

MANUFACTURING INDUSTRY

Natural Resources and Location

Natural Resources

Victoria's temperate climate, rainfall, soil and water resources have been used to develop the production of wool, grains, fruit, dairy products, and timber. On these the State's early secondary industries were based. There are extensive fuel resources of brown coal in the Latrobe Valley. Of special importance to the industries of the State are the oil and natural gas fields in Bass Strait—recent discoveries whose potential is at present being evaluated.

The Latrobe Valley brown coal deposits, and to a much lesser degree those of south Gippsland and a number of small basins west of Melbourne, are the most important mineral deposits in Victoria. The open cuts of the Yallourn-Morwell area produce about 21 mill. tons of brown coal annually for briquette making, electricity generation, and conversion of briquettes into gas. Small quantities of black coal (40,000 tons annually) are mined in south-western Gippsland where seams are thin and faulted.

Clay deposits for brick, tile and pottery industries are worked east of Melbourne and near Ballarat, Bendigo, Colac, Shepparton, and Wangaratta. Sand, for the concrete and glass industries and for use in foundries, is obtained in the Port Phillip and west Gippsland areas. Quarry stones and gravels for construction and concrete are worked in many parts of the State. The main market for quarry products is the Metropolitan Area and as these products are bulky and expensive to transport, most quarrying is located within a 50-mile radius of the capital. Local limestone deposits attracted the establishment of cement works at Geelong, Traralgon, and Port Fairy, while the Lilydale limestones are used in the manufacture of agricultural lime.

Other mineral resources of Victoria include gold mining in the Castlemaine district; salt production from deposits of the Mallee and Wimmera lakes and the western shores of Port Phillip; gypsum in the north-western Mallee; and bauxite deposits in south Gippsland.

The forests of Gippsland and the Central Highlands form the basis of important forestry activities, especially in Gippsland where paper is produced at Maryvale. Victorian forests produce approximately one-quarter of Australia's timber.

Power supplies are essential for industrial development. The lack of black coal once necessitated significant imports from New South Wales. Today, the State Electricity Commission generates 89 per cent of Victoria's electricity, mostly from steam plants fired by briquettes or brown coal in the Latrobe Valley; the balance is brought in, or produced in factories. Electricity is now transmitted throughout the State by the high voltage grid network shown on the map on page 434.

Recent discoveries of large off-shore reserves of oil and natural gas in the Gippsland Basin (the potential of which is at present being determined) make Victoria's power and chemical outlook promising. Estimates from exploratory drilling rank the Gippsland, Bass, and Otway Basins as having great oil and natural gas potential, and commercial use of natural gas from the Gippsland Basin is scheduled to commence by 1969.

Other sources of power for industry are gas, produced in Melbourne and principal country centres, and brought by pipeline from Morwell to Melbourne and oil and liquid petroleum gas from the refineries at Altona, Geelong, and Crib Point.

Water, needed in large quantities for industry, is available throughout the State from the dams and storages in the catchment areas of the main rivers (see map on page 478, Victorian Year Book, 1966). Melbourne is well supplied with water from the storages to the north and north-east of the city in the Plenty, Upper Yarra, Maroondah, and O'Shannassy river catchments.

Location

The early concentration of industry in Melbourne has continued although power supplies now come largely from the Latrobe Valley. Of Victoria's 17,980 factories in 1965-66, 72.2 per cent were located in the Melbourne Statistical Division, which also had 82.4 per cent of the State's factory workers. Melbourne's factories contributed 81.0 per cent of the value added in manufacture. This concentration of manufacturing in the Metropolitan Area is partly due to the fact that Melbourne is Victoria's main port and the hub of the transport network. It is also the largest market in the State; the centre of commerce and finance; has a large labour force; and is the administrative and educational centre of Victoria.

Many types of secondary industry are well represented in Melbourne. There are particularly high concentrations of the State's chemical, metal processing, textile, paper, furniture, food, and building materials industries in the capital. In terms of numbers employed, the engineering and metal processing industry is the major industry of Melbourne. Initially, industries developed in the inner areas of Port Melbourne, South Melbourne, Richmond, Collingwood, Spotswood, Fitzroy, and Footscray. The more recently established industries such as the motor vehicle, chemical, rubber, and refining industries, have taken up land in the outer industrial areas of Altona, Broadmeadows, and Dandenong, where considerable areas of flat land are available for future expansion.

Concerned at the growth of Melbourne's population and increasing concentration of the State's industries there, the State Government has encouraged decentralisation of industry by offering freight concessions, long-term low interest loans, and cheap power and water supplies to country areas. The main drawback to decentralised industry is the shortage of skilled labour and small markets in these areas.

Outside the Metropolitan Area, Geelong is the most important industrial centre, with port facilities, close proximity to the Melbourne market, and rich surrounding rural areas. Industries established in the area include petroleum refining, and the manufacture of agricultural machinery, motor vehicles, textiles, chemical fertilizers, clothing, foodstuffs, and cement. Recently established is an aluminium smelting and extrusion plant.

The other country urban areas in which more than 1,000 persons are employed in factories (ranked in order of the number of persons employed in factories) are the Latrobe Valley, Ballarat Urban Area, Bendigo Urban Area, Warrnambool City, Wangaratta City, Shepparton City, Maryborough City, and Castlemaine Town. Apart from the Latrobe Valley, which is primarily engaged in power generation and ancillary activities, the factory population elsewhere is engaged in the production of food, textiles and clothing from locally produced raw materials, in engineering pursuits in plants which in some instances had their origin in the gold mining era of the 19th century, and more recently, in decentralised plants with defence significance.

In the ten-year period to June, 1964, the Gippsland, Northern, and Central Statistical Divisions showed considerable increases in the number of factories and factory workers, but elsewhere in country areas little expansion in industrial activities has occurred.

Manufacturing Activity

Developments in Victorian Manufacturing Industry during 1966

In 1966, many major developments were undertaken by Victorian manufacturing industries, both in the Metropolitan Area and in country districts. Prominent among industries which undertook or completed large expansion programmes were the motor vehicle, oil refining, rubber, chemical, aluminium smelting, and food processing industries.

The most significant development in the motor vehicle industry was the completion, or near-completion, of major expansion programmes to enable the industry to comply with the Federal Government's plan to raise the Australian content of motor vehicles.

The potential of Westernport as a deep sea port was realised in July, 1966 when the \$30m oil refinery at Crib Point received its first cargo of crude oil for processing. The refinery has an initial capacity of 1½ mill. tons of crude oil a year and is connected to a bulk petroleum

installation at Dandenong by a 24-mile pipeline. At Altona, a new reformer unit and additions to a catalytic cracking unit were installed at a cost of \$9m. This will enable full usage of the existing oil processing capacity to meet increased demand for motor spirit.

An agreement made in 1965 between an Australian and a West German chemical company has resulted in the building of a factory at Altona to produce expandable polystyrene and plastic dispersions. This is the first plant in Australia to produce these products and should result in an import saving of several million dollars a year. Also at Altona, \$4m is being spent on plant for the production of polybutadiene rubber used in the production of tyre treads, shoe soles, and conveyor belts. Two new automotive tyre manufacturing projects were commenced in 1966, at Thomastown and Somerton, at the total cost of \$13m.

Near Geelong, an aluminium foil mill was commissioned and a 3,900 ft long concrete pier with bauxite unloading equipment rated at 400 tons an hour was completed. Twenty-five miles away at Anglesea, work commenced on the erection of steam generating power plant of 150 mW capacity using nearby brown coal. In the near future, power from Anglesea will be used to meet the heavy electricity requirements of the aluminium works at Point Henry.

Extension of food processing plants has been undertaken at Shepparton and in the nearby towns of Lemnos, Kyabram, and Tongala. Reconstruction of the Shire of Shepparton abattoirs is to cost more than \$3m and it is expected that 60 per cent of production will be for export.

On a 27-acre site at Broadmeadows, a large food plant is being built to manufacture cereals and biscuits. The buildings will have a total area of 350,000 sq ft and the total cost of the project is expected to be about \$10m. The entire operations of a large confectionery manufacturer are being moved to a new factory at Ringwood at a cost of \$6m.

Three major plants were established in Victoria during 1966 by U.S. companies. These projects involve the construction of a pharmaceutical plant at Noble Park, a sporting ammunition plant at Geelong, and an outboard motor assembly plant at Dandenong.

Further References, 1965 to 1967

Government Activities

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 them.

The general provisions of factory legislation, including Wages Boards, are further referred to on pages 172-3, 179-180, and 192-3.

Decentralisation of Manufacturing Industries: Division of State Development

Since the early stages of the Second World War, successive State governments have encouraged the development of existing manufacturing facilities and the establishment of new industries in country areas.

Concentration of Victoria's population in the Metropolitan Area of Melbourne is of increasing concern to both individuals and Government alike. The inroads of mechanisation into primary industry and the consequent lessening of employment opportunities have emphasised the need to develop other avenues for labour in the non-metropolitan parts of the State. In order to obviate costs of establishment or expansion, the Government may make land available to secondary industry in many country areas with or without consideration. This enables an industry to acquire a site adequate to meet all likely needs of future expansion and at the same time provide for adequate staff amenities.

To supply housing, land can be negotiated, houses built by the State Housing Commission for "imported" key personnel, or money made available to co-operative building societies for the express use of personnel nominated by a sponsored industry. As a further inducement to the setting up or expansion of manufacturing industry in non-metropolitan areas, loans at a moderate rate of interest are available through the Rural Finance and Settlement Commission or, in certain cases, direct from the State Treasury.

Whilst existing incentives offered are for the purpose of bridging the gap between metropolitan and country operations, an all-party committee appointed by the Victorian Houses of Parliament has made it clear that these should be progressively increased even beyond the point of parity between metropolitan and non-metropolitan locations.

To remove any possible locational disadvantages as compared with Melbourne, rail freight rates on raw materials and finished products are reduced to a nominal figure (as low as 10 per cent); charges for power, gas, and water can be subsidised, if necessary, to bring them in line with Melbourne rates; and, in respect of an approved decentralised industry, restriction on the use of road transport is eliminated. In addition, instrumentalities are encouraged to provide all services and facilities, especially to sites receiving government sponsorship.

Commonwealth Department of Trade

The functions of this Department include the development of secondary industries, the protection of secondary industry (including tariff protection which is administered through the Tariff Board, see page 721), and as part of its policy of promoting external trade, the promotion of exports of the products of secondary industry.

Customs and Excise Tariffs and Bounties on Manufacture

The Tariff Board, appointed by the Commonwealth Government, examines proposals for amending a 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 Standardisation*Commonwealth Scientific and Industrial Research Organisation*

The function of this Organisation is to initiate and conduct research in connection 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 standardisation 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 standardising organisation 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 organises national testing facilities throughout Australia to serve private and governmental needs. Laboratories may register voluntarily for 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 dealing with factories have been compiled from returns supplied annually by manufacturers under the authority of the Commonwealth Census and Statistics Act. A return must be supplied for 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 about the number, age, wages, etc., of their employees, the value of premises and equipment and of factory stocks, the horse-power of machinery, the value, and, in many cases, the quantities of raw materials and fuel used, and quantities and values of principal articles produced. These returns 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, etc., and profit.

It is considered that, because of the duplication of materials used (which means that the finished product of one process of manufacture often forms 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 woollscouring 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 the annual comparisons of manufacturing production.

The concept of value added prevents this double counting and gives a truer picture of the relative economic importance of industries.

Classification of Factories

General

In the compilation of statistical data dealing with 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 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. The construction of a new classification, compatible with the United Nations International Standard Industrial Classification, is being undertaken and it is expected that this will be introduced for the 1968-69 factory census.

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 sub-class of industry, is unable to give separate production costs, etc., for such activities, it is classified to its predominant activity.

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

CLASSIFICATION OF FACTORIES

CLASS 1.—TREATMENT OF NON-METALLIFEROUS MINE AND QUARRY PRODUCTS

1. Coke Works
2. Briquetting and Pulverised Coal
3. Carbide
4. Lime, Plaster of Paris, and Asphalt
5. Fibrous Plaster and Products
6. Marble, Slate, etc.
7. Cement, Portland
8. Asbestos Cement. Sheets and Mouldings
9. Other Cement Goods
10. Other

CLASS 2.—BRICKS, POTTERY, GLASS, ETC.

1. Bricks and Tiles
2. Earthenware, China, Porcelain, and Terracotta
3. Glass (Other than Bottles)
4. Glass Bottles
5. Other

CLASS 3.—CHEMICALS, DYES, EXPLOSIVES, PAINTS, OILS, GREASE

1. Industrial and Heavy Chemicals and Acids
2. Pharmaceutical and Toilet Preparations

CLASS 3.—CHEMICALS, DYES, EXPLOSIVES, PAINTS, OILS, GREASE
—continued

3. Explosives (Including Fireworks)
4. White Lead, Paints, and Varnish
5. Oils, Vegetable
6. Oils, Mineral
7. Oils, Animal
8. Boiling-down, Tallow-refining
9. Soap and Candles
10. Chemical Fertilizers
11. Inks, Polishes, etc.
12. Matches
13. Other

CLASS 4.—INDUSTRIAL METALS, MACHINES, CONVEYANCES

1. Smelting, Converting, Refining, Rolling of Iron and Steel
2. Foundries (Ferrous)
3. Plant, Equipment, and Machinery, etc.
4. Other Engineering
5. Extracting and Refining of Other Metals; Alloys
6. Electrical Machinery, Cables, and Apparatus
- 7-16. Construction and Repair of Vehicles (10 Groups)
- 17-18. Ship and Boat Building and Repairing, Marine Engineering (Government and Other)
19. Cutlery and Small Hand Tools
20. Agricultural Machines and Implements
21. Non-ferrous Rolling and Extrusion
22. Non-ferrous Founding, Casting, etc.
24. Sheet Metal Working, Pressing, and Stamping
25. Pipes, Tubes, and Fittings—Ferrous
26. Wire and Wire Netting (Including Nails)
27. Stoves, Ovens, and Ranges
28. Gas Fittings and Meters
29. Lead Mills
30. Sewing Machines
31. Arms and Ammunition (Excluding Explosives)
32. Wireless and Amplifying Apparatus
33. Other Metal Works

CLASS 5.—PRECIOUS METALS, JEWELLERY, PLATE

1. Jewellery
2. Watches and Clocks (Including Repairs)
3. Electroplating (Gold, Silver, Chromium, etc.)

CLASS 6.—TEXTILES AND TEXTILE GOODS (NOT DRESS)

1. Cotton Ginning
2. Cotton Spinning and Weaving
3. Wool—Carding, Spinning, Weaving
4. Hosiery and Other Knitted Goods
5. Silk, Natural
6. Rayon, Nylon, and Other Synthetic Fibres
7. Flax Mills
8. Rope and Cordage
9. Canvas Goods, Tents, Tarpaulins, etc.
10. Bags and Sacks
11. Textile Dyeing, Printing, and Finishing
12. Other

CLASS 7.—SKINS AND LEATHER (NOT CLOTHING OR FOOTWEAR)

1. Furriers and Fur-dressing
2. Woolscouring and Fellmongery
3. Tanning, Currying, and Leather-dressing
4. Saddlery, Harness, and Whips
5. Machine Belting (Leather or Other)
6. Bags, Trunks, etc.

CLASS 8.—CLOTHING (EXCEPT KNITTED)

1. Tailoring and Ready-made Clothing
2. Waterproof and Oilskin Clothing
3. Dressmaking, Hemstitching
4. Millinery
5. Shirts, Collars, and Under-clothing
6. Foundation Garments
7. Handkerchiefs, Ties, and Scarves
8. Hats and Caps
9. Gloves
10. Boots and Shoes (Not Rubber)
11. Boot and Shoe Repairing
12. Boot and Shoe Accessories
13. Umbrellas and Walking Sticks
14. Dyeworks and Cleaning, etc.
15. Other

CLASS 9.—FOOD, DRINK, AND TOBACCO

1. Flour-milling
2. Cereal Foods and Starch
3. Animal and Bird Foods
4. Chaffcutting and Corncrushing
5. Bakeries (Including Cakes and Pastry)
6. Biscuits
7. Sugar-mills
8. Sugar-refining

CLASS 9.—FOOD, DRINK, AND TOBACCO—*continued*

9. Confectionery (Including Chocolate and Icing Sugar)
10. Jam, Fruit, and Vegetable Canning
11. Pickles, Sauces, and Vinegar
12. Bacon Curing
13. Butter Factories
14. Cheese Factories
15. Condensed and Dried Milk Factories
16. Margarine
17. Meat and Fish Preserving
18. Condiments, Coffee, and Spices
19. Ice and Refrigerating
20. Salt
21. Aerated Waters, Cordials, etc.
22. Breweries
23. Distilleries
24. Wine-making
25. Cider and Perry
26. Malting
27. Bottling
28. Tobacco, Cigars, Cigarettes, and Snuff
29. Dehydrated Fruit and Vegetables
30. Ice Cream
31. Sausage Casings
32. Arrowroot
33. Other

CLASS 10.—SAWMILLS, JOINERY, BOXES, ETC., WOOD TURNING AND CARVING

1. Sawmills
2. Plywood Mills (Including Veneers)
3. Bark Mills
4. Joinery
5. Cooperage
6. Boxes and Cases
7. Woodturning, Woodcarving, etc.
8. Basketware and Wickerware (Including Sea-grass and Bamboo Furniture)
9. Perambulators (Including Pushers and Strollers)
10. Wall or Ceiling Board (Not Plaster or Cement)
11. Other

CLASS 11.—FURNITURE OF WOOD, BEDDING, ETC.

1. Cabinet and Furniture Making (Including Billiard Tables and Upholstery)
2. Bedding and Mattresses (Not Wire)

CLASS 11.—FURNITURE OF WOOD, BEDDING, ETC.—*continued*

3. Furnishing Drapery
4. Picture Frames
5. Blinds

CLASS 12.—PAPER, STATIONERY, PRINTING, BOOKBINDING, ETC.

1. Newspapers and Periodicals
- 2-3. Printing (Government and Other)
4. Manufactured Stationery
5. Stereotyping, Electrotyping
6. Process and Photo Engraving
7. Cardboard Boxes, Cartons, and Containers
8. Paper Bags
9. Paper-making
10. Pencils, Penholders, Chalks, and Crayons
11. Other

CLASS 13.—RUBBER

1. Rubber Goods (Including Tyres Made)
2. Tyre Retreading and Repairing

CLASS 14.—MUSICAL INSTRUMENTS

1. Gramophones and Gramophone Records
2. Pianos, Piano-Players, and Organs
3. Other

CLASS 15.—MISCELLANEOUS PRODUCTS

1. Linoleum, Leather-cloth, Oil-cloth, etc.
2. Bone, Horn, Ivory, and Shell
3. Plastic Moulding and Products
4. Brooms and Brushes
5. Optical Instruments and Appliances
6. Surgical and Other Scientific Instruments and Appliances
7. Photographic Material (Including Developing and Printing)
8. Toys, Games, and Sports Requisites
9. Artificial Flowers
10. Other

CLASS 16.—HEAT, LIGHT, AND POWER

- 1-3 Electric Light and Power
- 4-6 Gas Works

Summary of Factories

The table below shows, at intervals between 1901 and 1965-66, the development of manufacturing industry in Victoria :

VICTORIA—SUMMARY OF FACTORY DEVELOPMENT

Year	Factories	Employment*	Salaries and Wages Paid†	Value of—			
				Materials and Fuel Used	Production‡	Output	Land, Buildings, Plant and Machinery
	No.			\$'000			
1901	3,249	66,529	§	§	§	§	24,596
1911	5,126	111,948	17,822	51,334	32,162	83,496	27,516
1920-21 ..	6,532	140,743	42,754	135,171	76,846	212,017	70,985
1932-33 ..	8,612	144,428	42,437	122,070	81,900	203,970	135,655
1940-41 ..	9,121	237,636	104,590	240,696	178,002	418,698	184,100
1946-47 ..	10,949	265,757	155,988	367,883	262,992	630,875	243,755
1953-54 ..	15,533	331,277	472,073	1,154,381	816,629	1,971,010	678,535
1960-61 ..	17,173	388,050	775,998	1,913,978	1,417,546	3,331,524	1,641,886
1961-62 ..	17,300	378,349	770,378	1,933,828	1,440,644	3,374,472	1,827,610
1962-63 ..	17,501	397,851	838,862	2,105,058	1,601,792	3,706,850	1,957,456
1963-64 ..	17,597	413,120	912,424	2,305,046	1,749,776	4,054,822	2,061,518
1964-65 ..	17,925	432,389	1,028,492	2,551,121	1,949,665	4,500,786	2,233,660
1965-66 ..	17,980	439,149	1,077,234	2,597,230	2,027,685	4,624,915	2,385,957

NOTE.—See also definitions on pages 379-380.

