in the Commonwealth. For the year ended 30th June, 1959, output of brown coal at its three open cuts—Yallourn, Yallourn North, and Morwell—totalled 11,500,864 tons, of which 8,302,571 tons were used in the Commission's own power stations and 2,458,048 tons were manufactured into 642,590 tons of briquettes, 17 per cent. of the briquette output then being used for electricity generation in metropolitan and provincial steam power stations. Sales of briquettes were as follows :—Industrial, 234,853 tons ; Gas and Fuel Corporation (gas making), 126,076 tons ; domestic, 154,219 tons.

#### *New Construction*

Inclusive of the substantial output to which Victoria is entitled from the Snowy Mountains hydro-electric scheme, the capacity of Victoria's State generating system will be more than doubled between 1959 and 1968. At Yallourn work is in progress on a further 240,000 kilowatt extension (Yallourn "E") which is due for completion in 1962. Next to be commissioned after Yallourn "E" will be the new Hazelwood Power Station south of Morwell. It will burn brown coal from the Morwell open cut. Beginning with one generator to be set (200,000 kilowatts) in 1964, the Commission plans to complete the power station to its ultimate capacity of 1,200,000 kilowatts in about 1970.

The new brown coal burning power station built as part of the Morwell power and fuel project is now in partial service. Output for general supply will increase to 91,000 kilowatts in 1961, and to 151,000 kilowatts by 1963. Briquette production in the new factories at Morwell was scheduled to begin in the latter part of 1959. By 1961 production will be at the rate of about 1,500,000 tons a year.

At Kiewa another hydro-power station of 96,000 kilowatts capacity is scheduled to start operating in 1960 for completion in 1961.

Large extensions are to be made to the 220,000 volt transmission system. Sections already in service link Yallourn, Melbourne, and Kiewa ; Melbourne, Geelong, and Colac ; and Kiewa, Shepparton, and Bendigo. From Bendigo a new 220,000 volt line will extend along the Murray Valley to Kerang and Redcliffs (near Mildura). From Bendigo also a further extension will ultimately connect via Ballarat and Geelong to the 220,000-volt Melbourne-Colac line which is to be extended at a future date to Terang.

VICTORIA—STATE ELECTRICITY COMMISSION : INCOME, EXPENDITURE, SURPLUS, ETC.

(£'000)

Particulars	1956-57	1957-58	1958-59
<b>INCOME</b>			
Electricity Sales—			
Domestic .. .. .	10,493	11,387	13,303
Commercial .. .. .	4,704	5,184	5,984
Industrial .. .. .	8,445	9,312	10,717
Bulk .. .. .	7,847	8,848	9,847
Traction .. .. .	1,942	1,997	2,052
Public Lighting and Miscellaneous .. .. .	392	427	493
Briquette Sales .. .. .	1,804	1,998	2,169
Brown Coal Sales .. .. .	800	782	721
Tramways Income .. .. .	108	105	101
Miscellaneous Income .. .. .	13	22	25
<b>TOTAL INCOME.. ..</b>	<b>36,548</b>	<b>40,062</b>	<b>45,412</b>
<b>EXPENDITURE</b>			
Operation and Maintenance (Including Fuel)	18,658	20,064	19,174
Administrative and General Expenses .. .. .	2,908	3,106	3,338
General Services, &c. .. .. .	1,439	1,666	1,823
Depreciation .. .. .	2,809	4,840	5,894
Interest .. .. .	8,646	9,633	10,769
Loan Flotation Expense .. .. .	210	260	365
Deferred Interest, &c., Written Off .. .. .	549	..	3,200
Miscellaneous Expenditure .. .. .	544	473	426
<b>TOTAL EXPENDITURE .. ..</b>	<b>35,763</b>	<b>40,042</b>	<b>44,989</b>
Surplus .. .. .	785	20	423
Fixed Assets (Depreciated) at 30th June .. .. .	209,120	227,314	245,660
Capital Liabilities at 30th June .. .. .	214,261	230,297	245,486

In the next table particulars relating to gas works are shown :—

VICTORIA—GAS WORKS

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
Number of Factories .. .. .	33	32	32	27	27
Number of Persons Employed ..	1,466	1,529	1,626	1,372	1,584
Salaries and Wages Paid £'000	1,404	1,580	1,833	1,738	1,796
Value of Power, Fuel, &c., Used £'000	134	135	195	416	397
Value of Materials Used £'000	5,832	5,882	5,791	5,702	5,800
Value of Production .. £'000	2,753	2,805	2,792	2,609	3,319
Value of Output .. £'000	8,719	8,822	8,778	8,727	9,516
Value of Land and Buildings £'000	625	659	3,009	3,349	3,284
Value of Plant and Machinery £'000	7,218	7,357	14,142	12,554	13,332
Horse-power of Engines Ordinarily in Use .. H.P.	9,235	11,196	16,166	16,106	17,048

The particulars appearing in the above table are compiled from factory returns received under the authority of the Commonwealth Census and Statistics Act and the Victorian Statistics Act. They relate to production and are exclusive of particulars of distribution, &c.

