

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, the first of which was discovered in February 1965. On 14 April 1969, natural gas was made available to the first domestic consumer in Victoria at Carrum. Supplies of oil are expected to become available during November 1969.

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 (35,000 tons annually) were mined in south-western Gippsland until the end of 1968.

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. Stone and gravel quarries 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 and Traralgon, 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 provide 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. During 1967-68, the State Electricity Commission generated 90.6 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 448.

Recent discoveries of large offshore reserves of oil and natural gas in the Gippsland Basin (the potential of which has not been fully 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.

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 of *Victorian Year Book* 1966). In most years 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. However, severe water restrictions were imposed during the 1967-68 summer due to State-wide drought conditions. To meet future requirements, preparation for extending the water supply have been begun.

Location

The early concentration of industry in Melbourne has continued although power supplies now come largely from the Latrobe Valley. Of Victoria's 18,030 factories in 1967-68, 72.7 per cent were located in the Melbourne Statistical Division, which also had 83.0 per cent of the State's factory workers. Melbourne's factories contributed 80.6 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 and 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, Moorabbin, Oakleigh, and Dandenong, where considerable areas of flat land are available for future expansion. The municipalities of Moorabbin and Oakleigh, too, have shown significant expansion in manufacturing activity.

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, aluminium ingots and extruded products, textiles, chemical fertilisers, clothing, carpets, foodstuffs, cement, fertilisers, sporting ammunition and grain storage.

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 plants, which sometimes had their origin in the gold mining era of the 19th century, and more recently, in decentralised plants with defence significance.

Manufacturing Activity

Manufacturing Development during 1968

Manufacturing industry in Victoria continued to expand during 1968. A new \$11m brewery commenced production at Broadmeadows and in the same area a new \$11m biscuit factory was opened. Both plants were expected to reach full scale production by the end of the year. A new food processing plant at Moorabbin was also expected to be in full production by the end of 1968.

A major development in the paper industry was the completion of a new paper and paperboard machine at Fairfield, the total cost of which was \$21m. A further development in the same industry was the beginning of production of a semi-chemical pulp mill at Maryvale, Gippsland. This new \$4m mill has an initial capacity of 35,000 tons which can easily be expanded to 70,000 tons.

The textile and apparel industries continued to expand, the most noteworthy development being the establishment of a new \$6.5m factory at Lyndhurst, near Dandenong, for the manufacture of mattress ticking and furniture fabrics. Expansion of the man-made fibre industries was taking place at Wangaratta and Bayswater.

Development programmes in light engineering involving an expenditure of several millions of dollars were in hand or scheduled to be carried out during 1968. Of particular significance were the developments in the motor vehicle, electronic, and electrical industries where individual manufacturers planned to increase production capacity.

Growth in the fertiliser industry is continuing : a new nitrogenous and mixed fertiliser plant at Hastings commenced production in August 1969 ; a new \$7.25m superphosphate plant at Portland commenced production in July 1968 with a capacity of 250,000 tons a year.

Other developments in the chemical field included a new \$3m styrenebutadiene latex plant at Altona which was expected to commence production late in 1969; expansion of the polymerising capacity for producing high-density polyethylene at Altona ; a new phenol plant at West Footscray built at a cost of \$5m to \$6m ; a \$10m expansion programme involving the construction of additional distillation, platforming, and hydrotreating units at the Geelong petroleum refinery ; and Australia's first acrylonitrile-butadiene-styrene plastics plant at Dandenong commenced production in November 1968 with an initial annual capacity of 5 mill. lb.

Expansion of the aluminium plant at Point Henry continued. Extensions were made to the aluminium smelter and semi-fabricating plant, the first stage of which was due to be completed early in 1970. It will double capacity from 40,000 tons to 80,000 tons of metal a year. The installation of a new steam generated electrical power plant at Anglesea was completed in February 1969.

The above projects indicate that decentralised areas in Victoria are obtaining a share of the State's industrial growth.

Government Activities

Industrial Legislation

The *Labour and Industry Act* 1958 represents the development and consolidation of industrial legislation which had its beginnings in 1873. Amongst other matters, the Act deals with the registration and inspection of factories, guarding of machinery, and conditions of employment. It also provides for the appointment of Wages Boards and of the Industrial Appeals Court. Further information on these matters may found on pages 171 to 207.

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 the people and Government alike. The inroads of mechanisation into primary industry and the subsequent 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 encourage establishment or expansion of secondary industry in country areas the Government offers a variety of incentives.

Crown land may be provided to industry with or without consideration. This facilitates the acquisition of a site adequate to meet all likely needs of future expansion and at the same time provide for a range of staff amenities.

Crown land, where available, may also be provided for housing purposes. Priority for houses built by the State Housing Commission may be given for "imported" key personnel. Funds can also be made available to co-operative building societies for the express use of personnel nominated by a sponsored industry. As a further inducement to set up or expand manufacturing industry in non-metropolitan areas, loans at a moderate rate of interest are available through the Rural Finance and Settlement Commission.

To offset any 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 by company vehicles is eliminated.

There are also several other concessions which in themselves are minor, but which when applied in conjunction with the above, make country operations more attractive for many industries. The main drawback to decentralised industry is the shortage of skilled labour and small markets in these areas.

In an effort to promote the development of several important provincial centres, the Victorian Government recently agreed in principle with certain recommendations made by a Decentralisation Advisory Committee which was headed by the Minister of State Development. It suggested that five particular areas in Victoria—Ballarat, Bendigo, the Latrobe Valley, Portland, and Wodonga appeared to be the most suitable for extra promotion and development. Such development could help to check the imbalance of population in the State.

Development Committees have been set up in each of these centres, membership of which includes representatives of local government and leaders of commerce and industry.