* Average employment over whole year, including working proprietors.

† Excludes drawings of working proprietors.

‡ Value of output less value of materials, etc.

§ Not available.

A graph showing the distribution of the components of Value of Output of the years 1956-57 to 1965-66 is shown on page 389.

A comparison of Victorian factory activity with that in other States is shown in the following table :

AUSTRALIA—FACTORIES, 1965-66

State	Factories	Employment*	Salaries and Wages Paid†	Value of—			
				Materials and Fuel Used	Production‡	Output	Land, Buildings, Plant and Machinery
	No.			\$'000			
New South Wales	24,531	519,364	1,303,680	3,491,059	2,693,265	6,184,323	3,331,316
Victoria	17,980	439,149	1,077,234	2,597,230	2,027,685	4,624,915	2,385,957
Queensland ..	6,010	117,581	268,046	968,218	542,996	1,511,214	751,017
South Australia ..	6,065	118,343	282,951	743,062	527,477	1,270,539	699,989
Western Australia	4,906	60,282	134,171	389,948	288,803	678,751	348,257
Tasmania ..	1,792	34,315	82,963	233,974	170,606	404,581	370,596
Northern Territory	185	1,294	3,859	6,353	7,103	13,456	13,795
Australian Capital Territory ..	217	3,495	9,866	14,109	17,418	31,528	32,025
Total ..	61,686	1,293,823	3,162,769	8,443,953	6,275,355	14,719,308	7,932,983

* † ‡ See notes to table above.

NOTE.—Australian Capital Territory and Northern Territory factories are not included in the above table.

Factories Classified According to Class of Industry

The following table contains a summary of factories by class of industry in Victoria during the year 1965-66 :

VICTORIA—FACTORIES BY CLASSES, 1965-66

Class of Industry	Factories	Employment*	Salaries and Wages Paid†	Value of—			
				Materials and Fuel Used	Production ‡	Output	Land, Buildings, Plant and Machinery
	No.			\$'000			
1. Treatment of Non-metalliferous Mine and Quarry Products ..	488	7,689	22,129	65,827	48,503	114,331	87,508
2. Bricks, Pottery, Glass, etc. ..	176	7,710	20,803	27,990	41,049	69,038	46,365
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease ..	391	17,648	52,476	289,774	170,362	460,136	231,033
4. Industrial Metals, Machines, Conveyances ..	7,470	186,000	492,078	845,569	774,826	1,620,395	815,505
5. Precious Metals, Jewellery, Plate ..	252	2,180	4,891	5,565	8,761	14,326	6,259
6. Textiles and Textile Goods (Not Dress) ..	775	43,343	89,860	228,130	158,795	386,925	146,295
7. Skins and Leather (Not Clothing or Footwear) ..	224	3,830	8,443	22,326	14,540	36,866	13,364
8. Clothing (Except Knitted) ..	2,439	48,432	84,886	128,544	140,033	268,577	89,923
9. Food, Drink, and Tobacco ..	1,918	43,583	102,107	553,361	258,530	811,891	295,323
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving ..	1,361	15,219	35,335	74,776	59,995	134,771	53,697
11. Furniture of Wood, Bedding, etc. ..	621	6,724	14,092	30,369	25,841	56,210	20,710
12. Paper, Stationery, Printing, Bookbinding, etc. ..	1,071	29,634	77,755	167,341	156,230	323,571	157,643
13. Rubber ..	188	8,230	22,243	51,018	36,526	87,545	40,941
14. Musical Instruments ..	16	199	492	526	768	1,294	596
15. Miscellaneous Products ..	538	13,516	32,462	66,313	56,718	123,031	68,750
Total, Classes 1 to 15 ..	17,928	433,937	1,060,054	2,557,430	1,951,477	4,508,907	2,073,912
16. Heat, Light, and Power ..	52	5,212	17,179	39,800	76,208	116,009	312,044
GRAND TOTAL ..	17,980	439,149	1,077,234	2,597,230	2,027,685	4,624,915	2,385,957

For footnotes see page 383.

Industrial Metals, Machines, and Conveyances with 186,000 persons or 42.4 per cent of the total employment in factories during 1965-66, employed considerably more persons than any other class of industry. Next in order of employment was Clothing with 48,432 or 11.0 per cent, followed by Food, Drink, and Tobacco, and Textiles and Textile Goods with 43,583 and 43,343, respectively, or 9.92 per cent and 9.87 per cent of the total.

The total value of production (added value) in 1965-66 was \$2,027,685,000. Of this amount the metals group contributed \$774,826,000 which represented 38.2 per cent of the total. The food group followed with \$258,530,000 or 12.8 per cent, and next in order were Chemicals, Dyes, etc., \$170,362,000, 8.4 per cent, Textiles with \$158,795,000, 7.8 per cent, Paper \$156,230,000, 7.7 per cent, and Clothing \$140,033,000, 6.9 per cent.

The next table shows the number of factories in Victoria during the years 1961-62 to 1965-66 classified according to industry :

VICTORIA—NUMBER OF FACTORIES IN INDUSTRIAL CLASSES

Class of Industry	1961-62	1962-63	1963-64	1964-65	1965-66
1. Treatment of Non-metalliferous Mine and Quarry Products	470	478	480	484	488
2. Bricks, Pottery, Glass, etc.	177	183	189	182	176
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	381	390	395	393	391
4. Industrial Metals, Machines, Conveyances	6,779	6,944	7,041	7,332	7,470
5. Precious Metals, Jewellery, Plate	245	247	251	263	252
6. Textiles, and Textile Goods (Not Dress)	785	781	773	793	775
7. Skins and Leather (Not Clothing or Footwear)	245	240	246	235	224
8. Clothing (Except Knitted)	2,514	2,545	2,506	2,471	2,439
9. Food, Drink, and Tobacco	2,030	1,989	1,957	1,944	1,918
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	1,342	1,332	1,323	1,341	1,361
11. Furniture of Wood, Bedding, etc.	626	635	644	636	621
12. Paper, Stationery, Printing, Book-binding, etc.	965	987	1,038	1,069	1,071
13. Rubber	171	180	183	187	188
14. Musical Instruments	24	24	21	17	16
15. Miscellaneous Products	479	484	494	519	538
Total, Classes 1 to 15	17,233	17,439	17,541	17,866	17,928
16. Heat, Light, and Power	67	62	56	59	52
GRAND TOTAL	17,300	17,501	17,597	17,925	17,980

The size classification of factories is based on the average number of persons employed during the period of operation (including working proprietors). The following tables show the number of factories classified on this basis for each of the years 1961-62 to 1965-66 :

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

Year	Number of Factories Employing, on the Average, Persons Numbering—							Total
	Under 4	4	5 to 10	11 to 20	21 to 50	51 to 100	Over 100	
1961-62	6,262	1,387	4,109	2,369	1,817	686	670	17,300
1962-63	6,331	1,347	4,124	2,424	1,856	709	710	17,501
1963-64	6,256	1,361	4,154	2,437	1,919	735	735	17,597
1964-65	6,251	1,418	4,244	2,499	1,970	758	785	17,925
1965-66	5,935	1,497	4,393	2,553	2,006	807	789	17,980

**VICTORIA—AVERAGE NUMBER OF PERSONS EMPLOYED
DURING PERIOD OF OPERATION**

Year	Average Number Employed (Including Working Proprietors) in Factories Employing, on the Average, Persons Numbering—							Total
	Under 4	4	5 to 10	11 to 20	21 to 50	51 to 100	Over 100	
1961-62	12,450	5,548	28,781	35,072	57,664	47,988	192,720	380,223
1962-63	12,665	5,388	29,129	35,766	58,914	49,734	208,257	399,853
1963-64	12,217	5,444	29,181	35,854	61,022	51,945	219,246	414,909
1964-65	12,108	5,672	29,769	36,796	62,028	53,156	234,897	434,426
1965-66	11,591	5,988	30,627	37,581	63,066	57,050	236,430	442,333

NOTE.—Average employment during the period of operations ; includes working proprietors. The use of averages during period of operation has the arithmetic effect of increasing the average number of persons working in factories over the whole year—439,149 in total by 3,184 persons to total of 442,333 persons.

The relative importance of large and small factories is illustrated in the above table. In 1965-66, 5,935 factories employing less than four employees had a total employment of 11,591 persons. Expressed in terms of percentages, 33 per cent of factories—those employing less than four persons—employed 2·6 per cent of the persons engaged in factories. The most numerous of the factories with less than four persons were Motor Repair Workshops, Bakeries, General Engineering Workshops, and Boot and Shoe Repairing.

The relative and absolute increases in the number of small factories using power other than manual, i.e., those employing less than four persons, is shown in the table which follows. In 1902, factories employing less than four persons numbered 525 and constituted 13·1 per cent of the total. By 1965-66, this figure had increased to 5,935 i.e., 33 per cent of the total. This increase is believed to be due not so much to an increase in the number of small factories, but to a greater use over the years of fractional horsepower electric motors in small factories, with the result that such establishments came within the statistical definition of a factory. The table also shows that in 1965-66, factories employing less than four persons accounted for only 1·8 per cent of the total Value of Production, and that Value of Production per person employed is lowest in the smallest factories and, in general, rises as size increases.

VICTORIA—NUMBER OF FACTORIES : PERSONS EMPLOYED AND VALUE OF PRODUCTION ACCORDING TO NUMBER OF PERSONS EMPLOYED DURING PERIOD OF OPERATION, 1902 and 1965-66

Average Number of Persons Employed during Period of Operation	1902				1965-66						
	Factories		Persons Employed*		Factories		Persons Employed*		Value of Production‡		
	No.	%	No.	%	No.	%	No.	%	\$'000	%	Per Person Employed \$
Under 4	525	13·1	1,636	2·2	5,935	33·0	11,591	2·6	37,184	1·8	3,208
4 ..	398	9·9	1,603	2·2	1,497	8·3	5,988	1·4	19,056	0·9	3,182
5-10 ..	1,629	40·7	11,303	15·5	4,393	24·4	30,627	6·9	116,420	5·7	3,801
11-20 ..	726	18·1	10,562	14·5	2,553	14·2	37,581	8·5	150,850	7·4	4,014
21-50 ..	467	11·7	14,361	19·6	2,006	11·2	63,066	14·3	265,744	13·1	4,214
51-100 ..	148	3·7	10,238	14·0	807	4·5	57,050	12·9	263,819	13·0	4,624
101-200	110	2·8	23,360	32·0	439	2·4	62,410	14·1	303,727	15·0	4,867
201-500					251	1·4	75,892	17·2	399,508	19·7	5,264
Over 500					99	0·6	98,128	22·2	471,378	23·3	4,804
Total ..	4,003	100·0	73,063	100·0	17,980	100·0	442,333	100·0	2,027,685	100·0	4,584

* ‡ For footnotes see page 383.

A graph showing Number of Factories and Value of Production by size groups in 1965-66 is shown on page 389.

A general indication of the geographical distribution of factories in the State is shown in the next table where secondary industry in Victoria for 1965-66 is classified according to Statistical Divisions :

VICTORIA—FACTORIES IN STATISTICAL DIVISIONS, 1965-66

Statistical Division	Factories	Employment*	Salaries and Wages Paid†	Value of—			
				Materials and Fuel Used	Production‡	Output	Land, Buildings, Plant and Machinery
	No.			\$'000			
Melbourne ..	12,976	361,653	896,663	2,033,292	1,641,718	3,675,010	1,672,212
West Central ..	649	19,056	49,200	169,262	98,729	267,991	195,188
North-Central ..	381	5,126	10,339	16,819	20,431	37,251	21,006
Western ..	1,059	15,682	33,071	95,996	58,109	154,105	66,442
Wimmera ..	394	2,493	4,394	10,424	7,387	17,812	7,290
Mallee ..	326	2,687	4,933	9,582	8,898	18,480	13,474
Northern ..	872	12,069	26,719	106,643	53,893	160,536	69,057
North-Eastern ..	445	5,301	11,577	28,540	23,223	51,763	81,676
Gippsland ..	666	12,904	35,766	111,988	107,440	219,429	250,831
East Central ..	212	2,178	4,572	14,683	7,857	22,540	8,781
Total ..	17,980	439,149	1,077,234	2,597,230	2,027,685	4,624,915	2,385,957

* † ‡ For footnotes see page 383.

Factories in the Melbourne Statistical Division constituted 72·2 per cent of the total number in Victoria in 1965-66, 82·4 per cent of the persons employed, and 81·0 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 maps folded inside the back cover of this book.

The number of factories and persons employed therein in each Statistical Division is shown in the following table :

VICTORIA—NUMBER OF FACTORIES AND PERSONS EMPLOYED* IN EACH STATISTICAL DIVISION : CLASSIFIED ACCORDING TO SIZE OF FACTORY, 1965-66

Size of Factory (Persons)	Statistical Division										Total
	Melbourne	West Central	North-Central	Western	Wimmera	Mallee	Northern	North-Eastern	Gippsland	East Central	
NUMBER OF FACTORIES											
Under 5 ..	4,754	327	217	567	245	183	498	239	290	112	7,432
5-10 ..	3,136	151	90	272	104	90	203	102	183	62	4,393
11-20 ..	2,009	76	39	98	28	27	82	64	109	21	2,553
21-50 ..	1,712	49	18	71	13	16	42	28	49	8	2,006
51-100 ..	687	18	10	25	2	8	30	6	16	5	807
101-500 ..	599	23	5	22	2	2	15	4	14	4	690
Over 500 ..	79	5	2	4	..	..	2	2	5	..	99
Total ..	12,976	649	381	1,059	394	326	872	445	666	212	17,980
AVERAGE NUMBER OF PERSONS EMPLOYED DURING PERIOD OF OPERATION											
Under 5 ..	11,360	†	460	†	510	†	1,160	†	695	†	17,579
5-10 ..	22,063	1,031	618	1,839	702	602	1,375	698	1,277	422	30,627
11-20 ..	29,700	1,122	562	1,320	423	386	1,209	916	1,655	288	37,581
21-50 ..	54,126	1,450	605	2,149	366	543	1,236	798	1,503	290	63,066
51-100 ..	48,671	1,220	680	1,932	†	521	2,010	398	1,116	357	57,050
101-500 ..	117,601	6,346	†	4,747	†	†	†	640	†	†	138,302
Over 500 ..	80,760	†	†	†	†	..	†	†	†	..	98,128
Total ..	364,281	19,144	5,177	15,805	2,514	2,707	12,153	5,366	12,973	2,213	442,333

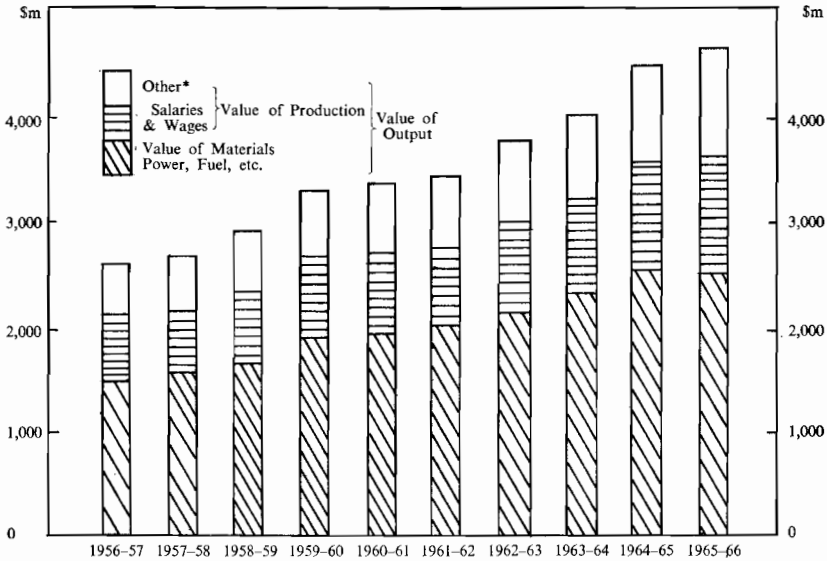
* See footnote, page 386.

† Not available for publication.

The above table shows that in 1965-66 there were 789 factories each employing more than 100 persons with a total employment of 236,430 persons in Victoria. Of these 12,976 (364,281 persons) were located in the Melbourne Statistical Division and 649 (19,144 persons) in the West Central Statistical Division which includes Geelong. The balance, 4,355 factories (58,908 persons) were distributed over the remainder of the State principally in the Western (1,059 factories), Gippsland (666 factories) and East Central (212 factories) Statistical Divisions.

It should be noted that Castlemaine and Maryborough are included in the North-Central Statistical Division ; Ballarat and Warrambol in the Western Statistical Division ; Bendigo and Shepparton in the Northern Statistical Division ; Wangaratta in the North-Eastern Statistical Division ; and Morwell and Yallourn in the Gippsland Statistical Division.

VICTORIA—FACTORIES : VALUE OF OUTPUT, 1956-57 TO 1965-66



* The fund available for the payment of taxation, rent, interest, insurance, etc., depreciation, drawings of working proprietors, and profit.

FIGURE 12.

VICTORIA—NUMBER OF FACTORIES AND VALUE OF PRODUCTION CLASSIFIED ACCORDING TO NUMBER OF PERSONS EMPLOYED, 1965-66

(The left hand bars show the number of factories in each employment size group. The right hand bars show the value of production in each of these size groups.)

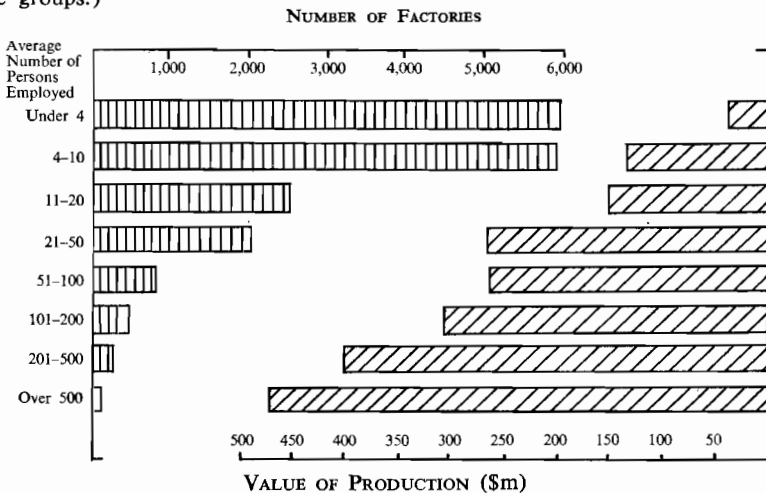


FIGURE 13.

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 included as persons employed in factories 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 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) workers in factories (skilled and unskilled); foremen and overseers; carters (excluding delivery only), messengers, and persons working regularly at home.

The figures showing average employment in factories represent the equivalent average number of persons employed, including working proprietors, over a full year of twelve months. This method is used for all purposes except in the tables shown on pages 385-8, where the average number of persons employed is the average during period of operation.