Appropriate details relating to the Gas and Fuel Corporation of Victoria are included in the table. The following is a brief review of the activities of the Corporation.

*Gas and Fuel Corporation of Victoria*

*Formation of the Corporation*

The Gas and Fuel Corporation of Victoria came into being, by Act of Parliament, on 6th December, 1950. It was formed by the merger of two gas companies which supplied adjoining areas: the Metropolitan Gas Company of Melbourne and the Brighton Gas Company. The privately held shares of these two companies were exchanged for fully paid-up preference shares in the Gas and Fuel Corporation. The value of these shares amounted to £3,940,976. The State Government of Victoria invested £4 million held as ordinary shares in the Corporation. Three directors were appointed by the preference shareholders whilst the chairman and three other directors were appointed by the Government. Further capital was to be raised by means of loans, the Government guaranteeing the interest.

The main reason for the formation of the Corporation was to provide finance to make possible the use of the brown coal resources of the Latrobe Valley for town gas production. It was considered essential from both an economic and national view point to change from the conventional method of producing gas from black coal all of which must be imported from New South Wales. Brown coal gasification at the Corporation's Morwell works will ultimately provide the bulk of Victoria's gas requirements.

*Operations Division*

This division is the largest numerically and has the responsibility of maintaining the production of gas both from the metropolitan works and the country branches using black coal and refinery products as raw materials and also from the Morwell plant which is utilizing brown coal in the form of briquettes. For the year ended 30th June, 1959, the Corporation used 298,000 tons of black coal and 122,000 tons of briquettes from which 12,657 million cubic feet of gas were produced. In addition, 52,656 tons of coke and 6,936,241 gallons of tar were produced for sale, and 507,000 gallons of high-octane motor spirit, obtained from the brown coal gas, were refined by the Standard-Vacuum Refining Company Australia Pty. Ltd.

One of the main objectives required of the Corporation was to develop the use of brown coal in the Latrobe Valley for gas production. The Corporation erected a Lurgi high-pressure gasification plant on the brown coalfields at Morwell which was opened by His Royal Highness, the Duke of Edinburgh, on 5th December, 1956. It is now producing over 30 per cent. of the requirements in the Metropolitan Area. The gas is transmitted by high pressure pipe-line, 103 miles in length and 18 inches diameter, from Morwell to Melbourne. Those towns along the pipe-line route, where gas is reticulated from Traralgon through Dandenong to Springvale and the area embracing Frankston and Mornington, are supplied with brown coal gas. In the Metropolitan Area, brown coal gas is automatically blended with black coal gas, water gas and refinery gas to the required standard. In 1954, two years before Morwell came into operation, the Standard-Vacuum Refining Company Australia Pty. Ltd. completed the erection of its catalytic refinery at Altona. As the result of this development, waste refinery gas became available and the Corporation built pipe-lines from the refinery to its metropolitan works.

Thus there exists at present a blend of gases from brown coal and black coal gasification, together with refinery products, for supply of gas to the community. This integration of gaseous products provides the cheapest town gas for domestic and industrial consumption in Victoria. In addition to production, the Operations Division has the responsibility of ensuring the efficient distribution of gas through various reticulation systems within the Corporation's areas where there are 357,000 consumers. Approximately 8,000 new consumers are obtained each year. A further function of this division is to maintain and keep in good order and condition plant and equipment used by the division together with motor transport.

*Development Division*

For an industry to progress there must be development, planning, and research. The Development Division plans for future expansion, is responsible for all capital expenditure on new work, develops new processes, and conducts research. One of its most important functions is to maintain oversea contacts concerning new developments so that it may keep the staff of the Corporation up to date in its thinking. All

routine chemical control work necessary in production comes under the direction of this division, together with the development of new gas using equipment for the home and industry.

#### *Finance and Sales Division*

Planning financial and sales policies and controlling such policies are the responsibilities of this division. By the use of capital and revenue budgeting, the financial requirements of the Corporation are kept continuously under review, assisted in this direction by the functions of the Accounting, Costing, and Budget Departments. By forward planning and control of finance and sales, this division has the responsibility to management in guiding the economic destiny of the Corporation. Sales functions include not only the selling of gas, appliances, and by-products, but also market research, accounting, sales promotion, publicity, and advertising. The turnover on the sale of appliances alone, which is not included in the table below, exceeds £2 mill. per annum.

In addition to the sale of town gas, which is reticulated, another gas is sold in steel bottles to homes in the country where normal supplies are not available. This gas is propane and is obtained from the Altona oil refinery. It is compressed into bottles or cylinders under pressure and sold under the name of "Heatane". By this means the Corporation is bringing to country homes an amenity which is enjoyed in the city.

#### *Future Developments*

An important development which is now in course of examination is the production of a metallurgical coke from brown coal briquettes. As brown coal does not naturally form a coke, this material is more correctly termed "hard char". It is produced by passing gases at 800° C. through a bed of briquettes. Under these conditions the briquettes shrink to 40 per cent. of their original size and form a dense "hard char" equal in quality to the best metallurgical coke. The secret in producing high quality "hard char" lies in the time of heating to the required temperature. This was discovered by post-graduate students in the Engineering School at the University of Melbourne.