These committees work towards the general development of their areas with emphasis on the development and diversification of secondary industry, and the promotion of commercial services and other opportunities. In addition to these centres, the Government has pledged its interest and support for all other areas wishing to pursue a policy of industrial development.

Further Reference, 1968

Commonwealth Department of Trade and Industry

The functions of this Department relate chiefly to the policy aspects of Australian overseas trade, both imports and exports, and the encouragement and development of Australian manufacturing industry.

It deals, among other things, with the development and diversification of Australian exports (including exports of manufactures) and, through the Office of Secondary Industry, with questions of protection to local industry against import competition, the special problems of small

industries, the location of industry (decentralisation, etc.), and the efficiency of industry. It maintains liaison with such bodies as the Manufacturing Industries Advisory Council, the Export Development Council, and the Export Payments Insurance Corporation, and controls the Australian Trade Commissioner Service.

Protection of Industry

The established policy of the Australian Government is to accord adequate and reasonable protection against import competition to economic and efficient industry. The Government seeks the advice of the Tariff Board on questions of protection for individual industries. The Board holds public inquiries into and reports on questions referred to it by the Minister. In cases of urgency, temporary protection may be accorded on the recommendation of a Special Advisory Authority pending review by the Tariff Board.

The Customs Tariff is the accepted and normal instrument of protection to Australian industry. However, for some industries in special circumstances, assistance is accorded by means of bounties on local production. As a last resort, when other methods are inadequate, quantitative restrictions on imports are applied.

The Department of Customs and Excise administers the Customs Tariff and also operates the By-law system, under which plant and materials normally subject to protective duty may be admitted at concessional rates if no suitably equivalent products are reasonably available from local sources.

Scientific Research and Standardisation

Commonwealth Scientific and Industrial Research Organization

The functions of this Organisation, as described in the Science and Industry Research Act, are 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 is 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. It is the Australian member body of the International Organisation of Standardisation and of the International Electrotechnical Commission.

National Association of Testing Authorities

This is the Australian organisation for approval of testing laboratories. The Association registers laboratories of governmental and industrial testing authorities, thereby organising a national testing service. Registration of laboratories is voluntary. Owners of registered laboratories are members of the Association. They have the right to endorse their test documents in the name of the Association, to indicate their technical and managerial competence.

Definitions in Factory Statistics

The statistics relating to factories have been compiled from returns supplied annually by manufacturers under the authority of the Commonwealth Census and Statistics Act. 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 woolscouring 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 Census of manufacturing establishments.

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 Fertilisers
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, Curryng, 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 1967-68, 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
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
1966-67 ..	18,054	445,557	1,167,872	2,814,145	2,236,370	5,050,515	2,616,977
1967-68 ..	18,030	449,945	1,244,216	2,956,509	2,394,801	5,351,311	2,685,255

NOTE. See also definitions on pages 391-2.

* 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 1957-58 to 1967-68 is shown on page 401.

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

AUSTRALIA—FACTORIES, 1967-68

State	Factories	Employment*	Salaries and Wages Paid †	Value of—			
				Materials and Fuel Used	Production ‡	Output	Land, Buildings, Plant and Machinery
	No.			\$m			
New South Wales	24,884	531,185	1,498.1	3,965.5	3,131.0	7,096.5	3,828.2
Victoria	18,030	449,945	1,244.2	2,956.5	2,394.8	5,351.3	2,685.3
Queensland ..	6,154	120,852	306.0	1,124.4	657.9	1,782.3	946.7
South Australia ..	6,255	121,417	330.1	844.2	631.9	1,476.1	813.6
Western Australia	5,404	67,335	175.1	499.2	388.3	887.4	495.3
Tasmania	1,797	35,178	96.2	247.1	198.0	445.1	448.1
Northern Territory	188	1,519	5.0	9.2	9.7	18.8	14.9
Australian Capital Territory ..	241	3,710	11.3	16.9	19.3	36.2	33.4
Total	62,953	1,331,141	3,665.9	9,662.9	7,430.7	17,093.7	9,265.3

* † ‡ 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 1967-68 :

VICTORIA—FACTORIES BY CLASSES, 1967-68

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-ferrous Mine and Quarry Products ..	478	7,560	23,989	70,331	53,794	124,125	83,622
2. Bricks, Pottery, Glass, etc. ..	172	7,692	23,275	31,760	46,678	78,438	57,054
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease ..	404	17,892	59,759	342,020	208,658	550,678	270,673
4. Industrial Metals, Machines, Conveyances ..	7,683	192,073	570,717	981,344	921,834	1,903,178	906,140
5. Precious Metals, Jewellery, Plate ..	255	2,218	5,493	6,282	10,080	16,362	6,686
6. Textiles and Textile Goods (Not Dress) ..	742	43,077	99,945	246,150	180,486	426,636	162,665
7. Skins and Leather (Not Clothing or Footwear) ..	213	3,715	9,070	20,112	15,655	35,767	13,979
8. Clothing (Except Knitted) ..	2,331	49,027	96,531	142,504	157,932	300,436	100,337
9. Food, Drink, and Tobacco ..	1,834	44,143	118,363	613,419	293,980	907,400	354,650
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving ..	1,371	15,724	40,307	82,363	67,173	149,536	56,187
11. Furniture of Wood, Bedding, etc. ..	641	7,167	16,809	35,037	30,251	65,287	24,849
12. Paper, Stationery, Printing, Bookbinding, etc. ..	1,120	30,991	92,314	194,988	186,698	381,686	202,064
13. Rubber ..	166	8,503	26,085	57,506	50,626	108,131	55,431
14. Musical Instruments ..	16	216	581	721	841	1,562	822
15. Miscellaneous Products ..	559	15,060	43,390	91,431	80,234	171,665	81,936
Total, Classes 1 to 15 ..	17,985	445,058	1,226,628	2,915,969	2,304,919	5,220,888	2,377,093
16. Heat, Light, and Power ..	45	4,887	17,588	40,540	89,882	130,422	308,161
GRAND TOTAL ..	18,030	449,945	1,244,216	2,956,509	2,394,801	5,351,311	2,685,255

For footnotes see page 395.