The following table shows the average number of persons employed in factories in each industrial class in Victoria for the years 1961-62 to 1965-66 :

VICTORIA—PERSONS EMPLOYED IN FACTORIES*

Class of Industry	1961-62	1962-63	1963-64	1964-65	1965-66		
					Males	Females	Persons
1. Treatment of Non-metalliferous Mine and Quarry Products	6,972	7,180	7,496	7,610	7,242	447	7,689
2. Bricks, Pottery, Glass, etc. . .	6,494	7,007	7,299	7,509	6,673	1,037	7,710
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease . . .	15,763	16,062	16,396	17,329	13,676	3,972	17,648
4. Industrial Metals, Machines, Conveyances . . .	151,940	162,649	171,748	183,696	158,683	27,317	186,000
5. Precious Metals, Jewellery, Plate	1,959	2,022	2,113	2,270	1,746	434	2,180
6. Textiles and Textile Goods (Not Dress) . . .	39,100	41,930	42,674	43,798	17,543	25,800	43,343
7. Skins and Leather (Not Clothing or Footwear) . . .	3,781	3,993	3,969	3,832	2,563	1,267	3,830
8. Clothing (Except Knitted) . . .	44,712	46,795	47,168	47,622	13,112	35,320	48,432
9. Food, Drink, and Tobacco . . .	38,999	39,425	40,832	42,049	28,551	15,032	43,583
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving . . .	14,595	14,639	14,521	14,896	14,103	1,116	15,219
11. Furniture of Wood, Bedding, etc.	6,126	6,375	6,605	6,706	5,008	1,716	6,724
12. Paper, Stationery, Printing Bookbinding, etc. . .	24,940	25,927	27,075	28,294	21,374	8,260	29,634
13. Rubber . . .	6,998	7,806	8,506	8,591	6,397	1,833	8,230
14. Musical Instruments . . .	183	192	192	194	166	33	199
15. Miscellaneous Products . . .	10,787	11,056	11,791	12,972	8,304	5,212	13,516
Total, Classes 1 to 15	373,349	393,058	408,385	427,368	305,141	128,796	433,937
16. Heat, Light, and Power . . .	5,000	4,793	4,735	5,021	5,162	50	5,212
GRAND TOTAL . . .	378,349	397,851	413,120	432,389	310,303	128,846	439,149

* For footnote see page 383.

The dominance of four classes, namely, Class 4.—Industrial Metals, Machines, and Conveyances; Class 6.—Textiles and Textile Goods (Not Dress); Class 8.—Clothing (Except Knitted); and Class 9.—Food, Drink, and Tobacco with a total of 73·2 per cent of factory employment should be noted.

Female factory workers in 1965-66 were 29.3 per cent of the total. They exceeded males in Class 6.—Textiles and Textile Goods (Not Dress) with 59.5 per cent and in Class 8.—Clothing (Except Knitted), with 72.9 per cent of the Class total.

Of the total females employed 27.4 per cent were in Class 8 ; 21.2 per cent in Class 4 ; 20.0 per cent in Class 6 ; and 11.7 per cent in Class 9.

In the following table, the average number of persons employed in factories in Victoria is classified according to the nature of their employment for the years 1961-62 to 1965-66 :

VICTORIA—NATURE OF EMPLOYMENT IN FACTORIES

Year	Working Pro-prietors	Man-a-gerial and Clerical Staff	Chemists, Drafts-men, etc.	Workers in Factories (Skilled and Unskilled), Foremen and Overseers, Carters (Excluding Delivery Only) and Messen-gers, etc.	Total
1961-62	12,772	48,674	7,574	309,329	378,349
1962-63	12,784	50,985	7,887	326,195	397,851
1963-64	12,641	53,637	8,291	338,551	413,120
1964-65	12,655	57,067	8,755	353,912	432,389
1965-66	12,586	60,273	9,515	356,775	439,149

The following table shows the nature of employment in factories in 1965-66 according to the class of industry :

VICTORIA—NATURE OF EMPLOYMENT IN FACTORIES BY CLASSES OF INDUSTRY, 1965-66

Class of Industry	Working Pro-prietors	Man-a-gerial and Clerical Staff	Chemists, Drafts-men, etc.	All Other Workers	Total
1. Treatment of Non-metalliferous Mine and Quarry Products	261	991	177	6,260	7,689
2. Bricks, Pottery, Glass, etc.	65	934	80	6,631	7,710
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	91	3,210	1,398	12,949	17,648
4. Industrial Metals, Machines, Con-veyances	5,173	29,451	5,603	145,773	186,000
5. Precious Metals, Jewellery, Plate	231	252	4	1,693	2,180
6. Textile and Textile Goods (Not Dress)	420	4,077	380	38,466	43,343
7. Skins and Leather (Not Clothing or Footwear)	209	362	23	3,236	3,830
8. Clothing (Except Knitted)	2,173	3,394	50	42,815	48,432
9. Food, Drink, and Tobacco	1,645	5,927	744	35,267	43,583
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	866	1,956	37	12,360	15,219
11. Furniture of Wood, Bedding, etc.	508	848	4	5,364	6,724
12. Paper, Stationery, Printing, Book-binding, etc.	630	4,791	268	23,945	29,634
13. Rubber	41	1,244	275	6,670	8,230
14. Musical Instruments	5	27	1	166	199
15. Miscellaneous Products	265	2,343	324	10,584	13,516
Total, Classes 1 to 15	12,583	59,807	9,368	352,179	433,937
16. Heat, Light, and Power	3	466	147	4,596	5,212
GRAND TOTAL	12,586	60,273	9,515	356,775	439,149

Although "All Other Workers" constitute 81·2 per cent of the total numbers employed in factories, the percentage varies from 73·4 per cent in Class 3 to 88·7 per cent in Class 6. Class 3 also has the highest percentage of managerial, clerical, and research workers, 18·2 per cent, compared with the Victorian average of 13·7 per cent.

Where small factories predominate, there is usually a higher proportion of working proprietors than on the average and a smaller than average managerial and clerical staff. This is particularly evident in Class 5.—Precious Metals and Jewellery, where working proprietors comprise 10·6 per cent of the total number employed; Class 11.—Furniture of Wood, Bedding, etc., 7·6 per cent, and Class 10.—Sawmills, Joinery, etc., 5·7 per cent. The average for Victoria is 2·9 per cent.

The following table shows the age distribution of male and female factory employees on the last pay day in June of each of the years 1962 to 1966 :

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
1962 ..	2,625	24,379	240,367	267,371	3,049	16,068	85,515	104,632
1963 ..	2,444	25,822	248,719	276,985	2,653	16,969	90,125	109,747
1964 ..	2,072	27,740	260,246	290,058	2,207	17,931	96,898	117,036
1965 ..	1,690	28,609	268,840	299,139	1,614	18,458	104,012	124,084
1966 ..	1,525	28,886	268,965	299,376	1,488	18,122	105,882	125,492

The numbers of males and females employed in factories, and the proportions of the average male and female population working in factories in 1965–66 and earlier years are shown in the following table :

VICTORIA—EMPLOYMENT OF MALES AND FEMALES IN FACTORIES

Year	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
1901 ..	47,059	778	19,470	325	66,529	553
1911 ..	73,573	1,118	38,375	579	111,948	848
1920–21 ..	96,379	1,283	44,364	574	140,743	923
1932–33 ..	91,899	1,020	52,529	575	144,428	796
1940–41 ..	161,880	1,708	75,756	782	237,636	1,240
1946–47 ..	188,758	1,876	76,999	745	265,757	1,303
1953–54 ..	240,698	1,979	90,579	751	331,277	1,367
1960–61 ..	280,207	1,925	107,843	750	388,050	1,341
1961–62 ..	273,949	1,840	104,400	710	378,349	1,279
1962–63 ..	285,709	1,881	112,142	746	397,851	1,317
1963–64 ..	295,440	1,903	117,680	765	413,120	1,337
1964–65 ..	306,983	1,952	125,406	803	432,389	1,379
1965–66 ..	310,303	1,938	128,846	810	439,149	1,376

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		
	1963-64	1964-65	1965-66	1963-64	1964-65	1965-66
1. Treatment of Non-metalliferous Mine and Quarry Products	422	432	447	5.6	5.7	5.8
2. Bricks, Pottery, Glass, etc.	870	1,001	1,037	11.9	13.3	13.5
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	3,557	3,888	3,972	21.7	22.4	22.5
4. Industrial Metals, Machines, Conveyances—	23,255	26,608	27,317	13.5	14.5	14.7
Plant, Equipment and Machinery ..	3,231	3,692	4,247	10.8	11.4	12.0
Electrical Machinery, Cables, and Apparatus	4,653	5,946	6,050	27.0	30.3	30.5
Sheet Metal Working	2,234	2,344	2,472	20.1	20.4	20.6
Wireless and Amplifying Apparatus ..	1,380	1,446	1,350	38.7	40.1	37.7
5. Precious Metals, Jewellery, Plate	389	449	434	18.4	19.8	19.9
6. Textiles and Textile Goods (Not Dress)—	25,300	26,117	25,800	59.3	59.6	59.5
Cotton Spinning and Weaving	2,177	2,258	2,159	56.4	55.9	53.7
Wool-Carding, Spinning, Weaving ..	5,442	5,369	4,945	53.4	54.0	53.6
Hosiery and Other Knitted Goods ..	13,893	14,376	14,496	75.5	75.9	75.9
7. Skins and Leather (Not Clothing or Footwear)	1,202	1,211	1,267	30.3	31.6	33.1
8. Clothing (Except Knitted)—	33,445	34,200	35,320	70.9	71.8	72.9
Tailoring and Ready-Made Clothing ..	8,168	8,348	8,319	75.0	75.5	75.4
Dressmaking and Hemstitching	7,869	8,033	8,610	87.2	87.6	87.3
Boots and Shoes (Not Rubber)	6,877	6,958	7,016	56.6	57.8	59.5
Dyeworks and Cleaning, etc.	1,346	1,420	1,469	48.4	49.6	51.3
9. Food, Drink, and Tobacco—	13,291	14,163	15,032	32.6	33.7	34.5
Bakeries (Including Cakes and Pastry) ..	1,730	1,821	1,956	27.3	28.4	29.8
Confectionery (Including Chocolate and Icing Sugar)	1,866	1,991	2,051	56.3	57.5	57.3
Jam, Fruit, and Vegetable Canning ..	2,203	2,191	2,500	43.2	42.2	43.0
Tobacco, Cigars, Cigarettes	1,199	1,313	1,234	54.0	61.6	54.0
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	944	1,078	1,116	6.5	7.2	7.3
11. Furniture of Wood, Bedding, etc.	1,499	1,571	1,716	22.7	23.4	25.5
12. Paper, Stationery, Printing, Bookbinding, etc.	7,275	7,703	8,260	26.9	27.2	27.9
13. Rubber	1,817	1,954	1,833	21.4	22.7	22.3
14. Musical Instruments	30	29	33	15.6	14.9	16.6
15. Miscellaneous Products	4,351	4,968	5,212	36.9	38.3	38.6
16. Heat, Light, and Power	33	34	50	0.7	0.7	1.0
Total Classes Only	117,680	125,406	128,846	28.5	29.0	29.3

In Class 16.—Heat, Light, and Power, the percentage of females to total persons employed is at its lowest, 1.0 per cent. In Class 8.—Clothing (Except Knitted), females predominate and comprise 72.9 per cent of the total number of persons employed. Within Class 8, in the Dressmaking sub-class, 87.3 per cent of the total employed are females. In Class 4.—Industrial Metals, Machines, and Conveyances, females constitute 14.7 per cent of the persons employed. In 1938-39 only 6 per cent of the persons employed in Class 4 were females.

Child Labour in Factories

The Labour and Industry Act of Victoria debar employment in factories of children under the age of fifteen years, and the Victorian Education Act makes daily attendance at school compulsory between the ages of six and fifteen years.

Some children under fifteen may work in a shop or office if they are exempted under the Education Act, but the general effect of the two statutes contributes 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 1965-66. Amounts paid to managers, clerical staff, chemists, and draftsmen, etc., are shown separately from those paid to foremen, overseers, workers in the factory, etc. There is also 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,
1965-66

(Excludes Drawings of Working Proprietors)

(\$'000)

Class of Industry	Managers, Clerical Staff, Chemists, Draftsmen, etc.		All Other Employees		Total		
	Males	Females	Males	Females	Males	Females	Persons
1. Treatment of Non-metalliferous Mine and Quarry Products	3,500	486	17,963	180	21,463	666	22,129
2. Bricks, Pottery, Glass, etc. . .	2,513	495	16,646	1,150	19,159	1,645	20,803
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease . . .	13,484	2,670	32,592	3,731	46,076	6,401	52,476
4. Industrial Metals, Machines, Conveyances . . .	97,392	17,209	350,968	26,508	448,360	43,718	492,078
5. Precious Metals. Jewellery, Plate . . .	648	179	3,642	422	4,290	601	4,891
6. Textiles and Textile Goods (Not Dress)	10,033	3,789	39,474	36,565	49,506	40,354	89,860
7. Skins and Leather (Not Clothing or Footwear) . . .	1,088	236	5,463	1,656	6,551	1,892	8,443
8. Clothing (Except Knitted)	6,982	3,388	24,211	50,305	31,193	53,693	84,886
9. Food, Drink, and Tobacco . .	15,518	4,811	63,248	18,531	78,766	23,342	102,107
10. Sawmills, Joinery, Boxes, etc. Wood Turning and Carving	5,057	1,000	28,728	551	33,785	1,550	35,335
11. Furniture of Wood, Bedding, etc.	1,846	658	9,804	1,785	11,650	2,442	14,092
12. Paper, Stationery, Printing, Bookbinding, etc.	12,902	3,434	52,504	8,915	65,406	12,349	77,755
13. Rubber	3,771	897	15,442	2,134	19,213	3,031	22,243
14. Musical Instruments	60	19	374	39	433	59	492
15. Miscellaneous Products	6,254	1,873	18,058	6,277	24,311	8,150	32,462
Total, Classes 1 to 15	181,046	41,144	679,116	158,749	860,162	199,892	1,060,054
16. Heat, Light, and Power	2,668	56	14,426	29	17,095	85	17,179
GRAND TOTAL	183,714	41,200	693,542	158,778	877,256	199,977	1,077,234

Of the total amount of salaries and wages paid in Victoria in 1965-66—\$1,077,234,000—the Industrial Metals, etc., group was responsible for \$492,078,000 or 45·7 per cent, Food, Drink, etc., \$102,107,000 or 9·5 per cent, Textiles, etc., \$89,860,000 or 8·3 per cent, and Clothing, etc., \$84,886,000 or 7·9 per cent.

The total amount of salaries and wages paid in industry in Victoria in each of the years of 1961-62 to 1965-66 is shown below under similar headings to those in the preceding table. The average per employee is also shown.

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

Year	Salaries and Wages Paid to—				Total Salaries and Wages Paid to—		
	Managers, Clerical Staff, Chemists, Draftsmen, etc.		All Other Employees		Males	Females	Persons
	Males	Females	Males	Females			
TOTAL AMOUNT PAID (\$'000)							
1961-62	124,002	28,628	507,282	110,466	631,284	139,094	770,378
1962-63	135,052	30,840	550,526	122,444	685,578	153,284	838,862
1963-64	148,006	33,514	599,172	131,732	747,178	165,246	912,424
1964-65	165,551	37,227	675,153	150,561	840,704	187,788	1,028,492
1965-66	183,714	41,200	693,542	158,778	877,256	199,977	1,077,234
AVERAGE PER EMPLOYEE (\$)							
1961-62	3,324	1,512	2,244	1,326	2,397	1,361	2,108
1962-63	3,463	1,552	2,331	1,360	2,491	1,395	2,178
1963-64	3,622	1,591	2,454	1,396	2,621	1,432	2,209
1964-65	3,804	1,669	2,667	1,495	2,834	1,526	2,450
1965-66	3,977	1,746	2,729	1,547	2,921	1,584	2,525

Power, Fuel, and Light Used

The following table shows the cost of power, fuel, light, water, and lubricating oil used during the five years 1961-62 to 1965-66 :

VICTORIA—COST OF POWER, FUEL, LIGHT, ETC., USED IN FACTORIES
(\$'000)

Class of Industry	1961-62	1962-63	1963-64	1964-65	1965-66
1. Treatment of Non-metalliferous Mine and Quarry Products	5,818	5,734	6,100	6,762	6,662
2. Bricks, Pottery, Glass, etc.	4,430	5,002	5,902	6,101	6,079
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	13,584	14,614	15,170	16,782	16,919
4. Industrial Metals, Machines, Conveyances	18,790	21,878	25,828	30,218	30,644
5. Precious Metals, Jewellery, Plate	298	322	348	397	387
6. Textiles, and Textile Goods (Not Dress)	5,210	5,570	5,934	6,310	6,502
7. Skins and Leather (Not Clothing or Footwear)	838	892	878	894	892
8. Clothing (Except Knitted)	1,910	2,016	2,094	2,265	2,373
9. Food, Drink, and Tobacco	12,470	12,912	13,640	14,619	15,384
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	1,654	1,716	1,872	2,024	2,095
11. Furniture of Wood, Bedding, etc.	250	270	302	341	357
12. Paper, Stationery, Printing, Bookbinding, etc.	4,348	5,034	5,406	5,943	6,431
13. Rubber	2,436	2,798	2,984	2,999	2,932
14. Musical Instruments	18	20	20	21	21
15. Miscellaneous Products	2,084	2,262	2,464	2,860	3,092
Total, Classes, 1 to 15	74,158	81,040	88,942	98,537	100,771
16. Heat, Light, and Power	24,928	22,510	25,706	26,623	27,087
GRAND TOTAL	99,086	103,550	114,648	125,161	127,858

The next table gives in detail for each of the years 1961-62 to 1965-66 information dealing with the cost of each type of fuel used. The costs of water and lubricating oil are also shown separately.

VICTORIA—COST OF ITEMS OF POWER, FUEL, LIGHT, ETC.,
USED IN FACTORIES

Commodity	1961-62	1962-63	1963-64	1964-65	1965-66	
					Cost	Percentage of Total
	\$'000					
Coal—						
Black	3,846	3,132	3,338	3,623	3,066	2·6
Brown	12,702	13,136	14,736	15,497	17,073	14·4
Brown Coal Briquettes ..	14,906	12,222	12,542	12,612	11,891	10·0
Coke	1,250	1,484	1,500	1,384	1,163	1·0
Wood	978	898	820	741	725	0·6
Fuel Oil	19,210	20,814	22,662	23,784	22,903	19·3
Tar (Fuel)	250	160	196	187	161	0·1
Electricity	35,378	39,856	45,454	52,447	55,136	46·4
Gas	2,858	3,452	4,058	4,763	3,912	3·3
Other (Charcoal, etc.) ..	1,306	1,314	1,506	1,379	2,694	2·3
Total Power and Fuel..	92,684	96,468	106,812	116,418	118,723	100·0
Water	4,550	4,964	5,426	6,034	6,528	..
Lubricating Oil ..	1,852	2,118	2,410	2,709	2,606	..
Total	99,086	103,550	114,648	125,161	127,858	..

Combustible products consumed as raw materials, e.g., brown coal used in the manufacture of briquettes, have been excluded from the above table.