The Gas and Fuel Corporation has erected a semi-commercial plant at Morwell, which is now in operation, with a through put of 25 tons of briquettes per day. The reason for the erection of this plant was to study the method of production and try the product in large-scale foundry and metallurgical practice.

Extensions are also now being planned for additional gas production to meet the State's expanding requirements. These will involve the use of additional quantities of brown coal briquettes at Morwell and larger quantities of oil and liquid petroleum gas in the Metropolitan Area. Very close attention is being given to the developments in new methods of gas production from powdered coal which are taking place both in the United Kingdom and the United States of America. It is not anticipated that these processes will be in commercial operation before 1967.

## Summary

The aim of the Gas and Fuel Corporation is to render the best possible service in supplying a clean gaseous fuel to the homes and industries of Victoria, a service which every modern community demands. A gaseous fuel is most convenient. It is clean, easily controlled, it requires no storage by the consumer, and a pipe-line is the cheapest mode of transport. For the Corporation to attain its objective it is vital that fuels be gasified as cheaply as possible, so that gas may play its true part in the fuel economy of the State.

VICTORIA—GAS AND FUEL CORPORATION : REVENUE,  
EXPENDITURE, ETC.

(£'000)

Particulars	1954-55	1955-56	1956-57	1957-58	1958-59
<b>REVENUE</b>					
Sales—					
Gas .. .. .	6,743	7,110	7,604	8,244	9,361
Residual Products and Other Items* .. .. .	1,660	1,611	1,574	1,206	1,166
Income from General Investments	15	3	3	3	1
<b>TOTAL REVENUE ..</b>	<b>8,418</b>	<b>8,724</b>	<b>9,181</b>	<b>9,453</b>	<b>10,528</b>
<b>EXPENDITURE</b>					
Manufacture of Gas .. .. .	5,557	5,512	6,080	6,256	6,534
Transmission Expenses .. .. .	..	..	91	134	163
Distribution of Gas .. .. .	1,544	1,743	2,344	2,515	2,792
Management Expenses .. .. .	121	146	231	263	307
Research, Investigation, and Development .. .. .	..	..	56	68	181
Superannuation Contributions, Re- tiring Allowances, &c. .. .. .	77	88	94	96	129
Interest on Debentures, Overdraft, &c. .. .. .	329	404	} †	†	†
Depreciation and Amortization .. .. .	535	567			
Long Service Leave .. .. .	53	57	64	68	78
Contingency Reserve .. .. .	25	25	25	..	25
Other .. .. .	19	24	38	46	99
<b>TOTAL EXPENDITURE ..</b>	<b>8,260</b>	<b>8,566</b>	<b>9,023</b>	<b>9,446</b>	<b>10,308</b>
Net Surplus .. .. .	158	158	158	7	220
Fixed Assets less Depreciation and Amortization at 30th June .. .. .	19,318	24,331	27,877	30,213	31,515
Loan Indebtedness at 30th June—					
State Government .. .. .	10,589	11,759	11,908	12,058	12,168
Other .. .. .	9,607	13,227	16,928	19,955	22,569

\* Excludes sales of appliances.

† Since 1955-56 interest charges and depreciation have been apportioned over the various expense accounts.

### Government Factories

In 1938-39, Government factories numbered 127 and employed 12,958 persons. These factories expanded considerably as a result of war activities and reached their peak of employment in 1942-43 when

50,831 persons were working in 158 factories. In 1958–59, employment had decreased to 28,988 in 143 factories. Comparative particulars for the last five years are shown in the following table :—

VICTORIA—GOVERNMENT FACTORIES AND WORKSHOPS

Particulars	1954–55	1955–56	1956–57	1957–58	1958–59
Number of Factories .. ..	149	154	150	143	147
Number of Persons Employed ..	29,429	30,788	29,448	28,482	28,988
Salaries and Wages Paid £'000	25,032	27,944	27,364	26,910	28,039
Value of Power, Fuel, &c., Used £'000	10,594	11,006	11,857	12,469	11,704
Value of Materials Used £'000	23,980	26,166	27,086	29,076	27,517
Value of Production .. £'000	37,849	42,104	44,681	44,176	51,466
Value of Output .. £'000	72,423	79,276	83,624	85,721	90,687
Value of Land and Buildings £'000	29,059	31,175	36,173	39,238	45,983
Value of Plant and Machinery £'000	69,779	75,662	91,135	93,831	107,209

The above table embraces establishments under the control of the Commonwealth and State Governments and Local Government Authorities. Such activities as railway and tramway workshops, electric light and gas works, dockyards, printing works and clothing, aircraft and munitions factories, &c., are included.

In relation to the whole of Victorian factories during 1958–59 Government factories absorbed 8 per cent. of employment ; expended 9 per cent. of the salaries and wages paid ; and accumulated 8 per cent. of the value of production.