Industrial Metals, Machines, and Conveyances with 192,073 persons or 42.7 per cent of the total employment in factories during 1967-68, employed considerably more persons than any other class of industry. Next in order of employment was Clothing with 49,027 or 10.9 per cent, followed by Food, Drink, and Tobacco, and Textiles and Textile Goods with 44,143 and 43,077, respectively, or 9.80 per cent and 9.60 per cent of the total.

The total value of production (added value) in 1967-68 was \$2,394,801,000. Of this amount the Metals group contributed \$921,834,000 which represented 38.5 per cent of the total. The Food group followed with \$293,980,000 or 12.3 per cent, and next in order were Chemicals, Dyes, etc., \$208,658,000, 8.7 per cent, Paper with \$186,698,000, 7.8 per cent, Textiles \$180,486,000, 7.5 per cent, and Clothing \$157,932,000, 6.6 per cent.

The next table shows the number of factories in Victoria during the years 1963-64 to 1967-68 classified according to industry :

VICTORIA—NUMBER OF FACTORIES IN INDUSTRIAL CLASSES

Class of Industry	1963-64	1964-65	1965-66	1966-67	1967-68
1. Treatment of Non-metalliferous Mine and Quarry Products	480	484	488	485	478
2. Bricks, Pottery, Glass, etc.	189	182	176	178	172
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	395	393	391	402	404
4. Industrial Metals, Machines, Conveyances	7,041	7,332	7,470	7,582	7,683
5. Precious Metals, Jewellery, Plate	251	263	252	253	255
6. Textiles and Textile Goods (Not Dress)	773	793	775	742	742
7. Skins and Leather (Not Clothing or Footwear)	246	235	224	222	213
8. Clothing (Except Knitted)	2,506	2,471	2,439	2,384	2,331
9. Food, Drink, and Tobacco	1,957	1,944	1,918	1,864	1,834
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	1,323	1,341	1,361	1,394	1,371
11. Furniture of Wood, Bedding, etc.	644	636	621	641	641
12. Paper, Stationery, Printing, Book-binding, etc.	1,038	1,069	1,071	1,106	1,120
13. Rubber	183	187	188	176	166
14. Musical Instruments	21	17	16	16	16
15. Miscellaneous Products	494	519	538	562	559
Total, Classes 1 to 15	17,541	17,866	17,928	18,007	17,985
16. Heat, Light, and Power	56	59	52	47	45
GRAND TOTAL	17,597	17,925	17,980	18,054	18,030

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 1963-64 to 1967-68 :

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

Year	Number of Factories Employing, on the Average, Persons Numbering—							
	Under 4	4	5 to 10	11 to 20	21 to 50	51 to 100	Over 100	Total
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
1966-67	5,920	1,523	4,371	2,604	2,011	808	817	18,054
1967-68	5,896	1,535	4,384	2,564	1,994	825	832	18,030

**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—							
	Under 4	4	5 to 10	11 to 20	21 to 50	51 to 100	Over 100	Total
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
1966-67	11,705	6,092	30,431	38,076	63,176	56,970	241,755	448,205
1967-68	11,624	6,140	30,744	37,579	62,871	57,913	245,990	452,861

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 1967-68 year—449,945 in total by 2,916 persons to total of 452,861 persons.

The relative importance of large and small factories is illustrated in the above tables. In 1967-68, 5,896 factories employing less than four employees had a total employment of 11,624 persons. Expressed in terms of percentages, 32·7 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 1967-68, this figure had increased to 5,896 i.e., 32·7 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 1967-68, factories employing less than four persons accounted for only 1·8 per cent of the total Value of Production, and the 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 1967-68

Average Number of Persons Employed during Period of Operation	1902				1967-68						
	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	5,896	32·70	11,417	2·54	42,718	1·78	3,742
4 ..	398	9·9	1,603	2·2	1,535	8·51	5,938	1·32	23,701	0·99	3,991
5-10 ..	1,629	40·7	11,303	15·5	4,384	24·32	30,151	6·70	132,833	5·55	4,406
11-20 ..	726	18·1	10,562	14·5	2,564	14·22	37,024	8·23	169,122	7·06	4,568
21-50 ..	467	11·7	14,361	19·6	1,994	11·06	62,223	13·83	303,540	12·67	4,878
51-100..	148	3·7	10,238	14·0	825	4·58	57,512	12·78	295,452	12·34	5,137
101-200	110	2·8	23,360	32·0	462	2·56	65,117	14·47	377,316	15·76	5,794
201-500					273	1·51	83,107	18·47	465,484	19·44	5,601
Over 500					97	0·54	97,456	21·66	584,635	24·41	5,999
Total ..	4,003	100·0	73,063	100·0	18,030	100·00	449,945	100·00	2,394,801	100·00	5,322

* ‡ For footnotes see page 395.

A graph showing Number of Factories and Value of Production by size groups in 1967-68 is shown on page 401.