Particulars of the quantities of the various fuels used in factories over the five-year period 1961-62 to 1965-66 are given below :

VICTORIA—QUANTITIES OF FUELS USED IN FACTORIES

Commodity	Unit of Quantity	1961-62	1962-63	1963-64	1964-65	1965-66
Coal—						
Black	'000 tons	315	250	316	329	277
Brown	'000 tons	11,841	12,762	13,461	14,243	16,277
Brown Coal Briquettes	'000 tons	1,280	1,089	1,095	1,062	1,027
Coke	'000 tons	57	63	60	58	49
Wood	'000 tons	270	235	232	192	189
Fuel Oil	mill. gals	227	260	292	320	313
Tar Fuel.. ..	'000 tons	12	8	9	9	8

Cost of Materials Used

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

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

Class of Industry	1961-62	1962-63	1963-64	1964-65	1965-66
1. Treatment of Non-metalliferous Mine and Quarry Products	41,292	43,860	50,008	56,696	59,165
2. Bricks, Pottery, Glass, etc.	14,346	16,116	17,244	21,399	21,911
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	219,954	247,324	254,174	272,007	272,855
4. Industrial Metals, Machines, Conveyances	543,030	609,002	694,788	806,468	814,925
5. Precious Metals, Jewellery, Plate	3,616	4,470	4,692	5,437	5,178
6. Textiles and Textile Goods (Not Dress)	166,220	194,268	211,476	224,520	221,628
7. Skins and Leather (Not Clothing or Footwear)	19,118	20,172	22,018	20,351	21,434
8. Clothing (Except Knitted)	108,742	115,540	120,078	126,842	126,171
9. Food, Drink, and Tobacco	422,724	432,996	473,308	513,541	537,976
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	59,952	61,304	65,474	71,628	72,681
11. Furniture of Wood, Bedding, etc.	24,086	24,120	26,988	29,579	30,012
12. Paper, Stationery, Printing, Book-binding, etc.	117,948	130,754	139,992	153,673	160,910
15. Rubber	37,692	42,584	46,544	51,117	48,086
14. Musical Instruments	324	366	436	486	505
15. Miscellaneous Products	44,416	48,446	52,666	61,679	63,221
Total, Classes 1 to 15	1,823,460	1,991,322	2,179,886	2,415,423	2,456,658
16. Heat, Light, and Power	11,282	10,186	10,512	10,538	12,714
GRAND TOTAL	1,834,742	2,001,508	2,190,398	2,425,961	2,469,372

Value of Output and Production

Value of factory output by classes of industry in each of the years 1961-62 to 1965-66 is shown in the following table :

VICTORIA—VALUE OF FACTORY OUTPUT (\$'000)

Class of Industry	1961-62	1962-63	1963-64	1964-65	1965-66
1. Treatment of Non-metalliferous Mine and Quarry Products	84,872	89,172	100,244	112,597	114,331
2. Bricks, Pottery, Glass, etc.	42,658	49,268	56,654	65,706	69,038
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	352,492	404,880	421,160	453,964	460,136
4. Industrial Metals, Machines, Conveyances	1,085,116	1,218,616	1,375,608	1,583,854	1,620,395
5. Precious Metals, Jewellery, Plate	9,912	11,624	12,614	14,775	14,326
6. Textiles and Textile Goods (Not Dress)	291,086	334,014	362,874	388,457	386,925
7. Skins and Leather (Not Clothing or Footwear)	31,906	34,442	35,770	35,142	36,866
8. Clothing (Except Knitted)	223,862	237,328	249,190	263,965	268,577
9. Food, Drink, and Tobacco	621,334	644,936	703,268	767,695	811,891
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	109,250	113,384	121,306	132,632	134,771
11. Furniture of Wood, Bedding, etc.	44,542	45,406	49,826	54,508	56,210
12. Paper, Stationery, Printing, Book-binding, etc.	235,730	257,030	276,944	305,280	323,571
13. Rubber	71,694	82,160	87,646	91,944	87,545
14. Musical Instruments	888	964	1,062	1,373	1,294
15. Miscellaneous Products	86,492	95,012	105,126	120,501	123,031
Total Classes 1 to 15	3,291,834	3,618,236	3,959,292	4,392,393	4,508,907
16. Heat, Light, and Power	82,638	88,614	95,530	108,393	116,009
GRAND TOTAL	3,374,472	3,706,850	4,054,822	4,500,786	4,624,915

In the next table the value of production in Victoria is given according to the various classes of industry for each of the years 1961-62 to 1965-66 :

VICTORIA—VALUE OF PRODUCTION OF FACTORIES (\$'000)

Class of Industry	1961-62	1962-63	1963-64	1964-65	1965-66
1. Treatment of Non-metalliferous Mine and Quarry Products	37,762	39,578	44,138	49,139	48,503
2. Bricks, Pottery, Glass, etc.	23,882	28,150	33,508	38,206	41,049
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	118,954	142,942	151,814	165,175	170,362
4. Industrial Metals, Machines, Conveyances	523,296	587,736	654,992	747,168	774,826
5. Precious Metals, Jewellery, Plate	5,998	6,832	7,574	8,941	8,761
6. Textiles and Textile Goods (Not Dress)	119,656	134,176	144,574	157,627	158,795
7. Skins and Leather (Not Clothing or Footwear)	11,950	13,378	13,764	13,897	14,540
8. Clothing (Except Knitted)	113,210	119,772	127,018	134,857	140,033
9. Food, Drink, and Tobacco	186,140	199,028	216,320	239,535	258,530
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	47,644	50,364	53,960	58,980	59,995
11. Furniture of Wood, Bedding, etc.	20,206	21,016	22,536	24,588	25,841
12. Paper, Stationery, Printing, Book-binding, etc.	113,434	121,242	131,546	145,665	156,230
13. Rubber	31,546	36,778	38,118	37,828	36,526
14. Musical Instruments	546	578	606	866	768
15. Miscellaneous Products	39,992	44,304	49,996	55,962	56,718
Total, Classes 1 to 15	1,394,216	1,545,874	1,690,464	1,878,433	1,951,477
16. Heat, Light, and Power	46,428	55,918	59,312	71,232	76,208
GRAND TOTAL	1,440,644	1,601,792	1,749,776	1,949,665	2,027,685

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 pages 379–80.

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, etc., in each class of manufacturing industry during the year 1965–66 are given in the following tables :

VICTORIA—FACTORY COSTS AND OUTPUT, 1965–66
(\$'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		
1. Treatment of Non-metalliferous Mine and Quarry Products	59,165	6,662	22,129	26,375	114,331
2. Bricks, Pottery, Glass, etc. ..	21,911	6,079	20,803	20,245	69,038
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	272,855	16,919	52,476	117,886	460,136
4. Industrial Metals, Machines, Conveyances	814,925	30,644	492,078	282,748	1,620,395
5. Precious Metals, Jewellery, Plate ..	5,178	387	4,891	3,870	14,326
6. Textile and Textile Goods (Not Dress)	221,628	6,502	89,860	68,935	386,925
7. Skins and Leather (Not Clothing or Footwear)	21,434	892	8,443	6,097	36,866
8. Clothing (Except Knitted)	126,171	2,373	84,886	55,147	268,577
9. Food, Drink, and Tobacco	537,976	15,384	102,107	156,424	811,891
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	72,681	2,095	35,335	24,660	134,771
11. Furniture of Wood, Bedding, etc. ..	30,012	357	14,092	11,749	56,210
12. Paper, Stationery, Printing, Book-binding, etc.	160,910	6,431	77,755	78,475	323,571
13. Rubber	48,086	2,932	22,243	14,284	87,545
14. Musical Instruments	505	21	492	276	1,294
15. Miscellaneous Products	63,221	3,092	32,462	24,256	123,031
Total, Classes 1 to 15	2,456,658	100,771	1,060,054	891,424	4,508,907
16. Heat, Light, and Power	12,714	27,087	17,179	59,029	116,009
GRAND TOTAL	2,469,372	127,858	1,077,234	950,451	4,624,915

* Includes containers, tools replaced, and repairs to plant.

† Includes cost of lubricants and water.

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

VICTORIA—PERCENTAGE OF SPECIFIED COSTS OF
PRODUCTION, ETC., TO VALUE OF OUTPUT OF FACTORIES,
1965-66
(Per Cent)

Class of Industry	Specified Costs of Production			Balance between Value of Output and Specified Costs‡
	Materials Used*	Fuel, Light, and Power Used†	Salaries and Wages Paid	
1. Treatment of Non-metalliferous Mine and Quarry Products	51·7	5·8	19·4	23·1
2. Bricks, Pottery, Glass, etc.	31·8	8·8	30·1	29·3
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease ..	59·3	3·7	11·4	25·6
4. Industrial Metals, Machines, Conveyances ..	50·3	1·9	30·4	17·4
5. Precious Metals, Jewellery, Plate	36·1	2·7	34·2	27·0
6. Textiles, and Textile Goods (Not Dress) ..	57·3	1·7	23·2	17·8
7. Skins and Leather (Not Clothing or Footwear) ..	58·1	2·4	22·9	16·6
8. Clothing (Except Knitted)	47·0	0·9	31·6	20·5
9. Food, Drink, and Tobacco	66·3	1·9	12·6	19·2
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	53·9	1·6	26·2	18·3
11. Furniture of Wood, Bedding, etc.	53·4	0·6	25·1	20·9
12. Paper, Stationery, Printing, Book-binding, etc. ..	49·7	2·0	24·0	24·3
13. Rubber	54·9	3·4	25·4	16·3
14. Musical Instruments	39·0	1·6	38·0	21·4
15. Miscellaneous Products	51·4	2·5	26·4	19·7
Total, Classes, 1 to 15	54·5	2·2	23·5	19·8
16. Heat, Light, and Power	11·0	23·3	14·8	50·9
GRAND TOTAL	53·4	2·8	23·3	20·5

For footnotes see page 399.

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 2, the sum paid in wages represents 30·1 per cent and the cost of raw materials 31·8 per cent of the values of the finished articles, whilst, in Class 9, the expenditure on wages amount to 12·6 per cent and that on raw materials to 66·3 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 1961-62 to 1965-66 :

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

(\$'000)

Year	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		
1961-62	1,834,742	99,086	770,378	670,266	3,374,472
1962-63	2,001,508	103,550	838,862	762,930	3,706,850
1963-64	2,190,398	114,648	912,424	837,352	4,054,822
1964-65	2,425,961	125,161	1,028,492	921,172	4,500,786
1965-66	2,469,372	127,858	1,077,234	950,451	4,624,915

For footnotes see page 399.

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	Specified Costs of Production			Balance between Value of Output and Specified Costs‡	Total
	Materials Used*	Fuel, Light, and Power Used†	Salaries and Wages		
1961-62	54.4	2.9	22.8	19.9	100.0
1962-63	54.0	2.8	22.6	20.6	100.0
1963-64	54.0	2.8	22.5	20.7	100.0
1964-65	53.9	2.8	22.8	20.5	100.0
1965-66	53.4	2.8	23.3	20.5	100.0

For footnotes see page 399.

Land, Building, Plant, and Machinery

The following statement shows the value of land and buildings used in the various classes of manufacturing industries for the years 1961-62 to 1965-66 :

VICTORIA—FACTORIES : VALUE OF LAND AND BUILDINGS (\$'000)

Class of Industry	1961-62	1962-63	1963-64	1964-65	1965-66
1. Treatment of Non-metalliferous Mine and Quarry Products	24,022	24,990	28,122	28,176	29,968
2. Bricks, Pottery, Glass, etc. ..	13,988	20,230	21,952	22,310	23,192
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	72,106	74,962	75,812	78,235	81,160
4. Industrial Metals, Machines, Conveyances	333,568	365,988	393,476	442,743	470,730
5. Precious Metals, Jewellery, Plate ..	3,684	3,996	4,350	5,067	4,810
6. Textiles and Textile Goods (Not Dress)	69,062	71,836	77,674	78,596	80,751
7. Skins and Leather (Not Clothing or Footwear)	8,314	8,694	9,382	9,310	9,780
8. Clothing (Except Knitted)	50,416	54,024	58,300	62,152	66,737
9. Food, Drink, and Tobacco	121,836	130,692	138,268	149,037	159,823
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	26,086	26,890	29,102	32,047	34,467
11. Furniture of Wood, Bedding, etc. ..	11,498	12,654	14,104	16,154	17,375
12. Paper, Stationery, Printing, Book-binding, etc.	56,894	59,884	64,062	70,608	82,825
13. Rubber	13,844	15,186	20,150	20,475	22,443
14. Musical Instruments	466	410	332	433	452
15. Miscellaneous Products	27,538	29,518	32,078	32,869	36,184
Total, Classes, 1 to 15	833,322	899,954	967,164	1,048,212	1,120,698
16. Heat, Light, and Power	56,010	54,112	53,630	57,500	56,244
GRAND TOTAL	889,332	954,066	1,020,794	1,105,712	1,176,942

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, etc., and plant and machinery, etc., are rented by the occupiers of factories, their capital value has been computed by capitalising 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 are shown for each of the years 1961-62 to 1965-66 :

VICTORIA—FACTORIES : VALUE OF PLANT AND MACHINERY (\$'000)

Class of Industry	1961-62	1962-63	1963-64	1964-65	1965-66
1. Treatment of Non-metalliferous Mine and Quarry Products	45,428	49,906	50,682	54,293	57,540
2. Bricks, Pottery, Glass, etc. . .	12,008	20,854	23,766	22,450	23,173
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	152,930	148,882	146,856	143,637	149,872
4. Industrial Metals, Machines, Conveyances	227,342	258,374	282,304	322,331	344,775
5. Precious Metals, Jewellery, Plate ..	1,106	1,158	1,350	1,551	1,448
6. Textiles and Textile Goods (Not Dress)	52,642	57,628	59,224	61,847	65,544
7. Skins and Leather (Not Clothing or Footwear)	3,272	3,024	3,172	3,346	3,584
8. Clothing (Except Knitted)	17,882	18,484	20,134	22,197	23,186
9. Food, Drink, and Tobacco	103,162	115,480	123,086	126,623	135,500
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	15,856	15,778	17,064	17,826	19,230
11. Furniture of Wood, Bedding, etc. ..	2,530	2,728	3,096	3,186	3,335
12. Paper, Stationery, Printing, Book-binding, etc.	56,646	60,296	62,370	69,009	74,818
13. Rubber	15,296	15,856	15,850	16,196	18,498
14. Musical Instruments	144	130	118	124	144
15. Miscellaneous Products	18,260	22,678	25,032	30,011	32,566
Total, Classes 1 to 15	724,504	791,256	834,104	894,627	953,214
16. Heat, Light, and Power	213,774	212,134	206,620	233,321	255,800
GRAND TOTAL	938,278	1,003,390	1,040,724	1,127,948	1,209,014

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*, 1965-66

Class of Industry	Steam		Internal Combustion	Water	Motor Driven by Electricity		Total without Duplication
	Reciprocating	Turbine			Purchased	Own Generation	
1. Treatment of Non-metalliferous Mine and Quarry Products	1,221	16,750	1,285	..	95,071	6,821	114,327
2. Bricks, Pottery, Glass, etc. . .	1,045	..	2,837	..	53,598	12	57,480
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	2,128	51,268	4,460	50	164,981	24,056	222,887
4. Industrial Metals, Machines, Conveyances	1,211	..	9,829	..	691,852	2,423	702,892
5. Precious Metals, Jewellery, Plate ..	..	..	45	..	4,034	..	4,079
6. Textiles and Textile Goods (Not Dress)	26	..	1,077	..	126,990	360	128,093
7. Skins and Leather (Not Clothing or Footwear)	770	85	147	..	15,826	500	16,828
8. Clothing (Except Knitted)	500	..	196	..	33,300	..	33,996
9. Food, Drink, and Tobacco	2,327	1,103	7,515	830	248,934	1,715	260,709
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	3,747	..	23,553	10	105,824	5,178	133,134
11. Furniture of Wood, Bedding, etc. ..	..	..	..	..	16,584	..	16,584
12. Paper, Stationery, Printing, Bookbinding, etc.	600	23,500	319	..	114,445	27,508	138,864
13. Rubber	8	..	167	..	84,680	..	84,855
14. Musical Instruments .. ..	..	..	..	..	279	..	279
15. Miscellaneous Products .. ..	..	2,000	280	..	49,008	250	51,288
Total, Classes 1 to 15	13,583	94,706	51,710	890	1,805,406	68,823	1,966,295
16. Gas Works	2,711	1,213	3,573	..	19,501	..	26,998
GRAND TOTAL	16,294	95,919	55,283	890	1,824,907	68,823	1,993,293

* Includes gas works, but excludes central electric stations.

The total rated horse-power in reserve or idle during 1965-66 and not included above was 235,577.

Motors driven by purchased electricity comprised approximately 91.6 per cent of the total horse-power used in factories other than central electric stations in 1965-66, while steam turbines were next in demand with 4.8 per cent.

A comparison over the five-year period 1961-62 to 1965-66 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 Com- bustion	Water	Motors Driven by Electricity		Total without Duplication
	Recip- rocating	Turbine			Pur- chased	Own Generation	
1961-62.. ..	23,172	83,512	45,399	890	1,421,296	57,156	1,574,269
1962-63.. ..	19,054	91,877	46,896	890	1,520,837	58,334	1,679,554
1963-64.. ..	17,081	98,724	53,296	890	1,616,591	60,992	1,786,582
1964-65.. ..	16,149	89,148	54,815	890	1,727,537	60,978	1,888,539
1965-66.. ..	16,294	95,919	55,283	890	1,824,907	68,823	1,993,293

* Includes gas works, but excludes central electric stations.

The following table shows the total rated horse-power for each year from 1961-62 to 1965-66 for engines and electric motors in reserve or idle. It includes engines which are only used occasionally, or, for example, during periods of breakdown to power supply.

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

Year	Rated Horse-power of Engines, etc., in Reserve or Idle		
	Purchased Electricity	All Other Types	Total
1961-62	139,854	57,116	196,970
1962-63	150,303	58,353	208,656
1963-64	161,471	60,501	221,972
1964-65	173,182	55,420	228,602
1965-66	181,057	54,520	235,577

* Without duplication; 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 1965-66 are shown in the following table :

VICTORIA—POWER EQUIPMENT INSTALLED IN CENTRAL ELECTRIC STATIONS, 1965-66

Particulars	Capacity of Engines and Generators			
	Steam Turbine	Internal Combustion	Water	Total
Engines Installed Rated H.P. ..	2,422,765	31,842	448,700	2,903,307
Generators Installed—				
Kilowatt Capacity—				
Total Installed kW	1,724,225	23,009	334,600	2,081,834
Effective Capacity kW	1,621,600	20,361	332,000	1,973,961
Horse-power—				
Total Installed H.P.	2,310,462	30,832	448,364	2,789,658
Effective Capacity H.P.	2,172,944	27,284	444,880	2,645,108

Similar information to that shown in the preceding table, but giving a comparison over the years 1961-62 to 1965-66 is shown below :

VICTORIA—POWER EQUIPMENT INSTALLED IN CENTRAL ELECTRIC STATIONS

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Central Electric Stations.. .. No.	41	35	29	29	22
Engines Installed Rated H.P.	2,242,796	2,221,290	2,213,474	2,520,744	2,903,307
Generators Installed—					
Kilowatt Capacity—					
Total Installed kW	1,660,281	1,657,498	1,660,828	1,885,831	2,081,834
Effective Capacity kW	1,666,050	1,672,694	1,640,697	1,831,925	1,973,961
Horse-power Equivalent—					
Total Installed H.P.	2,225,578	2,221,847	2,226,311	2,527,924	2,789,658
Effective Capacity H.P.	2,233,311	2,242,217	2,199,326	2,455,664	2,645,108

Principal Factory Products

Annual Quantity and Value

The next table lists the principal articles of manufacture in Victoria, showing quantity and value produced, and corresponding figures for Australia, during 1965-66, 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.

In previous years, articles were arranged in alphabetical order. This year, commodity code numbers are listed and articles are arranged in commodity code number order.