A general indication of the geographical distribution of factories in the State is shown in the next table where secondary industry in Victoria for 1967-68 is classified according to Statistical Divisions :

VICTORIA—FACTORIES IN STATISTICAL DIVISIONS, 1967-68

Statistical Division	Factories	Employment*	Salaries and Wages Paid†	Value of—			
				Materials and Fuel Used	Production‡	Output	Land, Buildings, Plant and Machinery
	No.			\$'000			
Melbourne ..	13,108	370,728	1,035,768	2,327,610	1,934,482	4,262,092	1,946,491
West Central ..	651	20,075	58,271	191,016	124,002	315,018	192,878
North Central ..	376	4,774	10,989	18,794	20,907	39,701	19,113
Western ..	1,028	15,809	37,792	100,325	65,487	165,813	68,844
Wimmera ..	384	2,426	4,835	11,826	9,421	21,247	7,587
Mallee ..	315	2,584	5,222	9,963	9,316	19,279	11,412
Northern ..	854	12,229	31,241	126,963	64,950	191,913	80,207
North Eastern ..	453	5,457	13,668	36,120	29,399	65,519	78,800
Gippsland ..	655	13,630	41,292	116,481	127,913	244,395	269,988
East Central ..	206	2,233	5,139	17,410	8,924	26,334	9,935
Total ..	18,030	449,945	1,244,216	2,956,509	2,394,801	5,351,311	2,685,255

* † ‡ For footnotes see page 395.

Factories in the Melbourne Statistical Division constituted 72·7 per cent of the total number in Victoria in 1967-68, 83·0 per cent of the persons employed, and 80·9 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, 1967-68

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 ..	4,786	319	221	536	248	180	484	256	293	108	7,431
5-10 ..	3,165	163	91	284	95	84	192	92	163	55	4,384
11-20 ..	2,031	70	31	93	22	25	92	67	106	27	2,564
21-50 ..	1,717	53	13	64	14	15	37	24	52	5	1,994
51-100 ..	693	18	13	23	3	10	32	7	19	7	825
101-500 ..	641	21	5	25	2	1	14	6	16	4	735
Over 500 ..	75	7	2	3	..	..	3	1	6	..	97
Total ..	13,108	651	376	1,028	384	315	854	453	655	206	18,030
AVERAGE NUMBER OF PERSONS EMPLOYED DURING PERIOD OF OPERATION											
Under 5 ..	11,518	†	†	1,305	538	495	1,124	†	684	254	17,764
5-10 ..	22,443	1,084	623	1,949	628	655	1,303	630	1,061	368	30,744
11-20 ..	29,870	1,049	432	1,307	335	478	1,337	956	1,448	367	37,579
21-50 ..	54,347	1,652	393	1,984	385	634	1,129	715	1,468	164	62,871
51-100 ..	48,653	1,287	854	1,782	†	†	2,216	460	1,238	†	57,913
101-500 ..	127,446	5,798	1,002	5,614	†	†	†	1,284	†	†	148,534
Over 500 ..	78,682	†	†	2,002	..	..	†	†	†	..	97,456
Total ..	372,959	20,200	4,800	15,943	2,479	3,090	12,327	5,546	13,259	2,258	452,861

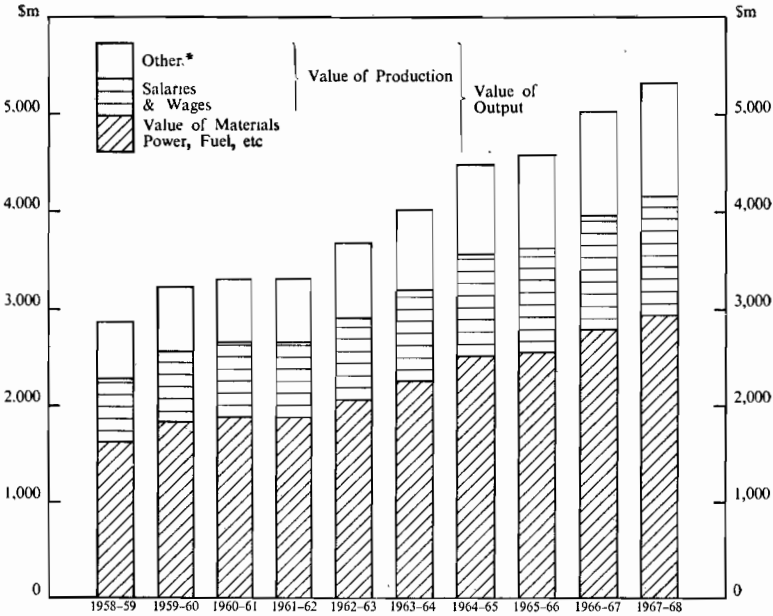
* See footnote, page 398.

† Not available for publication.

The above table shows that in 1967-68 there were 832 factories each employing more than 100 persons with a total employment of 245,990 persons in Victoria. Of the 18,030 factories (452,861 persons) in Victoria, 13,108 (372,959 persons) were located in the Melbourne Statistical Division and 651 (20,200 persons) in the West Central Statistical Division which includes Geelong. The balance, 4,271 factories (59,702 persons) were distributed over the remainder of the State principally in the Western (1,028 factories), Northern (854 factories), and Gippsland (655 factories) Statistical Divisions.

It should be noted that Geelong is located in the West Central Statistical Division, Castlemaine and Maryborough in the North Central Statistical Division; Ballarat and Warrnambool 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.

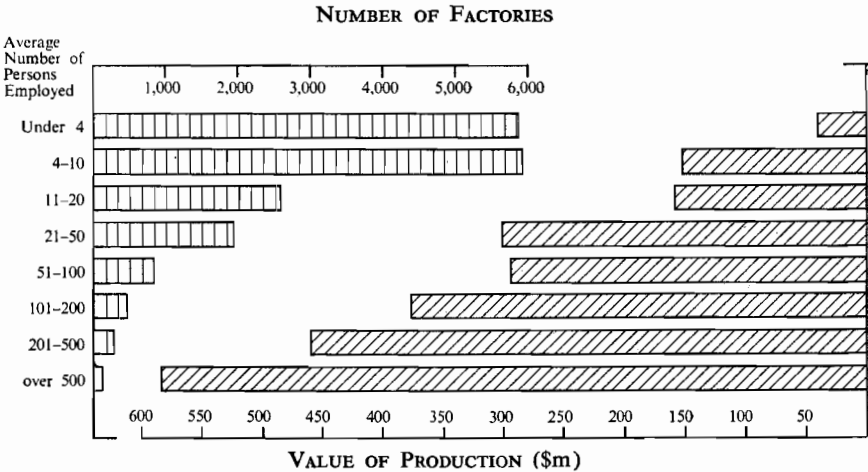
VICTORIA—FACTORIES : VALUES OF OUTPUT, 1958-59 TO 1967-68



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

FIGURE 7

VICTORIA—NUMBER OF FACTORIES AND VALUE OF PRODUCTION CLASSIFIED ACCORDING TO NUMBER OF PERSONS EMPLOYED, 1967-68



(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 8

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 as outworkers.

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 397 to 400, 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 1963-64 to 1967-68 :

VICTORIA—PERSONS EMPLOYED IN FACTORIES*

Class of Industry	1963-64	1964-65	1965-66	1966-67	1967-68		
					Males	Females	Persons
1. Treatment of Non-metalliferous Mine and Quarry Products	7,496	7,610	7,689	7,641	7,101	459	7,560
2. Bricks, Pottery, Glass, etc. . .	7,299	7,509	7,710	7,773	6,537	1,155	7,692
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	16,396	17,329	17,648	18,154	13,762	4,130	17,892
4. Industrial Metals, Machines, Conveyances	171,748	183,696	186,000	189,176	162,487	29,586	192,073
5. Precious Metals, Jewellery, Plate	2,113	2,270	2,180	2,180	1,745	473	2,218
6. Textiles and Textile Goods (Not Dress)	42,674	43,798	43,343	43,316	17,696	25,381	43,077
7. Skins and Leather (Not Clothing or Footwear)	3,969	3,832	3,830	3,740	2,431	1,284	3,715
8. Clothing (Except Knitted)	47,168	47,622	48,432	48,636	12,731	36,296	49,027
9. Food, Drink, and Tobacco	40,832	42,049	43,583	44,130	28,826	15,317	44,143
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	14,521	14,896	15,219	15,430	14,405	1,319	15,724
11. Furniture of Wood, Bedding, etc.	6,605	6,706	6,724	7,094	5,107	2,060	7,167
12. Paper, Stationery, Printing, Bookbinding, etc.	27,075	28,294	29,634	30,354	22,408	8,583	30,991
13. Rubber	8,506	8,591	8,230	8,092	6,572	1,931	8,503
14. Musical Instruments	192	194	199	211	172	44	216
15. Miscellaneous Products	11,791	12,972	13,516	14,353	9,292	5,768	15,060
Total, Classes 1 to 15	408,385	427,368	433,937	440,280	311,272	133,786	445,058
16. Heat, Light, and Power	4,735	5,021	5,212	5,277	4,836	51	4,887
GRAND TOTAL	413,120	432,389	439,149	445,557	316,108	133,837	449,945

* For footnote see page 395.

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 72.9 per cent of factory employment should be noted.

Female factory workers in 1967-68 were 29.8 per cent of the total. Females exceeded males in two classes. In Class 6.—Textiles and Textile Goods (Not Dress) they accounted for 58.9 per cent and in Class 8.—Clothing (Except Knitted) for 74.0 per cent of the Class total.

Of the total females employed 27.1 per cent were in Class 8; 22.1 per cent in Class 4; 19.0 per cent in Class 6; and 11.4 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 1963-64 to 1967-68:

VICTORIA—NATURE OF EMPLOYMENT IN FACTORIES

Year	Working Proprietors	Managerial and Clerical Staff	Chemists, Draftsmen, etc.	Workers in Factories (Skilled and Unskilled), Foremen and Overseers, Carters (Excluding Delivery Only), and Messengers, etc.	Total
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
1966-67	12,210	61,866	9,957	361,524	445,557
1967-68	12,025	63,164	10,189	364,567	449,945

The following table shows the nature of employment in factories in 1967-68 according to the class of industry:

VICTORIA—NATURE OF EMPLOYMENT IN FACTORIES BY CLASSES OF INDUSTRY, 1967-68

Class of Industry	Working Proprietors	Managerial and Clerical Staff	Chemists, Draftsmen, etc.	All Other Workers	Total
1. Treatment of Non-metalliferous Mine and Quarry Products	220	1,070	194	6,076	7,560
2. Bricks, Pottery, Glass, etc.	67	979	91	6,555	7,692
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	103	3,351	1,471	12,967	17,892
4. Industrial Metals, Machines, Conveyances	5,071	30,611	5,840	150,551	192,073
5. Precious Metals, Jewellery, Plate	217	291	6	1,704	2,218
6. Textiles and Textile Goods (Not Dress)	368	4,248	407	38,054	43,077
7. Skins and Leather (Not Clothing or Footwear)	182	348	28	3,157	3,715
8. Clothing (Except Knitted)	1,998	3,675	81	43,273	49,027
9. Food, Drink, and Tobacco	1,543	6,077	842	35,681	44,143
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	852	2,128	46	12,698	15,724
11. Furniture of Wood, Bedding, etc.	506	989	11	5,661	7,167
12. Paper, Stationery, Printing, Book-binding, etc.	613	5,077	254	25,047	30,991
13. Rubber	31	1,350	255	6,867	8,503
14. Musical Instruments	7	29	..	180	216
15. Miscellaneous Products	247	2,599	536	11,678	15,060
Total, Classes 1 to 15	12,025	62,822	10,062	360,149	445,058
16. Heat, Light, and Power .. ..	..	342	127	4,418	4,887
GRAND TOTAL	12,025	63,164	10,189	364,567	449,945