VICTORIA AND AUSTRALIA—PRINCIPAL ARTICLES
MANUFACTURED, 1965-66

Commodity Code No.	Article	Unit of Quantity	Victoria		Australia	
			Quantity	Value	Quantity	Value
			\$'000		\$'000	
023.10, 14, 17	Bacon and Ham†	mill lb	21.0	*	103.0	*
027.01-75	Meat—Canned	mill lb	70.0	14,548	114.7	27,713
051.21-27	Milk—Condensed	mill lb	124.5	16,993	162.5	20,247
051.31	Butter	'000 ton	112.2	89,599	205.5	163,882
051.35-46	Cheese	'000 ton	26.0	14,084	58.6	31,647
051.61	Ice Cream	mill gall	10.6	10,548	29.8	32,254
051.72-73	Milk—Powdered : Full Cream	mill lb	24.5	*	45.1	*
062.01	Flour, Plain—Wheaten (Including Sharps)	'000 short ton	414	*	1,370	*
063.11	Malt—Barley	mill bush	10.4	*	13.2	*
064.01-13	Bread—2 lb Loaves Equivalent	mill	218.4	31,858	794.5	132,998
064.21	Biscuits	mill lb	81.1	18,185	223.7	57,030
064.43-45	Cakes, Pastry, Pies, etc. (Including Canned Puddings)	..	†	27,131	†	83,910
Fruit : Preserved—						
076.15	Peaches	mill lb	121.9	13,951	217.6	25,462
076.22	Pears	mill lb	143.0	17,253	156.7	19,036
076.60	Jams, Fruit Spreads, Fruit Butters, etc.	mill lb	46.1	7,200	97.1	15,066
094.02-49	Vegetables Canned or Bottled (Including Pickled)	mill lb	50.4	7,844	180.1	28,440
Confectionery—						
104.02-18	Chocolate Base	mill lb	52.3	22,329	129.1	52,809
104.21-29	Other without Chocolate ..	mill lb	43.6	11,376	107.9	30,919
122.02	Soup—Tomato	mill imp pint	22.0	3,593	25.5	4,121
123.18	Sauce—Tomato	mill imp pint	22.8	5,365	34.1	8,152
139.14	Sausage Casings—Sheep and Lamb	'000 bundles	3,196	6,748	4,913	9,837
152.06	Pollard	'000 short ton	90.2	*	303.2	*
171.03-05	Aerated and Carbonated Waters	mill imp gall	28.4	15,880	105.4	63,203
183.02, 11, 21-28	Tobacco, Cigars, and Cigarettes§	mill lb	32.0	*	56.2	*
242.07-11	Wool—Scoured or Carbonised	mill lb	60.9	*	156.1	*
242.32	Wool Tops	mill lb	18.6	*	46.3	*
261.41	Briquettes—Brown Coal ..	'000 ton	1,883	12,841	1,883	12,841
281.04	Ice	'000 ton	53.0	639	198.7	2,302
Leather (Dressed)—						
301.31-37	Vegetable Tanned : Sole ..	'000 lb	5,411	2,343	14,056	5,630
301.43-65	Chrome Tanned	mill sq ft	26.5	8,931	83.2	29,899
331.01-19	Timber Produced from Logs—Australian	mill sup ft	302	*	1,517	*
369.11	Ropes and Cables (Excluding Wire)	'000 cwt	75.4	2,810	133.4	4,901
Cloth Piece Goods Woven—						
372.02-20	Worsteds or Predominantly Worsteds	'000 sq yd	4,414	*	10,049	*
372.22-36, 48, 50	Woollens or Predominantly Woollens	'000 sq yd	6,777	9,219	13,337	17,091
372.52-62, 374.51-55	Blankets, Bed¶	'000 pair	402.5	4,927	821.9	9,575
401.57	Acid—Sulphuric	'000 ton	498	*	1,752	*
403.02, 18, 20, 52-92, 96; 404.02-98	Plastics and Synthetic Resins ..	'000 ton	54.2	*	121.6	*
412.02, 04, 08, 10	Paints (Not Water) and Enamels Ready Mixed (Excluding Bituminous and Marine)	'000 imp gall	4,319	15,193	14,086	53,669
412.42-46	Paints, Water (Excluding Powder Form)	'000 imp gall	1,217	4,638	4,322	16,838
434.09	Gas, Towns	'000 mill cu ft	22.2	*	55.7	*
447.81	Pipe Fittings, Ferrous .. ..	..	†	4,360	†	13,331
461.20	Steel, Constructional—Fabricated	'000 ton	124.6	31,876	543.7	146,819
461.30	Window Frames—Metal .. ..	..	†	10,888	†	40,402
465.04	Bolts and Nuts—For Sale as Such	..	†	9,857	†	20,147
472.01, 08	Bricks—Clay	mill	383	17,752	1,385	58,053
Tiles, Roofing—						
472.12	Terra Cotta	mill	16.7	1,970	51.2	5,399
475.30	Concrete	mill	27.0	1,792	82.9	7,108
475.46	Pipes—Concrete (Excluding Agricultural)	'000 long ton	215.6	6,427	670.9	19,472
479.32, 33	Plaster Sheets	mill sq yd	11.3	8,053	29.9	19,597
499.42	Electricity Generated	'000 mill kWh	9.7	*	38.3	*
503.21-32	Electric Motors	'000	511	*	2,510	*

VICTORIA AND AUSTRALIA—PRINCIPAL ARTICLES MANUFACTURED, 1965-66—continued

Commodity Code No.	Article	Unit of Quantity	Victoria		Australia	
			Quantity	Value	Quantity	Value
	Machinery : Industrial—			\$'000		\$'000
507.51	Pumping (Including Pumps)	..	†	17,903	†	33,694
511.01	Conveyors (and Appliances)	..	†	9,639	†	21,775
512.01, 11 ; 589.31	Hoists, Cranes, Lifting ..	..	†	10,755	†	25,366
521.01	Mining and Drilling ..	..	†	6,318	†	16,051
523.01, 02, 05	Metal Working ..	..	†	10,353	†	27,905
528.17	Food Processing and Canning	..	†	6,172	†	7,512
	Finished Motor Vehicles— ††					
581.02-08	Cars	No.	104,581	*	235,326	*
581.10-16 ; 582.04-28	Other	No.	42,433	*	106,978	*
584.11-49	Trailers and Semi-Trailers ..	No.	4,967	*	18,580	*
626.01	Tyres Retreaded and Recapped	'000	943.2	*	3,658	*
643.01-37	Radios and Radiograms (Domestic)	'000	96.9	3,143	392.5	15,426
649.51, 55 ; 683.03-61	Transformers, Chokes, etc. ..	'000	1,055	*	4,435	*
651.11-17	Radiators and Electric Fires (Domestic)	'000	684.3	4,661	706.9	5,046
661.21-23	Toasters (Domestic) ..	'000	166.5	890	329.6	2,633
671.14	Sinks—Stainless Steel ..	'000	85.5	2,174	219.4	4,779
672.01	Steam, Gas, and Water Fittings, Valves, etc. (Non-ferrous)	..	†	19,577	†	42,229
693.02, 06, 12	Clothes Washing Machines (Domestic)	'000	19.6	3,668	240.2	33,498
	Furniture and Office Equipment—					
741.01	Wooden .. .. .	..	†	30,581	†	112,679
744.01	Metal .. .. .	..	†	15,683	†	49,379
773.01-31	Shirts (Men's and Boys') ..	'000 doz	981	*	2,266	*
	Underwear—					
774.01-18	Men's and Boys' ..	'000 doz	1,002	*	2,262	*
774.41-47, 60-67	Women's and Girls' ..	'000 doz	2,214	*	3,825	*
775.01-19	Stockings—Women's ..	'000 doz pair	3,680	17,080	4,348	19,595
775.51-776.22	Socks and Stockings—Men's and Children's	'000 doz pair	2,337	*	2,516	*
	Footwear—					
791.01, 03, 09, 15, 17, 20, 25, 27	Boots, Shoes, and Sandals— Men's and Youths' ..	'000 pair	3,684	19,302	8,506	40,465
791.31, 33, 39, 45, 47, 50, 55, 57	Women's and Maids' ..	'000 pair	8,914	35,302	14,464	56,255
791.61, 62, 66, 70, 71, 72, 76, 79, 81, 82, 87, 88, 92, 93, 97, 99	Children's (Including Infants')	'000 pair	2,298	3,943	4,994	10,057
791.05, 07, 10, 23, 35, 37, 40, 53, 63, 64, 69, 75, 83, 85, 86, 91, 96	Slippers	'000 pair	9,798	10,316	11,594	13,852
	Soaps and Detergents—					
805.01-13 ; 806.02-06	Personal Toilet Use ..	'000 cwt	108.9	3,313	516.4	21,232
805.22-60 ; 806.10-44	Other Purposes	'000 cwt	848	17,161	2,847	52,559
871.01	Pharmaceutical Products for Human Use	..	†	26,472	†	95,771
844.01-61	Mattresses—All Types ..	'000	449	6,866	1,588	21,264
941.11	Cans, Canisters, Containers— Metal	..	†	35,951	†	86,404
943.02-08	Containers—Paperboard** ..	..	†	46,853	†	123,139
944.11, 21, 31, 41	Boxes and Cases—Wooden ..	..	†	4,076	†	22,224
945.21	Cans, Canisters, Containers— Plastic	..	†	3,681	†	9,203

* Quantity only available.

† Value only available.

‡ Cured bone-in weight of smoked, cooked, and canned bacon and ham.

§ Source : Dept. of Customs and Excise.

¶ Double, three-quarter, single ; wool, wool mixture and other fibre.

|| Excluding wholly of rubber.

** Includes composite wood and paperboard butter boxes.

†† Excludes vehicles finished by specialist body building works outside the motor vehicle manufacturers' organisation.

Monthly Production Statistics

The Bureau provides a service to persons who complete monthly production returns and to others interested in monthly production. Printed tables showing Australian production of commodities which they manufacture 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
1	Automotive Spark Plugs and Shock Absorbers	29	Biscuits, Ice Cream, and Confectionery
2	Chemicals, etc.	30	Storage Batteries
3	Plastics and Synthetic Resins and Plasticisers	32	Perambulators, Pushers and Strollers
4	Paints and Other Surface Coatings	33	Production of Motor Vehicles
6	Soap, Detergents, and Glycerine	34	Radio, etc., Television Sets and Cabinets
7	Internal Combustion Engines	35	Mattresses
8	Lawn Mowers	36	Preserved Milk Products
9	Electrical Appliances	38	Canned Fish
10	Motor Bodies, Trailers, etc.	39	Jams and Preserved Fruit and Vegetables
11	Pedal Cycles	40	Production of Cereal Products
12	Meters	41	Vegetable Oils : Margarine and Other Edible Processed Fats
13	Building Fittings	42	Malt and Beer
14	Cotton Goods	43	Stock and Poultry Meals (Other than Cereal)
15	Woolscouring, Carbonising, and Fellmongering	45	Phonograph Records
16	Woollen and Worsted Carding, Combing, and Spinning	47	Aerated and Carbonated Waters, Cordials and Syrups, and Concentrated Cordial Extract
17	Wool Weaving	48	Sports Goods
18	Hosiery	49	Building Materials
19	Men's and Youths', Boys', Women's and Maids', Girls', Infants' and Babies' Wear, Shirts, Cardigans, Pyjamas, Underclothing, etc.	50	Electrodes for Manual Welding
20	Cellulosic and Synthetic Fibre Tops, Yarns, Woven Fabrics	51	Hides and Skins Used for Tanning
21	Paper, Wood Pulp and Adhesive Tapes	52	Electrical Power Transformers, Chokes and Ballasts
22	Floor Coverings	53	Plastics Film, Sheetings and Coated Materials
23	Electric Motors	55	Butter and Cheese
24	Men's, Youths' and Boys' Outer Clothing	56	Canned Meat
25	Foundation Garments	58	Steel Wire and Wire Products
27	Gloves (Other than Rubber) and Slide/Zip Fasteners	59	Non-ferrous Rolled, Extruded and Drawn Products
28	Footwear (Excluding Sandshoes, Goloshes, and Gum, etc., Boots of Rubber)		

In addition, Statistical Bulletins for the Meat, Gold Mining, and Dairying Industries and Minerals and Mineral Products are issued each month. Australian totals for a greater range of commodities are contained in the Bulletins and Production Summaries that are published monthly in the *Bulletin of Production Statistics*. Victorian figures are published in the *Victorian Monthly Production Bulletin*.

Individual Industries

Introductory

Particulars on pages 384-9 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.

History of Manufacturing, 1961; Motor Vehicle Industry, 1962; Chemical Industry, 1963; Petrochemical Industry, 1964; Glass Industry, 1965; Agricultural Machinery Industry, 1966; Aluminium Industry, 1967

Details of Industries

The industrial and heavy chemical industry expanded considerably during the five-year period 1961-62 to 1965-66 as the particulars below indicate :

VICTORIA—INDUSTRIAL AND HEAVY CHEMICALS AND ACIDS (301)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	84	87	92	91	88
Number of Persons Employed ..	3,703	4,034	4,377	4,763	4,920
Salaries and Wages Paid \$'000	10,374	11,556	13,484	15,536	16,743
Value of Power, Fuel, etc., Used \$'000	4,312	4,980	6,273	6,891	7,151
Value of Materials Used \$'000	31,070	39,908	49,501	58,650	60,792
Value of Production \$'000	28,906	37,150	45,248	51,166	52,988
Value of Output \$'000	64,288	82,038	101,021	116,707	120,930
Value of Land and Buildings \$'000	19,742	18,882	18,946	20,492	21,524
Value of Plant and Machinery \$'000	64,584	62,076	59,404	59,430	60,814
Horse-power of Engines Ordinarily in Use H.P.	61,527	62,861	71,726	77,722	85,373

Particulars of another major industry included in Class 3.—Chemicals, etc., namely, those of the pharmaceutical and toilet preparation industry, are given below :

VICTORIA—PHARMACEUTICAL AND TOILET PREPARATIONS (302)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	63	70	69	70	70
Number of Persons Employed ..	3,066	3,225	3,157	3,437	3,474
Salaries and Wages Paid \$'000	6,590	7,354	6,801	7,975	8,496
Value of Power, Fuel, etc., Used \$'000	1,112	1,340	568	670	699
Value of Materials Used \$'000	15,516	19,646	18,000	20,720	20,561
Value of Production .. \$'000	16,598	19,516	21,175	22,097	23,437
Value of Output .. \$'000	33,226	40,502	39,742	43,488	44,697
Value of Land and Buildings \$'000	13,342	15,452	15,635	16,200	17,324
Value of Plant and Machinery \$'000	6,248	7,414	7,550	7,668	7,710
Horse-power of Engines Ordinarily in Use .. H.P.	11,375	13,293	11,111	11,928	12,423

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

Refining of petroleum, the major activity carried on in the mineral oil industry, has become most important in Victoria. Details of the industry for years 1961-62 to 1965-66 are shown below :

VICTORIA—MINERAL OILS (306)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	20	20	20	20	20
Number of Persons Employed ..	1,341	1,274	1,222	1,375	1,301
Salaries and Wages Paid \$'000	4,088	3,986	4,158	4,847	4,711
Value of Power, Fuel, etc., Used \$'000	5,512	5,466	5,435	6,263	5,883
Value of Materials Used \$'000	101,178	111,780	106,093	103,493	96,168
Value of Production .. \$'000	31,364	39,876	34,576	38,538	39,485
Value of Output .. \$'000	138,054	157,122	146,104	148,294	141,535
Value of Land and Buildings \$'000	10,232	9,694	8,978	8,350	7,940
Value of Plant and Machinery \$'000	55,764	55,172	54,786	48,922	46,061
Horse-power of Engines Ordinarily in Use .. H.P.	48,241	44,176	46,065	46,165	46,373

The growth of this industry can be gauged 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 1,301 persons were employed in 1965-66 and the horse-power of engines used totalled 46,373.

Petrochemical Industry in Victoria

The construction during the 1950s of four Australian oil refineries, a major potential source of raw materials for chemical manufacture, led to rapid expansion of Australia's petrochemical industry. Although petrochemical products are similar to those made from other raw materials, petroleum feedstocks have some advantages over alternative sources of organic chemicals, being readily available in large quantities, easily handled, relatively inexpensive, and of uniform quality. Among the wide range of chemicals which can be derived from petroleum are plastics, synthetic films and fibres and rubber, detergents, insecticides, fertilizers, and cosmetics.

Australia's major petrochemical complex, located at Altona, Victoria, is based on feedstock supplied by the 55,300 barrels a day refinery. The key unit of this complex is a plant which steam cracks selected distillates from the refinery to produce ethylene and butadiene, the main "chemical building blocks", which are further processed by the six other companies in the group. The unit is able to produce 46,000 tons a year of ethylene and 21,000 tons a year of butadiene.

Details of the Altona petrochemical complex, which represents a capital investment of more than \$70m are given in the following diagram:

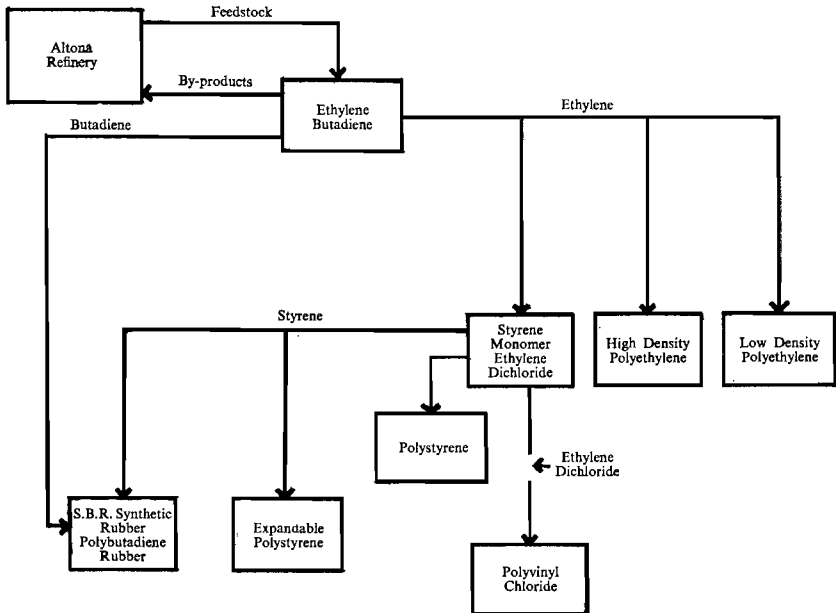


FIGURE 14.—PETROCHEMICAL COMPLEX, ALTONA, VICTORIA

In addition to production by the main complex of plants at Altona four companies manufacture petrochemicals in Victoria. At West Footscray, a company operates synthetic phenol and formaldehyde plants using petroleum feedstock.

In 1959, a plant to produce carbon black from imported petroleum feedstock was completed at Altona. Expansion has brought capacity to 76,000 tons a year. Carbon black is used mainly as a toughening agent in rubber tyres and other rubber and plastic goods, and is also used as a pigment in paints and inks.

Two of Victoria's three oil refineries have petrochemical plants on their sites. One has a unit for production of sulphur with a capacity of 12,000 tons a year at the Altona refinery. The bulk of production is used for manufacture of sulphuric acid.

Another has a refinery at Geelong, where a sulphuric acid plant which now has a capacity of 35,000 tons a year was completed in 1958. Since then plants for the manufacture of detergent alkylate (capacity 7,000 tons a year), hydrocarbon solvents (35,000 tons a year), and a small sulphonic acid plant have been built at the refinery. A polypropylene plastics project is currently under review by the company.

With the exception of plants for production of fertilizers, almost all Australia's petrochemical plants are located either in New South Wales or Victoria. Expansion of petrochemicals manufacture in these States has been a significant feature of Australia's growth in the past and with continued expansion, the industry should manufacture an increasing range of useful products based on petroleum.

Outstanding expansion has taken place in Industrial Metals, Machines, and Conveyances, etc., 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 wide range of goods including motor vehicles, construction and earth-moving equipment, precision instruments, aircraft, etc., and many other types of manufactures, the production of which was not attempted in earlier years.

As production in some factories in this class is variable, the classification may change from year to year, since each factory is classified according to the predominant item of production. Under these circumstances comparability may be disturbed. This applies to all classes of industry.