Although "All Other Workers" constitute 81.0 per cent of the total numbers employed in factories, the percentage varies from 72.5 per cent in Class 3 to 88.3 per cent in Class 6. Class 3 also has the highest percentage of managerial, clerical, and professional staff, 26.9 per cent, compared with the Victorian average of 16.3 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 9.8 per cent of the total number employed; Class 11.—Furniture of Wood, Bedding, etc., 7.1 per cent; and Class 10.—Sawmills, Joinery, etc., 5.4 per cent. The average for Victoria is 2.7 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 1964 to 1968 :

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
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
1967 ..	1,333	29,308	274,563	305,204	1,392	17,698	110,378	129,468
1968 ..	1,150	28,658	275,921	305,729	1,097	16,627	113,224	130,948

The numbers of males and females employed in factories, and the proportions of the average male and female population working in factories in 1967–68 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
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
1966–67 ..	314,070	1,913	131,487	805	445,557	1,361
1967–68 ..	316,108	1,896	133,837	808	449,945	1,354

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		
	1965-66	1966-67	1967-68	1965-66	1966-67	1967-68
1. Treatment of Non-metalliferous Mine and Quarry Products	447	448	459	5·8	5·9	6·1
2. Bricks, Pottery, Glass, etc.	1,037	1,109	1,155	13·5	14·3	15·0
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	3,972	4,101	4,130	22·5	22·6	23·1
4. Industrial Metals, .. Machines, Conveyances—	27,317	28,452	29,586	14·7	15·0	15·4
Plant, Equipment and Machinery	4,247	4,199	4,473	12·0	11·8	12·4
Electrical Machinery, Cables, and Apparatus	6,050	6,575	6,899	30·5	31·6	32·0
Sheet Metal Working	2,472	2,469	2,472	20·6	20·3	20·4
Wireless and Amplifying Apparatus	1,350	1,401	1,505	37·7	36·7	38·6
5. Precious Metals, Jewellery, Plate	434	435	473	19·9	20·0	21·3
6. Textiles and Textile Goods (Not Dress)—	25,800	25,845	25,381	59·5	59·7	58·9
Cotton Spinning and Weaving	2,159	2,062	1,932	53·7	53·5	51·0
Wool-Carding, Spinning, Weaving	4,945	4,697	4,571	53·6	53·3	52·9
Hosiery and Other Knitted Goods	14,496	14,580	14,247	75·9	76·3	75·5
7. Skins and Leather (Not Clothing or Footwear)	1,267	1,297	1,284	33·1	34·7	34·6
8. Clothing (Except Knitted)—	35,320	35,655	36,296	72·9	73·3	74·0
Tailoring and Ready-Made Clothing	8,319	6,733	6,540	75·4	73·5	73·2
Dressmaking and Hemstitching	8,610	10,548	11,147	87·3	87·1	87·4
Boots and Shoes (Not Rubber)	7,016	7,045	7,059	59·5	60·2	61·4
Dyeworks and Cleaning, etc.	1,469	1,430	1,407	51·3	50·7	51·3
9. Food, Drink, and Tobacco—	15,032	15,135	15,317	34·5	34·3	34·7
Bakeries (Including Cakes and Pastry)	1,956	1,955	1,926	29·8	30·0	29·9
Confectionery (Including Chocolate and Icing Sugar)	2,051	2,046	1,994	57·3	57·1	57·0
Jam, Fruit, and Vegetable Canning	2,500	2,416	2,315	43·0	41·2	40·1
Tobacco, Cigars, Cigarettes	1,234	1,303	1,342	54·0	54·1	54·2
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	1,116	1,183	1,319	7·3	7·7	8·4
11. Furniture of Wood, Bedding, etc.	1,716	1,992	2,060	25·5	28·1	28·7
12. Paper, Stationery, Printing, Bookbinding, etc.	8,260	8,421	8,583	27·9	27·7	27·7
13. Rubber	1,833	1,821	1,931	22·3	22·5	22·7
14. Musical Instruments	33	39	44	16·6	18·5	20·4
15. Miscellaneous Products	5,212	5,479	5,768	38·6	38·2	38·3
16. Heat, Light, and Power	50	75	51	1·0	1·4	1·0
Total Classes Only	128,846	131,487	133,837	29·3	29·5	29·7

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 74·0 per cent of the total number of persons employed. Within Class 8, in the Dressmaking sub-class, 87·4 per cent of the total employed are females. In Class 4.—Industrial Metals, Machines, and Conveyances, females constitute 15·4 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 1967-68. 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,
1967-68**
(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	4,095	626	19,080	188	23,175	814	23,989
2. Bricks, Pottery, Glass, etc. . .	3,183	634	18,171	1,287	21,354	1,921	23,275
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease . . .	16,089	3,164	36,436	4,070	52,524	7,234	59,759
4. Industrial Metals, Machines, Conveyances . . .	114,666	20,383	403,626	32,043	518,291	52,426	570,717
5. Precious Metals, Jewellery, Plate . . .	763	230	4,017	483	4,780	713	5,493
6. Textiles and Textile Goods (Not Dress) . . .	11,380	4,193	44,538	39,834	55,918	44,027	99,945
7. Skins and Leather (Not Clothing or Footwear) . . .	1,124	281	5,796	1,869	6,920	2,150	9,070
8. Clothing (Except Knitted) . . .	8,576	4,034	25,742	58,179	34,318	62,213	96,531
9. Food, Drink, and Tobacco . . .	18,092	5,854	73,123	21,294	91,215	27,148	118,363
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving Furniture of Wood, Bedding, etc. . .	6,076	1,254	32,239	738	38,315	1,992	40,307
11. Paper, Stationery, Printing, Bookbinding, etc. . .	2,353	866	11,166	2,425	13,518	3,290	16,809
12. Rubber . . .	14,831	4,309	62,975	10,200	77,805	14,509	92,314
13. Musical Instruments . . .	4,651	1,067	17,838	2,528	22,490	3,595	26,085
14. Miscellaneous Products . . .	68	22	421	70	489	92	581
15. Miscellaneous Products . . .	9,090	2,627	23,564	8,109	32,654	10,736	43,390
Total, Classes 1 to 15 . . .	215,035	49,545	778,732	183,316	993,767	232,861	1,226,628
16. Heat, Light, and Power . . .	2,221	71	15,272	24	17,493	95	17,588
GRAND TOTAL . . .	217,257	49,616	794,004	183,340	1,011,261	232,956	1,244,216