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

VICTORIA—CLASS 4 : INDUSTRIAL METALS, MACHINES,
AND CONVEYANCES : INDIVIDUAL INDUSTRIES, 1965-66

Sub-class	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	
	No.			(\$'000)						
2. Foundries (Ferrous) . .	80	2,361	7,044	899	5,235	11,476	17,609	3,994	2,524	10,145
3. Plant, Equipment and Machinery, etc. . .	1,123	35,372	99,680	3,893	167,809	159,124	330,826	83,861	50,471	131,538
4. Other Engineering . .	920	12,102	32,180	1,349	41,860	52,924	96,132	29,254	19,271	52,160
6. Electrical Machinery, Cables, and Apparatus	439	19,868	50,133	2,568	107,126	84,925	194,618	43,284	25,531	46,421
7. Tramcars and Railway Rolling Stock	22	6,690	16,843	448	12,739	21,821	35,009	6,929	2,986	24,115
9. Motor Vehicle Construction and Assembly	19	15,356	44,765	4,019	71,267	73,927	149,214	60,416	48,962	81,782
10. Motor Repairs . . .	2,718	19,693	39,819	1,359	42,934	62,105	106,398	64,926	9,369	22,057
11. Motor Bodies	637	9,728	25,504	1,116	33,765	34,243	69,124	31,568	24,960	24,795
13. Motor Accessories	114	9,075	22,042	1,430	39,511	32,253	73,195	18,303	19,968	39,899
14. Aircraft . .	25	9,079	29,446	795	21,853	34,463	57,111	14,579	10,483	21,032
20. Agricultural Machines and Implements	183	7,078	18,795	1,014	20,448	25,217	46,679	12,490	10,078	24,180
22. Non-ferrous Metals—Founding, Casting, etc.	167	4,071	10,303	781	21,485	19,072	41,338	9,405	6,261	14,958
24. Sheet Metal Working—Pressing and Stamping . .	452	11,984	31,092	1,640	72,840	53,436	127,916	28,322	18,423	36,946
26. Wire and Wire Working (Including Nails)	84	3,087	7,715	585	30,852	16,468	47,905	9,447	8,093	14,950
32. Wireless and Amplifying Apparatus	95	3,585	8,596	206	16,473	12,921	29,600	6,479	3,405	2,176
Other Sub-classes	392	16,871	48,121	8,542	108,728	80,451	197,721	47,473	83,990	155,738
Total, Class 4 . .	7,470	186,000	492,078	30,644	814,925	774,826	1,620,395	470,730	344,775	702,892

Further particulars of certain of the industries listed in the table above are given on pages 413-5.

The table which follows combines particulars for two sub-classes of manufacture : Electrical Machinery, Cables, etc., and Wireless and Amplifying Apparatus :

VICTORIA—ELECTRICAL MACHINERY, CABLES, AND APPARATUS (406,432)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	461	484	507	525	534
Number of Persons Employed ..	17,950	19,699	20,816	23,242	23,453
Salaries and Wages Paid \$'000	38,456	41,588	46,748	56,064	58,729
Value of Power, Fuel, etc., Used \$'000	1,944	2,256	2,408	2,721	2,774
Value of Materials Used \$'000	84,916	88,824	96,508	120,927	123,599
Value of Production .. \$'000	63,780	68,216	76,724	92,074	97,846
Value of Output .. \$'000	150,640	159,296	175,640	215,721	224,218
Value of Land and Buildings \$'000	34,056	37,992	40,636	47,203	49,763
Value of Plant and Machinery \$'000	21,226	23,456	23,944	26,731	28,936
Horse-power of Engines Ordinarily in Use .. H.P.	42,892	45,150	44,485	49,518	48,597

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, wireless and television sets, and parts for these.

The next table shows the activities of government controlled railways and tramways workshops :

VICTORIA—TRAMCARS AND RAILWAY ROLLING STOCK (407)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	22	22	22	22	22
Number of Persons Employed ..	7,206	7,035	6,846	6,664	6,690
Salaries and Wages Paid \$'000	14,650	14,232	14,568	16,181	16,843
Value of Power, Fuel, etc. Used \$'000	412	428	428	431	448
Value of Materials Used \$'000	11,996	12,020	12,426	12,518	12,739
Value of Production .. \$'000	18,948	18,428	18,820	21,582	21,821
Value of Output .. \$'000	31,356	30,876	31,674	34,531	35,009
Value of Land and Buildings \$'000	6,892	7,006	6,776	6,827	6,929
Value of Plant and Machinery \$'000	3,148	3,188	3,154	3,074	2,986
Horse-power of Engines Ordinarily in Use .. H.P.	23,964	24,006	24,365	24,040	24,115

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 Repairs, Motor Bodies, 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 (409, 410, 411, 413)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	3,200	3,282	3,314	3,445	3,488
Number of Persons Employed ..	43,157	48,771	51,668	54,811	53,852
Salaries and Wages Paid \$'000	90,276	107,552	118,768	133,054	132,130
Value of Power, Fuel, etc., Used					
\$'000	5,360	6,480	7,196	7,912	7,924
Value of Materials Used \$'000	124,732	155,980	179,376	198,182	187,477
Value of Production .. \$'000	144,652	168,790	188,404	199,973	202,528
Value of Output .. \$'000	274,744	331,250	374,976	406,067	397,931
Value of Land and Buildings \$'000	118,758	133,916	145,780	167,211	175,213
Value of Plant and Machinery \$'000	68,984	85,296	87,318	99,489	103,259
Horse-power of Engines Ordinarily in Use .. H.P.	106,423	131,392	136,439	153,836	168,533

The relative importance of each sub-class of the motor vehicle industry is shown on page 412.

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

VICTORIA—AGRICULTURAL MACHINERY AND IMPLEMENTS (420)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	125	130	141	162	183
Number of Persons Employed ..	5,569	5,668	6,961	7,901	7,078
Salaries and Wages Paid \$'000	11,812	13,484	18,740	21,800	18,795
Value of Power, Fuel, etc., Used					
\$'000	946	1,004	1,198	1,345	1,014
Value of Materials Used \$'000	21,472	21,618	28,514	29,516	20,448
Value of Production .. \$'000	17,108	19,092	25,046	28,909	25,217
Value of Output .. \$'000	39,526	41,714	54,758	59,770	46,679
Value of Land and Buildings \$'000	9,430	9,342	10,780	12,196	12,490
Value of Plant and Machinery \$'000	6,186	6,604	7,622	8,760	10,078
Horse-power of Engines Ordinarily in Use .. H.P.	20,199	20,803	22,705	22,540	24,180

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

VICTORIA—NON-FERROUS METALS : FOUNDRY, CASTING, ETC. (422)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	168	163	160	170	167
Number of Persons Employed ..	3,595	3,823	4,154	4,495	4,071
Salaries and Wages Paid \$'000	7,740	8,294	9,574	11,119	10,303
Value of Power, Fuel, etc., Used \$'000	580	674	748	874	781
Value of Materials Used \$'000	12,998	16,968	19,438	24,200	21,485
Value of Production .. \$'000	13,462	15,078	17,584	21,388	19,072
Value of Output .. \$'000	27,040	32,720	37,770	46,462	41,338
Value of Land and Buildings \$'000	7,452	8,146	8,478	9,830	9,405
Value of Plant and Machinery \$'000	4,796	5,100	5,584	5,781	6,261
Horse-power of Engines Ordinarily in Use .. H.P.	11,948	12,592	14,401	14,897	14,958

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

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

VICTORIA—SHEET METAL WORKING, PRESSING, AND STAMPING (424)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	436	430	435	449	452
Number of Persons Employed ..	10,532	10,754	11,122	11,468	11,984
Salaries and Wages Paid \$'000	22,456	23,940	25,344	28,083	31,092
Value of Power, Fuel, etc., Used \$'000	1,240	1,306	1,378	1,535	1,640
Value of Materials Used \$'000	55,470	58,360	60,710	70,647	72,840
Value of Production .. \$'000	41,882	47,174	47,848	51,595	53,436
Value of Output .. \$'000	98,592	106,840	109,936	123,777	127,916
Value of Land and Buildings \$'000	22,748	23,754	24,796	27,115	28,322
Value of Plant and Machinery \$'000	15,116	15,620	17,402	17,071	18,423
Horse-power of Engines Ordinarily in Use .. H.P.	30,850	32,647	33,761	34,488	36,946

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

Textile Industry

History

Introduction

The production of textile fibre in Victoria—in the form of wool—dates back to the Colony's settlement at the end of 1834, when the Henty family brought about eighty well-bred sheep and other livestock for their settlement at Portland Bay. The output of wool and its associated products was largely responsible for the early economic development of the Colony. By 1850, about six million sheep were being grazed in Victoria. In that year the exports of wool, tallow, and hides reached nearly £1m (which would now be expressed as \$2m in nominal value), the total of all other exports being £81,700 (\$163,400). Gold discoveries in the 1850s added to the Colony's wealth and population but as yields diminished a more permanent source of income had to be obtained.

By 1873 imports were valued at £16·5m (\$33m) and exports were valued at £14·8m (\$29·6m), with wool again accounting for a very large proportion of the export figures. The detailed figures applicable to textiles and textile fibre for 1873 were as follows :

**VICTORIA—IMPORTS AND EXPORTS OF TEXTILES AND
TEXTILE FIBRE, 1873**
£'000 (\$'000)

Particulars	Imports		Exports of Victorian Production	
Apparel and Slops	292	(584)	11	(22)
Bags and Sacks	219	(438)	..	..
Cottons	638	(1,276)	..	..
Haberdashery	330	(660)	..	..
Silks	293	(586)	..	..
Woollens and Woollen Piece Goods	914	(1,828)	9	(18)
Wool	1,842	(3,684)*	4,809	(9,618)
Other Items	12,007	(24,014)	7,148	(14,296)
Total	16,534	(33,068)	11,977	(23,954)

* Mainly from New South Wales. Source : Statistics of Victoria, 1873.

During the 1860s three factors combined to change the largely agrarian and mining nature of the Colony to a more balanced economy where both primary and secondary industry were able to develop. The first was the continuous growth in fine wool production, which suggested that some or all of the subsequent manufacturing processes could be carried out locally. The second was the emergence of several large softgoods warehouses, whose managers found it convenient and economic to manufacture finished goods on the spot instead of importing their total requirements. The third factor was the political success of the protectionist movement, which was able to enforce generally higher protective duties than in any other Australian colony against imported goods.

Woollen Mills

By 1886, nine woollen mills had been successfully established (two in Geelong, two in Newtown and Chilwell, and one each in Ballarat East, Castlemaine, Bungaree, Footscray, and Williamstown), the first being the Victorian Woollen Mills in 1868, followed soon afterwards by the Barwon and Albion Mills. About this time softgoods warehouses were established in Flinders Lane. One such covered two acres of floor space spread over a five storey bluestone building. In 1865, the manufacture of apparel and millinery began on an extensive scale, both in factories and in homes.

By 1886, the textile industry in Victoria had developed to the point where it was able to export the following locally manufactured items: Apparel and Slops, £155,358 (\$310,716), Bags and Sacks, £1,925 (\$3,850), Cottons, £2,221 (\$4,442), and Woollens and Woollen Piece Goods, £980 (\$1,960), mostly to the other Australian colonies, and Wool to the value of £3,807,362 (\$7,614,724), overseas. The latter was a drought-depressed figure which rose to £7,165,092 (\$14,330,184) only five years later.

In the same year, the nine woollen mills in Victoria had an annual consumption of 1.8 mill. lb of wool. They produced just on 1.1 mill. yards of tweed, cloth, and flannel, 2,905 pairs of blankets, and 180 shawls. In the same year 152 wool-washing establishments stripped the wool from 2.2 mill. sheepskins and washed 11.5 mill. lb of wool, saving greatly on freight costs to overseas buyers. Another 25 "manufactories" were engaged in making bedding, flock, and upholstery materials.

Hosiery

In 1860, the manufacture of hosiery which was destined to become important in Victorian industry, commenced when many drapers' shops installed small hand-operated circular knitting machines. These units were used to knit coarse socks for men and children, mostly in dark plain colours. In those days most women wore wool cashmere hosiery imported from overseas. At the turn of the century the first machines to knit fine gauge cashmere stockings were installed in a Collingwood factory and local stockings were able to compete with the imported article.

Knitting Mills (Other than Hosiery)

Knitting as a manufacturing industry independent of retail connections can be traced back to the early 1900s, when the knitting of heavy-weight woollen outerwear on hand operated flat knitting machines was undertaken in Carlton. By 1915, there were 49 Hosiery Manufactories in Victoria employing 134 males and 1,095 females, and the hand operated flat knitting machines of the first factory had given way to power-driven 84 and 168 needle machines for outerwear and underwear, as well as several circular knitting machines for half-hose. The company which grew from this factory now occupies 12 acres of land in Coburg. Most of the other large knitting and hosiery companies began in Victoria between the two world wars. Their development was accelerated by wartime shortages of imported hosiery, the availability of rayon, and tariff protection.

Cotton Textiles

The cotton textile industry was established after 1927 by a company at Abbotsford, with the spinning of coarse cotton yarns in counts of 5s to 36s. These yarns were sold to local knitters for underwear and to weavers for making cotton tweeds. This company was taken over by a large Sydney based company in 1939, but meanwhile two new, large local companies began operations at Yarraville. Today, these companies are still the major producers of Victoria's cotton yarn and fabric. In the post-war period, a Belgian company opened a cotton spinning mill at Wonthaggi and a weaving mill at Box Hill, and another company of Australian-Japanese interests opened a cotton spinning mill at Yarragon.

Man-made Fabrics

The next major development in the Victorian textile industry occurred at Bayswater, in 1958, where a British-owned company began the production of nylon and, in 1964, polyester fibre. At the beginning, the target output was 5 mill. lb of nylon yarn a year. Recent extensions to nylon capacity currently being commissioned will bring that target to about 30 mill. lb whilst the polyester process had a capacity of 7 mill. lb a year.

Throughout those years, a large group of user industries has grown up in conjunction with the main fibre producers. These include throwing, bulking, dyeing, spinning, weaving and knitting, garment makers, carpet manufacturers, motor tyre producers, and others.

Rope and Cordage

This section of the textile industry began early in the Colony's history. James Miller, a Scottish sailmaker, established a rope works in Geelong in 1862, and shortly after was the first in Australia to introduce machinery for the preparation and spinning of vegetable fibres and walk-laying of rope. Soon binder twine, hessian, cornsacks, and woolpacks were also being produced in Victoria.

Present-day Pattern of Industry

The important position achieved by the Victorian textile industry over the years is reflected in its statistics. Of the total of 1,360 textile factories in the Commonwealth in 1965-66, more than half (775) are situated in Victoria. Likewise, 58 per cent of the national total of 74,708 persons employed in textile factories, the majority of whom are women, are employed in Victoria. The value of output of textile factories in Victoria is nearly three-fifths of the national total, \$387m out of a total of \$665m.

The most important individual sections of the industry now comprise the following :

(1) *Cotton Spinning and Weaving*.—In 1965-66, Victoria had 29 out of 78 Australian mills which spin cotton yarn and weave cotton fabric. Value of output is over \$37m out of the national total of nearly \$94m. The most popular types of yarns produced range from counts of 2s to 30s. The yarn is used by knitters of underwear, and

weavers of canvas and duck drills, denims, and tweeds for apparel uses. In recent years this section of the industry has been widely modernised. The three biggest producers have installed plant and equipment comparable to that used by the most advanced companies overseas.

(2) *Wool—Carding, Spinning, and Weaving.*—Victoria now has 73 of Australia's 124 woollen and worsted mills. Annual output is \$81m out of national total of \$160m. There is a worldwide trend in textile mills away from specialisation in one fibre to the use of many fibres, and some woollen mills, in particular, which have in the past restricted themselves to British traditional types of production have found it desirable to produce a variety of blended yarns and fabrics. Mills, in both city and country areas, have been re-equipped with new looms and adopted new production techniques.

(3) *Hosiery and Other Knitted Goods.*—More than two-thirds of Australia's knitting industry is located in Victoria, which has 438 of the nation's 592 knitting mills. They produce \$147m of the national total of \$204m worth of knitted goods per year.

(4) *Rayon, Nylon, and Other Man-made Fibres.*—More than half of the textile industry's use of man-made fibres occurs in Victoria, where 22 factories out of a national total of 40 are situated. The Victorian value of output of these factories is \$35m a year out of a national total of \$54m. Victoria's dominance in this field is partly due to the fact that man-made fibres are particularly suited to use in knitwear of which Victoria has 65 per cent of the Australian output in terms of value.

(5) *Rope and Cordage.*—Today, Victoria has only 11 of Australia's 25 rope and cordage works, yet produces over 70 per cent of the nation's output in this field—nearly \$15m out of a total of \$20m. The production of bags and sacks has become a more specialised section of the textile industry. Here Victoria now has one-third of Australia's mills—26 out of 91—and produces over \$4m out of \$10m per year.

(6) *Canvas Goods.*—Although Victoria has always had a high demand for canvas goods, dating back to early settlement and gold rush days, it was not until 1942 under the stimulus of wartime needs that this type of fabric was woven within the State. Today, about 30 per cent of the nation's canvas goods, tents, tarpaulins, etc., originate in Victoria. Thirty-eight out of 153 mills making such goods are located in the State, and they produce \$5m of the nation's output of \$16m per year.

(7) *Textile Dyeing, Printing, and Finishing.*—Annual value of output of this industry is over \$11m out of a national total of \$26m. Most of this production falls into the category of dyeing and finishing, since most of Australia's textile printing is now done in other States. Victoria's high proportion of the national figure is a reflection of her activity in associated textile fields, such as weaving, knitting, and hosiery production.

(8) *Man-made Fibre Industry.*—At Bayswater, 18 miles from Melbourne, is located one of the nation's largest chemical fibre producers. Here, nylon and polyester fibre are produced from imported polymer chip.

(9) *Carpet Industry*.—More than half the value of Australian carpeting manufactured is made in Victoria, where most of the factories are located. Australian production of pile-carpets rose from 2,887,000 sq yd in 1950–51 to 11,384,816 sq yd in 1965–66. Woven carpet made in Australia is Axminster, Wilton, and Brussels—but mainly Axminster. After slow growth from the beginning in 1937, the manufacture of pile-carpet increased greatly during the 1950s. The first woven-pile floor coverings were made in Australia in 1937 on Wilton looms. Manufacture of Axminster on Gripper looms was undertaken in 1938. Production of Wilton and Spool Axminster began in 1947. Manufacture of Axminster and Wilton has been based on traditional British techniques. Until 1956–57 tufted carpet made in Australia was confined to minor output of rugs and mats. Broad tufting of carpet with 12 ft width machines began in 1956, and production of woven sisal carpeting commenced the same year. In 1961, Australia produced her first carpets tufted with man-made fibre filament yarns. (Carpet felt and bonded pile carpet output estimates are included in the above production figures). Australian consumption of woven non-pile carpet is negligible in comparison with pile carpet consumption.

Nearly all fibre materials for carpet making are still imported—very little Australian grown wool is coarse enough for carpet-pile. At present the Australian industry supplies three quarters of the quantity of apparent consumption which in 1965–66 rose to 16·15 mill. sq yd—the highest per capita consumption so far recorded. Exports, too, have increased in recent years, the figures for 1965–66 being 116,646 sq yd.

Overseas investment in carpet manufacture in Australia has increased capacity, widened product range, and increased import replacement. Although British interests in the Australian carpet industry are substantial as subsidiaries or joint-enterprises, overseas interests have not taken over any existing factories. By 1966, twenty firms were engaged in the manufacture of soft floor coverings, fifteen produced underfelt, and nineteen produced carpet yarns. The degree of integration of processes and types of carpet produced varies considerably.

Decentralisation

Much of the textile industry in Victoria has been decentralised in provincial areas ever since the industry's inception. Today there are woollen and worsted spinning, weaving and knitting mills operating successfully at such centres as Geelong, Stawell, Ballarat, Seymour, Shepparton, and Wangaratta. Cotton mills are operated by one large company at Bendigo as well as at Footscray and Abbotsford. Other large cotton producers are located at Yarraville. One major enterprise which employs more than 800 people concentrates on weaving man-made fibre fabrics at Wangaratta. (See also page 808.)

In the hosiery knitting industry, the tendency has been to congregate in Melbourne's northern suburbs, where a number of large mills are located. Several smaller plants are established in other suburbs and country areas.

The early advantage which Victorian manufacturers gained, has been maintained and includes 58 per cent of Australia's volume of output of textile products.

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

VICTORIA—WOOL CARDING, SPINNING, AND WEAVING
(603)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	79	78	78	78	73
Number of Persons Employed ..	10,441	10,816	10,183	9,934	9,221
Salaries and Wages Paid \$'000	17,924	19,290	18,253	19,473	18,721
Value of Power, Fuel, etc., Used					
\$'000	1,538	1,590	1,500	1,561	1,567
Value of Materials Used \$'000	47,568	56,660	59,175	56,729	52,757
Value of Production .. \$'000	25,862	29,050	28,212	26,657	26,594
Value of Output .. \$'000	74,968	87,300	88,887	84,948	80,919
Value of Land and Buildings \$'000	12,820	14,030	13,799	14,186	15,139
Value of Plant and Machinery \$'000	13,604	14,624	13,943	14,608	13,465
Horse-power of Engines Or- dinarily in Use .. H.P.	40,236	40,724	40,271	37,781	33,829

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, etc., industry for the five years to 1965-66 are given below :

VICTORIA—HOSIERY AND OTHER KNITTED GOODS
(604)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	462	450	441	444	438
Number of Persons Employed ..	16,486	17,803	18,412	18,947	19,088
Salaries and Wages Paid \$'000	26,284	29,666	31,262	34,576	36,429
Value of Power, Fuel, etc., Used					
\$'000	1,154	1,194	1,268	1,359	1,442
Value of Materials Used \$'000	58,754	66,102	71,702	78,790	79,821
Value of Production .. \$'000	51,268	54,426	58,745	63,789	65,845
Value of Output .. \$'000	111,176	121,722	131,715	143,938	147,109
Value of Land and Buildings \$'000	22,538	23,686	24,575	26,664	28,508
Value of Plant and Machinery \$'000	15,654	17,134	18,739	20,073	23,075
Horse-power of Engines Or- dinarily in Use .. H.P.	17,003	17,201	17,670	18,868	20,557

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
(801, 803, 804, 805, 806, 807, 808, 809)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	1,308	1,317	1,308	1,283	1,285
Number of Persons Employed ..	27,089	28,674	28,796	29,343	30,542
Salaries and Wages Paid \$'000	39,278	42,750	44,527	48,517	52,477
Value of Power, Fuel, etc., Used \$'000	778	828	868	910	1,000
Value of Materials Used \$'000	61,882	67,200	70,963	76,281	78,485
Value of Production .. \$'000	64,214	69,310	73,746	79,022	84,044
Value of Output .. \$'000	126,874	137,338	145,577	156,214	163,529
Value of Land and Buildings \$'000	30,106	32,082	34,185	36,413	39,771
Value of Plant and Machinery \$'000	5,742	6,090	6,677	7,227	7,842
Horse-power of Engines Ordinarily in Use .. H.P.	10,794	11,171	11,583	12,295	13,108

In the following table the industries combined in the preceding table are shown in detail for 1965-66 :

VICTORIA—CLOTHING (DRESS), EXCLUDING WATERPROOF CLOTHING, KNITTED GOODS, AND BOOTS AND SHOES :
INDIVIDUAL INDUSTRIES, 1965-66

Particulars	Tailoring and Ready-made Clothing 801	Dress-making 803	Millinery, Hats and Caps 804, 808	Shirts, Underclothing 805	Foundation Garments 806	Handkerchiefs, Ties, and Gloves 807, 809	Total
Number of Factories	482	559	60	123	33	28	1,285
Number of Persons Employed ..	11,038	9,859	889	6,083	2,125	548	30,542
Salaries and Wages Paid \$'000	19,749	16,741	1,467	10,379	3,251	890	52,477
Value of Power, Fuel, etc., Used \$'000	394	311	49	164	61	21	1,000
Value of Materials Used \$'000	33,015	20,635	1,643	15,959	5,139	2,094	78,485
Value of Production .. \$'000	33,044	26,202	2,295	16,070	4,959	1,474	84,044
Value of Output .. \$'000	66,453	47,148	3,987	32,193	10,159	3,590	163,529
Value of Land and Buildings \$'000	14,042	14,202	1,942	5,488	3,192	905	39,771
Value of Plant and Machinery \$'000	3,068	2,258	173	1,495	694	154	7,842
Horse-power of Engines Ordinarily in Use H.P.	4,473	4,013	268	2,903	1,133	318	13,108

In the above table, tailoring and ready-made clothing, and dressmaking together represented 81·0 per cent of the factories, 68·4 per cent of employment, and 64·7 per cent of the horse-power in use ; shirts and underclothing contributed 9·6 per cent, 19·9 per cent, and 22·1 per cent, respectively.

Manufacture of boots and shoes (not rubber) is the subject of the next table :

VICTORIA—BOOTS AND SHOES (NOT RUBBER) (810)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	201	198	193	199	203
Number of Persons Employed ..	11,510	11,907	12,145	12,038	11,799
Salaries and Wages Paid \$'000	19,388	20,630	21,250	22,782	22,197
Value of Power, Fuel, etc., Used \$'000	380	384	410	444	466
Value of Materials Used \$'000	36,618	37,312	37,974	38,732	36,187
Value of Production .. \$'000	31,888	32,830	34,322	35,466	37,207
Value of Output .. \$'000	68,886	70,526	72,706	74,641	73,860
Value of Land and Buildings \$'000	7,680	8,188	9,869	9,858	10,643
Value of Plant and Machinery \$'000	7,158	7,446	8,335	9,595	9,766
Horse-power of Engines Ordinarily in Use .. H.P.	7,624	7,811	7,852	7,950	8,426

A feature of this industry is the large proportion of females employed. Numbering 7,016, they represented 59.5 per cent of the total number of persons employed in the manufacture of boots and shoes (not rubber) in 1965-66.

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.

The second most important industrial class in Victoria is Class 9—Food, Drink, and Tobacco. The relative importance of its principal sub-classes is shown in the following table. Victoria leads other States in the production of butter, condensary products, cheese, canned meat, confectionery, jams and preserved fruit. It also produces a third of Australia's flour and biscuits and a quarter of its bacon and ham.

VICTORIA—CLASS 9 : FOOD, DRINK, AND TOBACCO :
INDIVIDUAL INDUSTRIES, 1965-66

Particulars	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	
	No.					\$'000				
1. Flour Milling ..	25	1,368	3,562	627	43,340	9,457	53,424	6,323	4,502	21,449
2. Cereal Foods and Starch ..	26	1,251	2,802	500	11,510	6,708	18,718	3,429	4,276	10,378
5. Bakeries ..	1,002	6,557	12,193	1,713	33,656	24,633	60,002	22,846	10,608	11,978
6. Biscuits ..	27	2,337	4,822	481	10,937	7,450	18,868	4,848	3,318	5,192
9. Confectionery ..	68	3,581	7,456	681	19,594	14,888	35,163	8,023	8,140	17,427
10. Jam, Fruit and Vegetable Canning ..	35	5,820	14,980	1,544	67,029	37,142	105,714	22,094	21,958	25,969
13. Butter Factories	80	3,094	8,476	2,149	92,783	19,904	114,837	10,656	14,860	31,901
14. Cheese Factories	22	1,028	2,821	343	25,609	7,544	33,496	6,516	4,736	6,407
15. Condensed and Dried Milk Factories ..	17	1,597	4,260	1,146	32,717	11,323	45,186	4,764	6,512	12,694
18. Condiments, Coffee, Spices	60	1,374	3,109	261	11,054	7,282	18,597	5,947	2,953	5,722
19. Ice and Refrigeration ..	114	1,544	3,795	1,307	1,383	7,541	10,231	10,932	5,403	31,705
21. Aerated Waters, Cordials, etc.	85	1,216	2,600	236	9,112	7,859	17,207	4,900	3,421	3,605
28. Tobacco, Cigars, Cigarettes, Snuff ..	6	2,286	5,104	306	43,789	34,419	78,514	6,052	6,912	6,411
Other Sub-classes	351	10,530	26,127	4,090	135,463	62,380	201,934	42,493	37,901	69,871
Total, Class 9	1,918	43,583	102,107	15,384	537,976	258,530	811,891	159,823	135,500	260,709

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

VICTORIA—BAKERIES (INCLUDING CAKES AND PASTRY)
(905)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	1,117	1,096	1,056	1,035	1,002
Number of Persons Employed ..	6,080	6,271	6,336	6,420	6,557
Salaries and Wages Paid \$'000	9,478	9,946	10,684	11,681	12,193
Value of Power, Fuel, etc., Used \$'000	1,532	1,580	1,622	1,688	1,713
Value of Materials Used \$'000	28,210	28,612	29,842	32,236	33,656
Value of Production .. \$'000	20,606	21,494	22,004	23,700	24,633
Value of Output .. \$'000	50,348	51,686	53,468	57,624	60,002
Value of Land and Buildings \$'000	18,106	19,252	20,872	21,845	22,846
Value of Plant and Machinery \$'000	10,098	11,212	10,776	10,838	10,608
Horse-power of Engines Ordinarily in Use .. H.P.	9,969	10,727	10,936	11,707	11,978

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 (910, 911)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	55	54	54	52	53
Number of Persons Employed ..	5,314	5,142	5,642	5,707	6,205
Salaries and Wages Paid \$'000	10,980	11,452	12,654	13,939	15,841
Value of Power, Fuel, etc., Used \$'000	1,138	1,142	1,298	1,447	1,639
Value of Materials Used \$'000	49,014	47,200	52,023	57,321	71,442
Value of Production .. \$'000	27,534	28,668	32,459	34,153	40,328
Value of Output .. \$'000	77,686	77,010	85,780	92,921	113,409
Value of Land and Buildings \$'000	18,280	19,080	20,121	20,860	23,489
Value of Plant and Machinery \$'000	14,006	15,256	18,442	19,501	22,667
Horse-power of Engines Ordinarily in Use .. H.P.	22,197	23,454	25,120	25,470	27,950

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 number of persons employed and 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. Details of these factories, classified according to predominant activity, are shown on page 423. There is a great deal of overlap in articles produced between factories in all these sub-classes, which use liquid whole milk as a raw material.

VICTORIA—BUTTER, CHEESE, CONDENSED AND PROCESSED MILK FACTORIES (913, 914, 915)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	127	126	123	120	119
Number of Persons Employed ..	5,681	5,692	5,788	5,824	5,719
Salaries and Wages Paid \$'000	13,026	13,306	14,292	15,096	15,558
Value of Power, Fuel, etc., Used \$'000	3,134	3,252	3,318	3,569	3,638
Value of Materials Used \$'000	114,698	118,754	132,448	150,909	151,109
Value of Production .. \$'000	28,268	30,368	33,412	38,953	38,771
Value of Output .. \$'000	146,100	152,374	169,178	193,431	193,518
Value of Land and Buildings \$'000	16,366	16,792	17,026	19,202	21,936
Value of Plant and Machinery \$'000	19,562	20,246	21,822	22,564	26,109
Horse-power of Engines Ordinarily in Use .. H.P.	45,501	46,438	48,570	48,295	51,002

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 pages 343-5.

Details of the operation of the following sub-classes of industry are given below, namely, Sawmills, Joinery, Boxes and Cases, Wood Turning and Carving, and Cabinet and Furniture Making :

VICTORIA—SAWMILLS, WOODWORKING, FURNITURE, ETC. (1001, 1004, 1006, 1007, 1101)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	1,758	1,760	1,761	1,759	1,758
Number of Persons Employed ..	17,979	18,311	18,177	18,270	18,500
Salaries and Wages Paid \$'000	35,444	37,098	37,755	40,524	42,211
Value of Power, Fuel, etc., Used \$'000	1,576	1,638	1,722	1,764	1,807
Value of Materials Used \$'000	70,110	71,892	77,043	82,864	83,637
Value of Production .. \$'000	57,844	61,360	65,160	70,710	71,692
Value of Output .. \$'000	129,530	134,890	143,925	155,339	157,136
Value of Land and Buildings \$'000	30,594	32,338	34,592	38,429	41,477
Value of Plant and Machinery \$'000	12,912	13,196	12,974	13,441	15,363
Horse-power of Engines Ordinarily in Use .. H.P.	132,480	133,963	136,824	130,483	135,938

The following table shows the particulars of the individual industries combined in the preceding table for 1965-66 :

VICTORIA—SAWMILLS, WOODWORKING, FURNITURE,
ETC. : INDIVIDUAL INDUSTRIES, 1965-66

Particulars	Sawmills 1001	Joinery 1004	Boxes and Cases 1006	Wood Turning and Wood Carving 1007	Furniture Making, etc. 1101	Total
Number of Factories	446	706	58	90	458	1,758
Number of Persons Employed	6,019	6,324	681	826	4,650	18,500
Salaries and Wages Paid .. \$'000	13,849	14,808	1,439	1,796	10,319	42,211
Value of Power, Fuel, etc., Used \$'000	1,038	382	50	73	264	1,807
Value of Materials Used .. \$'000	34,517	25,789	2,210	2,048	19,073	83,637
Value of Production \$'000	25,357	23,058	2,190	2,948	18,139	71,692
Value of Output \$'000	60,912	49,229	4,450	5,069	37,476	157,136
Value of Land and Buildings .. \$'000	11,642	14,536	1,260	1,586	12,453	41,477
Value of Plant and Machinery .. \$'000	8,419	3,782	401	630	2,131	15,363
Horse-power of Engines Ordinarily in Use H.P.	80,954	30,717	5,150	5,331	13,786	135,938

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, etc.

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

VICTORIA—NEWSPAPERS AND PERIODICALS (1201)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	128	123	122	123	123
Number of Persons Employed ..	3,765	3,717	3,796	4,175	4,295
Salaries and Wages Paid \$'000	9,126	9,532	9,991	10,965	11,520
Value of Power, Fuel, etc., Used \$'000	322	342	371	392	430
Value of Materials Used \$'000	18,288	18,540	19,425	20,607	21,333
Value of Production .. \$'000	16,272	16,058	16,343	18,163	18,269
Value of Output .. \$'000	34,882	34,940	36,139	39,161	40,032
Value of Land and Buildings \$'000	6,544	6,834	6,916	6,769	8,032
Value of Plant and Machinery \$'000	7,290	8,248	9,134	9,273	9,320
Horse-power of Engines Or- dinarily in Use .. H.P.	12,152	12,331	12,550	13,151	13,798

Some "job" printing is included in this industry, but where newspapers, periodicals, etc., 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) (1203)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	600	618	659	683	683
Number of Persons Employed ..	9,452	9,719	10,857	10,733	11,122
Salaries and Wages Paid \$'000	19,864	21,302	23,024	25,582	27,633
Value of Power, Fuel, etc., Used					
\$'000	620	714	780	891	992
Value of Materials Used \$'000	23,860	27,402	29,904	32,967	33,919
Value of Production .. \$'000	36,434	38,862	41,936	47,021	50,791
Value of Output .. \$'000	60,914	66,978	72,620	80,879	85,702
Value of Land and Buildings \$'000	20,048	20,640	23,009	25,148	27,097
Value of Plant and Machinery \$'000	15,468	16,574	17,577	19,405	20,660
Horse-power of Engines Ordinarily in Use .. H.P.	15,810	16,551	17,556	18,388	18,852

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 (1207)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	60	60	66	65	66
Number of Persons Employed ..	3,056	3,363	3,562	3,527	3,683
Salaries and Wages Paid \$'000	6,236	6,906	7,737	8,473	8,730
Value of Power, Fuel, etc., Used					
\$'000	272	294	338	350	365
Value of Materials Used \$'000	21,320	24,324	26,633	27,867	28,920
Value of Production .. \$'000	13,748	14,840	16,944	18,003	18,931
Value of Output .. \$'000	35,340	39,458	43,915	46,220	48,216
Value of Land and Buildings \$'000	7,622	8,614	9,461	11,422	13,581
Value of Plant and Machinery \$'000	5,848	7,134	7,924	8,500	8,510
Horse-power of Engines Ordinarily in Use .. H.P.	6,602	6,980	7,535	7,760	9,280

The following table gives particulars of rubber goods manufacture :

VICTORIA—RUBBER GOODS (INCLUDING TYRES MADE)
(1301)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	48	51	52	50	51
Number of Persons Employed ..	6,193	6,958	7,614	7,697	7,415
Salaries and Wages Paid \$'000	13,758	16,474	18,397	21,001	20,274
Value of Power, Fuel, etc., Used \$'000	2,212	2,554	2,726	2,734	2,679
Value of Materials Used \$'000	34,176	38,744	42,507	46,674	43,882
Value of Production .. \$'000	27,278	32,316	33,383	32,818	32,074
Value of Output .. \$'000	63,666	73,614	78,616	82,225	78,635
Value of Land and Buildings \$'000	10,330	10,904	15,246	15,360	17,249
Value of Plant and Machinery \$'000	13,878	14,510	14,445	14,542	16,863
Horse-power of Engines Ordinarily in Use .. H.P.	63,656	67,468	73,487	78,083	81,162

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 (1503)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	165	168	175	178	186
Number of Persons Employed ..	5,415	6,018	6,384	7,059	7,278
Salaries and Wages Paid \$'000	11,022	13,042	14,658	17,763	18,510
Value of Power, Fuel, etc., Used \$'000	974	1,144	1,298	1,568	1,730
Value of Materials Used \$'000	27,556	32,560	35,648	42,127	41,935
Value of Production .. \$'000	21,802	26,548	31,434	35,921	35,348
Value of Output .. \$'000	50,332	60,252	68,380	79,615	79,013
Value of Land and Buildings \$'000	10,938	11,940	13,171	14,859	17,986
Value of Plant and Machinery \$'000	11,290	13,782	15,587	16,961	19,512
Horse-power of Engines Ordinarily in Use .. H.P.	25,277	31,918	32,581	36,778	41,417

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, containers, piping and tubing, toys, etc.

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

VICTORIA—ELECTRIC LIGHT AND POWER (1601, 1602, 1603)

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	41	35	29	29	22
Number of Persons Employed ..	3,541	3,379	3,356	3,674	3,883
Salaries and Wages Paid \$'000	9,582	9,482	10,180	11,808	12,841
Value of Power, Fuel, etc., Used \$'000	23,806	21,328	24,410	25,345	25,904
Value of Materials Used \$'000	1,534	1,484	1,779	2,032	3,192
Value of Production .. \$'000	36,926	42,514	44,905	54,902	60,701
Value of Output .. \$'000	62,266	65,326	71,094	82,280	89,797
Value of Land and Buildings \$'000	47,626	45,682	44,848	48,079	46,665
Value of Plant and Machinery \$'000	185,426	184,798	178,450	203,249	223,477
Total Installed Horse-power of Engines Used to Drive Generators* .. '000 H.P.	2,243	2,221	2,213	2,521	2,903

* Excludes engines using electricity generated in own works.

Because of the extension of services by the State Electricity Commission to areas previously served by other authorities or individual suppliers, the number of electric light and power factories has decreased considerably in recent years.

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

Introduction

The State Electricity Commission which was constituted by the *Electricity Commissioners Act 1918* is a semi-governmental authority administered since 1921 by a full-time chairman and three part-time commissioners. The principal duty of the Commission is to co-ordinate and extend, on an economic basis, the supply of electricity throughout Victoria.

For this purpose, it is vested with power to erect, own, and operate power stations and other electrical plant and installations, supply electricity retail to individual consumers or in bulk to any corporation or public institution, acquire and operate electricity undertakings, develop, own, and operate brown coal open cuts and briquetting works, and develop the State's hydro-electric resources.