Of the total amount of salaries and wages paid in Victoria in 1967-68—\$1,244,216,000—the Industrial Metals, etc., group was responsible for \$570,717,000 or 45.9 per cent, Food, Drink, etc., \$118,363,000 or 9.5 per cent, Textiles, etc., \$99,945,000 or 8.0 per cent, and Clothing, etc., \$96,531,000 or 7.7 per cent.

The total amount of salaries and wages paid in industry in Victoria in each of the years 1963-64 to 1967-68 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)							
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
1966-67	201,729	45,679	748,173	172,286	949,903	217,969	1,167,872
1967-68	217,257	49,616	794,004	183,340	1,011,261	232,956	1,244,216
AVERAGE PER EMPLOYEE (\$)							
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
1966-67	4,255	1,871	2,911	1,649	3,120	1,691	2,695
1967-68	4,499	1,979	3,074	1,725	3,299	1,773	2,841

Power, Fuel, and Light Used

The following table shows the cost of power, fuel, light, water, and lubricating oil used during the five years 1963-64 to 1967-68 :

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

Class of Industry	1963-64	1964-65	1965-66	1966-67	1967-68
1. Treatment of Non-metalliferous Mine and Quarry Products	6,100	6,762	6,662	6,802	6,628
2. Bricks, Pottery, Glass, etc.	5,902	6,101	6,079	6,220	6,622
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	15,170	16,782	16,919	18,419	21,313
4. Industrial Metals, Machines, Conveyances	25,828	30,218	30,644	32,787	34,950
5. Precious Metals, Jewellery, Plate	348	397	387	430	467
6. Textiles and Textile Goods (Not Dress)	5,934	6,310	6,502	6,895	7,268
7. Skins and Leather (Not Clothing or Footwear)	878	894	892	909	942
8. Clothing (Except Knitted)	2,094	2,265	2,373	2,480	2,578
9. Food, Drink, and Tobacco	13,640	14,619	15,384	15,907	16,624
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	1,872	2,024	2,095	2,172	2,280
11. Furniture of Wood, Bedding, etc.	302	341	357	391	421
12. Paper, Stationery, Printing, Bookbinding, etc.	5,406	5,943	6,431	7,063	8,174
13. Rubber	2,984	2,999	2,932	3,163	3,370
14. Musical Instruments	20	21	21	28	27
15. Miscellaneous Products	2,464	2,860	3,092	3,433	4,142
Total, Classes 1 to 15	88,942	98,536	100,770	107,099	115,808
16. Heat, Light, and Power	25,706	26,623	27,087	27,319	27,278
GRAND TOTAL	114,648	125,159	127,857	134,418	143,086

The next table gives in detail for each of the years 1963-64 to 1967-68 information dealing with the cost of each type of fuel used. The costs of water and lubricating oil are also shown.

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

Commodity	1963-64	1964-65	1965-66	1966-67	1967-68	
					Cost	Percentage of Total
\$'000						
Coal—						
Black	3,338	3,623	3,066	2,724	2,444	1·8
Brown	14,736	15,497	17,073	18,215	19,760	14·9
Brown Coal Briquettes ..	12,542	12,612	11,891	11,340	9,937	7·5
Coke	1,500	1,384	1,163	1,124	1,106	0·8
Wood	820	741	725	675	542	0·4
Fuel Oil	22,662	23,784	22,903	23,709	27,480	20·7
Tar Fuel	196	187	161	156	163	0·1
Electricity	45,454	52,447	55,136	59,400	63,558	47·9
Gas	4,058	4,763	3,912	4,398	4,710	3·5
Other (Charcoal, etc.) ..	1,506	1,379	2,694	2,732	3,122	2·4
Total Power and Fuel..	106,812	116,417	118,724	124,473	132,823	100·0
Water	5,426	6,034	6,528	7,198	7,249	..
Lubricating Oil ..	2,410	2,709	2,606	2,747	3,014	..
Total	114,648	125,159	127,857	134,418	143,086	..