From its own revenues, which it controls, the Commission must meet all expenditure in the operation of its power, fuel and subsidiary undertakings, and all interest and other charges incurred in the service of its loans and other capital commitments.

The Commission is the controlling authority for all electrical 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. Incidental to its main operations, the Commission owns and operates the tramway systems in Ballarat and Bendigo.

For the accommodation of its employees at Yallourn, the Commission owns and administers the town of Yallourn. It also owns large housing estates in the surrounding area, but is progressively selling houses in these estates to Commission employees. In the Kiewa hydro-electric works area, it has built the two townships of Mount Beauty and Bogong, municipal administration of the former now being vested in the Shire of Bright. With construction at Kiewa now complete, many houses at Mount Beauty have been sold for holiday homes.

Electricity Generation

Since it began operating in 1919, the State Electricity Commission has expanded and co-ordinated the production and supply of electricity on a State-wide basis to the point where its system now generates almost all the electricity produced in Victoria and serves 98 per cent of the population.

Development of Victoria's electricity system is based on the utilisation for both power and fuel of Victoria's extensive brown coal resources in the Latrobe Valley in eastern Gippsland, with supplementary development of the hydro-electric potential of north-eastern Victoria. Victoria is entitled to one-third of the electricity from the Snowy Mountains Hydro-electric Scheme, after the Commonwealth has taken the power it needs for its purposes. Victoria also shares with New South Wales in the electricity generated at Hume Hydro Station on the River Murray.

About 84 per cent of the State Electricity Commission generation is from brown coal, either used in its raw state or manufactured into higher quality fuel in the form of brown coal briquettes. All the brown coal and briquette fuel is supplied by undertakings which the Commission itself owns and operates. Output of brown coal in

1965-66 from the three open cuts at Yallourn, Yallourn North, and Morwell totalled 21,066,991 tons, of which 15,368,426 tons were used in the Commission's own power stations, and 5,035,382 tons were manufactured into 1,882,814 tons of brown coal briquettes, 30 per cent of the briquette output then being used for electricity production in metropolitan and provincial steam power stations. The two functions, generation of electricity and production of fuel, are closely integrated. Apart from the large proportion of brown coal and briquette fuel consumed in the power stations, the process of briquette manufacture results also in the generation of electricity, since the steam needed for processing the raw coal for briquetting is first used to operate turbo-generators.

Electricity Supply

At 30 June 1966, the number of ultimate consumers in Victoria was 1,094,462. Of these, 1,086,879 were served by the State system and 7,583 by the local country undertakings. The State system supplies all the Melbourne Metropolitan Area and over 2,200 other centres of population.

Complete electrification of the State is now within sight. By 30 June 1966, about 921,400 of the 934,000 homes in the State and 64,700 of Victoria's 69,200 rural holdings were supplied with electricity. By 1968-69, allowing for extensions then in progress, only about 3,000 homes and fewer than 1,250 farms in remote areas will be out of reach of public electricity supply, but efforts will be continued to supply as many of these as possible. A "home" in this context, is defined as any dwelling *unit* which could come under the domestic electricity tariff. It includes each individual flat unit in a block of flats. However, it excludes such buildings as hospitals, prisons, religious and educational institutions, police and fire stations, etc., which are classified as dwellings for population census purposes.

The Commission sells electricity retail in all areas except part of the Metropolitan Area, where it sells in bulk to eleven municipal undertakings which operate as local retail supply authorities under franchises granted before the Commission was established. Bulk supply is also being provided at present to several New South Wales municipalities and irrigation settlements bordering the River Murray. The number of consumers served by the State system outside the Melbourne Metropolitan Area is 505,716. Of the new consumers connected to supply each year, more than two-thirds are outside the Metropolitan Area. New farm connections average nearly 3,500 a year.

The Commission's retail consumers numbered 876,462 at 30 June 1966. Retail supply is administered through the metropolitan branch and ten extra-metropolitan branches (Barwon, Eastern Metropolitan, Gippsland, Mallee, Midland, Mid-Western, North-Eastern, Northern, South-Western, and Wimmera). At 30 June 1966, there were branch and district supply offices in Melbourne and 92 other cities and towns in Victoria.

Electricity Production, Transmission, and Distribution

Electricity generated in the State system or purchased by it totalled 10,281 mill. kWh in 1965-66, or more than 99 per cent of all Victoria's electricity for public supply. The system comprises a series of thermal and hydro-electric power stations. Inclusive of generator capacity both within the State and available to the Victorian system from outside the State, the total installed generator capacity at 30 June 1966, was 2,395,000 kW. Power stations are interconnected and feed electricity into a common pool for general supply.

The major power station in this interconnected system is the brown coal burning power station at Yallourn, which alone generates over 40 per cent of Victoria's electricity. Other power stations in the interconnected system comprise two further base load brown coal burning power stations; Morwell and Hazelwood (which now has three of its planned eight 200,000 kW generating sets in service); steam stations in Melbourne (Newport, Richmond, and Spencer Street), Geelong and Ballarat, and also at Red Cliffs, which has, in addition, some internal combustion plant; and hydro-electric stations at Kiewa, at Eildon, on the Rubicon and Royston Rivers near Eildon, and at Cairn Curran. All within Victoria are Commission-owned, except Spencer Street Power Station, which remains the property of the Melbourne City Council, although operated as a unit in the interconnected system.

A 330 kV transmission line links the Victorian system with the Snowy Mountains undertaking, and also provides facilities for interconnection between the Victorian and New South Wales State generating systems. Also linked with the Victorian interconnected system is the hydro station at Hume Dam on the River Murray. This power station is operated by the Electricity Commission of New South Wales. Output and operating costs are shared by Victoria and New South Wales.

In meeting the total demand on the system, which fluctuates throughout the day and from month to month, each group of stations in the interconnected system is assigned a pre-determined function dependent upon the availability of power from each group and the economics of generation. The various stations are utilised in the combination that will meet the system load most economically at a given time.

The electrical transmission and distribution system in the State supply network at 30 June 1966 comprised 49,708 miles of power lines, 21 terminal receiving stations, 98 main transmission sub-stations, and nearly 46,900 distribution sub-stations. Main transmission is by 330 kV, 220 kV, 132 kV and 66 kV power lines which supply the principal distribution centres and also provide interconnection between the power stations. The 330 kV and 220 kV systems total 1,240 miles.

Transmission lines to operate at 500 kV—the first in Australia—are being constructed by the Commission between the Latrobe Valley and Melbourne. The first line, Hazelwood—South Morang, is to be in service by 1968.

Future Development

Major new construction is concentrated on the erection of the large Hazelwood brown coal burning power station which is designed to operate on raw brown coal fuel supplied by belt conveyor direct from the Morwell open cut in the Latrobe Valley. Hazelwood Power Station is the largest project undertaken by the Commission and is designed to have a capacity of 1,600,000 kW in 1971. The State's power resources, including Victoria's share of the output of the Snowy scheme, between 1966 and 1971 will have increased by 63 per cent to 3,894,000 kW.

The first of Hazelwood's eight 200,000 kW turbo-generators was commissioned in October 1964, the second generating set went into service in 1965, and the third generating set in 1966, and five other 200,000 kW sets will follow at yearly intervals. Power generated at Hazelwood Power Station is transmitted at high voltage to Melbourne metropolitan terminal stations for distribution through the State supply network. A new power station—to be known as Yallourn "W"—will be built about half a mile west of the present Yallourn Power Station on the completion of the Hazelwood project. It will also operate on brown coal which will be supplied by conveyors from Yallourn open cut. Yallourn "W" will have two 350,000 kW turbo-generators, the first to be in service in 1972 and the second in 1973.

Local Country Electricity Undertakings

At 30 June 1966, there were six independent electricity undertakings in country centres in Victoria generating and distributing their own local supply. Three of these undertakings were in the west and north-west of the State. Under the State Electricity Commission's rural electrification programme almost all the independent local country undertakings will ultimately be acquired and absorbed into the State system.

For the year 1965-66 the total production of the independent undertakings was 31 mill. kWh. The number of consumers at 30 June 1966, was 7,583. The operation of the independent undertakings is governed by the *Electric Light and Power Act 1958*, which is administered by the State Electricity Commission.

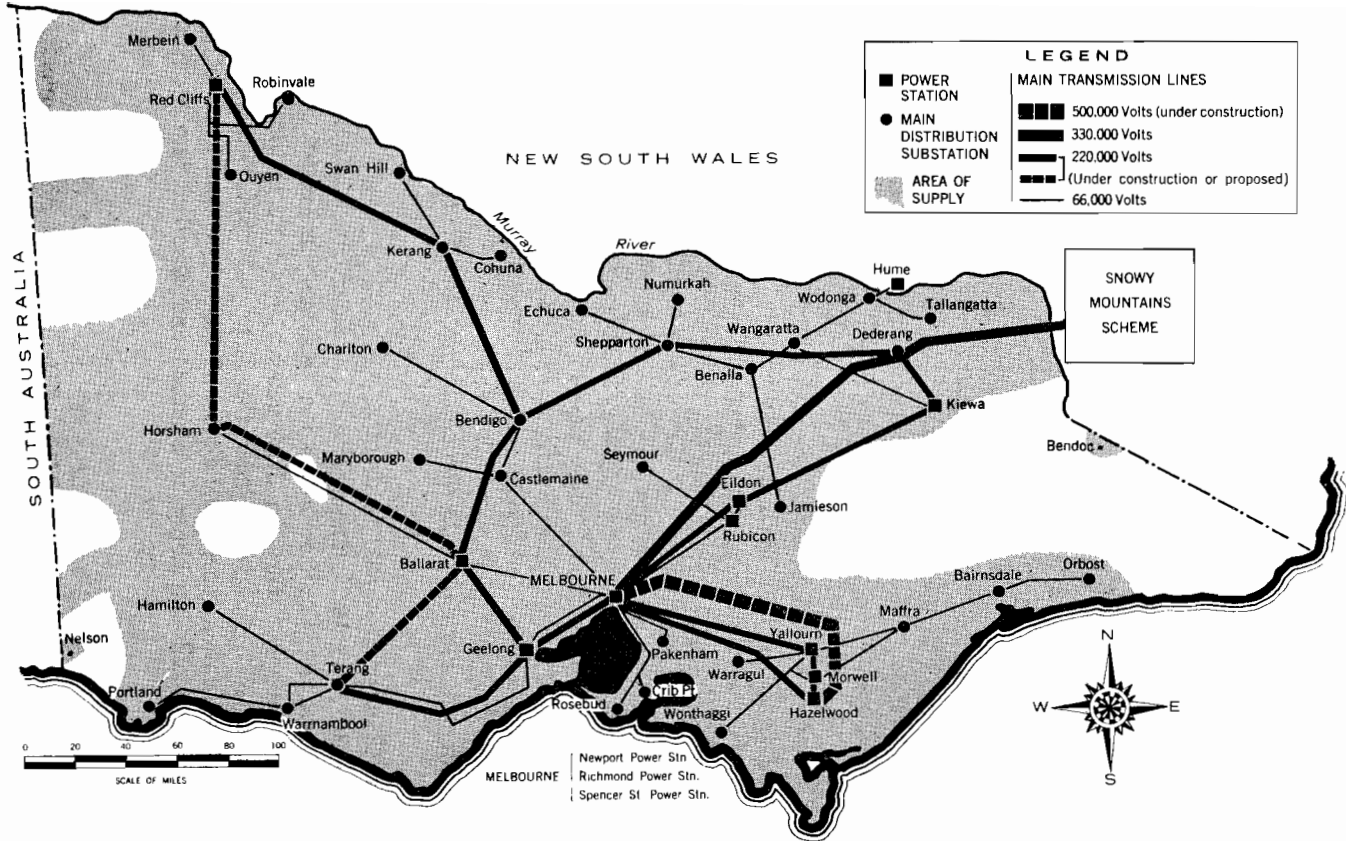


FIGURE 15.—Map of Victoria's main power transmission system.

The following table shows the predominant part taken by the State Electricity Commission in the generation of electric power in Victoria, the amount of power generated by water power and other sources, and the relative importance of the main power stations :

VICTORIA—ELECTRICITY GENERATED, POWER STATIONS,
AND SOURCE OF POWER, 1965-66

Station	Source T = Thermal* H = Hydro	Production	
		Mill. kWh	Per cent
State Electricity Commission—			
Own Generation—			
Yallourn Power Station and Briquette Factory	T	4,423·6	41·9
Morwell Power Station	T	2,280·6	21·6
Hazelwood Power Station	T	1,055·3	10·0
Newport Power Station	T	751·9	7·1
Spencer-street Power Station (M.C.C.†) ..	T	225·4	2·2
Richmond Power Station	T	49·6	0·5
Provincial Thermal Power Stations ..	T	39·7	0·4
Total S.E.C. Thermal Generation ..	T	8,826·1	83·7
Eildon—Rubicon	H	267·7	2·6
Kiewa	H	244·0	2·3
Cairn Curran	H	1·3	0·0
Total S.E.C. Hydro Generation ..	H	513·0	4·9
Net Purchases	T and H	809·0	7·6
Total	T and H	10,148·1	96·2
Other Public Supply	T	31·4	0·3
Total Public Supply	T and H	10,179·5	96·5
Electricity Generated in Factories‡	T	369·0	3·5
Cumulative Total	T and H	10,548·5	100·0

* Includes Internal Combustion.

† Melbourne City Council.

‡ Excluding S.E.C. Briquette Factory.

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

VICTORIA—GAS WORKS

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	26	27	27	30	30
Number of Persons Employed ..	1,459	1,414	1,379	1,347	1,329
Salaries and Wages Paid \$'000	3,830	3,894	3,834	3,868	4,339
Value of Power, Fuel, etc., Used \$'000	1,122	1,182	1,296	1,279	1,183
Value of Materials Used \$'000	9,750	8,702	8,733	8,506	9,522
Value of Production .. \$'000	9,498	13,402	14,407	16,328	15,507
Value of Output .. \$'000	20,370	23,286	24,436	26,114	26,212
Value of Land and Buildings \$'000	8,384	8,428	8,782	9,422	9,579
Value of Plant and Machinery \$'000	28,350	27,336	28,170	30,053	32,323
Horse-power of Engines Ordinarily in Use .. H.P.	21,826	26,955	26,291	25,916	26,998

The particulars appearing in the above table are compiled from factory returns received under the authority of the Commonwealth

Census and Statistics Act. They relate to production and exclude distribution costs, revenues, etc.

The following is a brief review of the activities of the Gas and Fuel Corporation of Victoria.

Gas and Fuel Corporation of Victoria

Formation

The Gas and Fuel Corporation of Victoria was formed by Act of Parliament in 1950, through the merger of the Metropolitan and Brighton Gas Companies which supplied gas to adjoining areas. The privately held shares of the two companies were exchanged for fully paid up preference shares in the Gas and Fuel Corporation. The State Government of Victoria invested \$8m which was held as ordinary shares in the Corporation. Three directors were appointed by the preference shareholders and the Chairman and three other directors were appointed by the Government. Capital requirements for expansion were to be raised by means of loans on which the Government guaranteed the interest payments and loan redemptions.

Reasons for Formation

The main reason for the formation of the Corporation was to provide finance to make possible the use of the vast resources of brown coal in the Latrobe Valley for towns gas production. It was considered essential, both from an economic and national viewpoint, to change from the conventional method of producing gas from black coal imported from New South Wales to the new Lurgi high pressure gasification of brown coal. The plant was erected between 1951 and 1956 on the brown coal field at Morwell, and came into operation in the spring of 1956, and was officially opened by H.R.H. the Duke of Edinburgh on 5 December of that year. This plant was connected to the metropolitan reticulation by a 103-mile 18-in welded steel pipeline.

Trends in Gas Production

Although the Corporation was initially formed to facilitate production of gas from brown coal, its duties include, among others, encouraging and promoting the use of gas and advising the Government on the steps necessary to secure a safe, economic and effective supply of gas in this State. Changes in raw material availability and parallel development of new gas making processes have led to considerable diversification of methods of gas production over recent years.

The Corporation has been one of the first to introduce gasification processes making use of new feedstocks to minimise production costs. The establishment of a major petroleum refining industry in Australia in the 1950s, with consequent availability of residual refinery products, led to a major shift in raw materials used.

Trends in gas production and the growth which has taken place in the Corporation's business are reflected in the gas issue statistics set out in the following table :

VICTORIA—GAS AND FUEL CORPORATION OF VICTORIA :
GAS MADE AND BLENDED

Gas	1954-55		1959-60		1965-66	
	Mill. Therms	Per cent	Mill. Therms	Per cent	Mill. Therms	Per cent
Black Coal Gas ..	36.1	66.0	24.8	33.5	10.2	10.7
Water Gas ..	17.6	32.1	8.0	10.8	2.7	2.9
Oil Gas ..	0.2	0.4	..	..	27.3	28.9
Lurgi Gas ..	..	..	20.4	27.5	27.0	28.5
Refinery Gases ..	0.8	1.5	20.9	28.2	27.5	29.0
Total ..	54.7	100.0	74.1	100.0	94.7	100.0

Distribution

The Corporation at present supplies gas to some 398,000 consumers in the "Melbourne Area of Supply" and a further 11,000 consumers in the country towns of Bendigo, Castlemaine, Kyneton, Trafalgar, Traralgon, Morwell, and Warragul. The "Melbourne Area of Supply" covers an area of some 190 square miles. Gas is supplied to this area through a network of high and low pressure mains over 4,100 miles in length. Over the last 10 years, some 90,000 new consumers have been added to the system and distribution mains have been extended by approximately 1,500 miles.

Natural Gas

The presence of commercial quantities of natural gas on the Australian mainland and continental shelf has been clearly established. Petroleum exploration, in progress in a number of widely scattered regions of Eastern Australia, is expected to establish the presence of further extensive reserves. Initial supplies of gas for the Melbourne market will come from both the Barracouta and Marlin fields. The Barracouta field has a reserve of 1.5 to 2.0 trillion* (U.S.) cu ft. Future supplies could come from the Gippsland, Otway or Bass Basins, all of which have high petroleum potential or, failing this, from interstate sources. At the present stage it appears probable that Victoria will become an exporter of natural gas.

The Corporation has negotiated to purchase natural gas from the Barracouta field to meet the immediate needs of the Victorian market. It is envisaged that natural gas will be available to metropolitan consumers in 1969. Basic plans for the conversion of Melbourne's gas reticulation system to direct natural gas distribution have been completed.

* Million million.

Tariffs

The Corporation has introduced a system of uniform tariffs which apply in all its areas of supply throughout the State. A new optional domestic two part space heating tariff has also been introduced to promote growth in this market.

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. Comparative particulars for the last five years are shown in the following table :

VICTORIA—GOVERNMENT FACTORIES AND WORKSHOPS

Particulars	1961-62	1962-63	1963-64	1964-65	1965-66
Number of Factories	285	306	312	321	315
Number of Persons Employed ..	32,290	32,178	32,074	32,672	32,941
Salaries and Wages Paid \$'000	73,826	74,442	79,758	87,213	93,526
Value of Power, Fuel, etc., Used \$'000	28,388	26,088	29,382	30,249	30,760
Value of Materials Used \$'000	65,360	67,004	71,204	66,459	73,290
Value of Production .. \$'000	118,664	130,832	136,458	157,827	170,886
Value of Output .. \$'000	212,412	223,924	237,044	254,535	274,936
Value of Land and Buildings \$'000	122,858	122,326	123,822	128,012	127,764
Value of Plant and Machinery \$'000	287,524	282,504	276,864	304,791	329,368

The above table embraces establishments under the control of the Commonwealth Government in Victoria, State Government, and local government authorities. Such activities as railway and tramway workshops, electric power and gas works, dockyards, printing works, and clothing, aircraft, and munitions factories, etc., are included.

In relation to the whole of Victorian factories during 1965-66, Government factories absorbed 7.5 per cent of employment; expended 8.7 per cent of salaries and wages; and accumulated 8.4 per cent of the value of production.