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 1963-64 to 1967-68 are given below :

VICTORIA—QUANTITIES OF FUELS USED IN FACTORIES

Commodity	Unit of Quantity	1963-64	1964-65	1965-66	1966-67	1967-68
Coal—						
Black	'000 tons	316	329	277	256	241
Brown	'000 tons	13,461	14,243	16,277	17,403	18,190
Brown Coal Briquettes	'000 tons	1,095	1,062	1,027	978	855
Coke	'000 tons	60	58	49	47	45
Wood	'000 tons	232	192	189	169	133
Fuel Oil	mill. gals	292	320	313	341	376
Tar Fuel.. ..	'000 tons	9	9	8	8	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	1963-64	1964-65	1965-66	1966-67	1967-68
1. Treatment of Non-metalliferous Mine and Quarry Products	50,008	56,696	59,165	62,465	63,703
2. Bricks, Pottery, Glass, etc.	17,244	21,399	21,911	23,735	25,138
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	254,174	272,007	272,855	310,835	320,707
4. Industrial Metals, Machines, Conveyances	694,788	806,468	814,925	891,831	946,395
5. Precious Metals, Jewellery, Plate	4,692	5,437	5,178	5,535	5,815
6. Textiles and Textile Goods (Not Dress)	211,476	224,520	221,628	238,690	238,882
7. Skins and Leather (Not Clothing or Footwear)	22,018	20,351	21,434	22,280	19,170
8. Clothing (Except Knitted)	120,078	126,842	126,171	134,435	139,926
9. Food, Drink, and Tobacco	473,308	513,541	537,976	569,962	596,795
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	65,474	71,628	72,681	76,968	80,082
11. Furniture of Wood, Bedding, etc.	26,988	29,579	30,012	31,582	34,615
12. Paper, Stationery, Printing, Book-binding, etc.	139,992	153,673	160,910	173,517	186,814
13. Rubber	46,544	51,117	48,086	49,003	54,136
14. Musical Instruments	436	486	505	579	694
15. Miscellaneous Products	52,666	61,679	63,221	74,674	87,290
Total, Classes 1 to 15	2,179,886	2,415,423	2,456,658	2,666,091	2,800,162
16. Heat, Light, and Power	10,512	10,538	12,714	13,637	13,262
GRAND TOTAL	2,190,398	2,425,961	2,469,372	2,679,727	2,813,424

Value of Output and Production

Value of factory output by classes of industry in each of the years 1963-64 to 1967-68 is shown in the following table :

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

Class of Industry	1963-64	1964-65	1965-66	1966-67	1967-68
1. Treatment of Non-metalliferous Mine and Quarry Products	100,244	112,597	114,331	121,060	124,125
2. Bricks, Pottery, Glass, etc. ..	56,654	65,706	69,038	73,898	78,438
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	421,160	453,964	460,136	522,377	550,678
4. Industrial Metals, Machines, Conveyances	1,375,608	1,583,854	1,620,395	1,783,781	1,903,178
5. Precious Metals, Jewellery, Plate ..	12,614	14,775	14,326	15,547	16,362
6. Textiles and Textile Goods (Not Dress)	362,874	388,457	386,925	417,558	426,636
7. Skins and Leather (Not Clothing or Footwear)	35,770	35,142	36,866	38,285	35,767
8. Clothing (Except Knitted)	249,190	263,965	268,577	286,311	300,436
9. Food, Drink, and Tobacco	703,268	767,695	811,891	870,056	907,400
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	121,306	132,632	134,771	144,392	149,536
11. Furniture of Wood, Bedding, etc. ..	49,826	54,508	56,210	60,289	65,287
12. Paper, Stationery, Printing, Book-binding, etc.	276,944	305,280	323,571	351,382	381,686
13. Rubber	87,646	91,944	87,545	91,955	108,131
14. Musical Instruments	1,062	1,373	1,294	1,389	1,562
15. Miscellaneous Products	105,126	120,501	123,031	149,826	171,665
Total, Classes 1 to 15	3,959,292	4,392,393	4,508,907	4,928,106	5,220,888
16. Heat, Light, and Power	95,530	108,393	116,009	122,408	130,422
GRAND TOTAL	4,054,822	4,500,786	4,624,915	5,050,515	5,351,311

In the next table the value of production in Victoria is given according to the various classes of industry for each of the years 1963-64 to 1967-68 :

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

Class of Industry	1963-64	1964-65	1965-66	1966-67	1967-68
1. Treatment of Non-metalliferous Mine and Quarry Products	44,138	49,139	48,503	51,792	53,794
2. Bricks, Pottery, Glass, etc. ..	33,508	38,206	41,049	43,943	46,678
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	151,814	165,175	170,362	193,123	208,658
4. Industrial Metals, Machines, Conveyances	654,992	747,168	774,826	859,163	921,834
5. Precious Metals, Jewellery, Plate ..	7,574	8,941	8,761	9,582	10,080
6. Textiles and Textile Goods (Not Dress)	144,574	157,627	158,795	171,973	180,486
7. Skins and Leather (Not Clothing or Footwear)	13,764	13,897	14,540	15,096	15,655
8. Clothing (Except Knitted)	127,018	134,857	140,033	149,396	157,932
9. Food, Drink, and Tobacco	216,320	239,535	258,530	284,187	293,980
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	53,960	58,980	59,995	65,252	67,173
11. Furniture of Wood, Bedding, etc. ..	22,536	24,588	25,841	28,317	30,251
12. Paper, Stationery, Printing, Book-binding, etc.	131,546	145,665	156,230	170,802	186,698
13. Rubber	38,118	37,828	36,526	39,789	50,626
14. Musical Instruments	606	866	768	782	841
15. Miscellaneous Products	49,996	55,962	56,718	71,719	80,234
Total, Classes 1 to 15	1,690,464	1,878,434	1,951,477	2,154,916	2,304,919
16. Heat, Light, and Power	59,312	71,232	76,208	81,452	89,882
GRAND TOTAL	1,749,776	1,949,665	2,027,685	2,236,370	2,394,801

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 391–2.

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 1967–68 are given in the following tables :

VICTORIA—FACTORY COSTS AND OUTPUT, 1967–68
('\$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	63,703	6,628	23,989	29,805	124,125
2. Bricks, Pottery, Glass, etc.	25,138	6,622	23,275	23,403	78,438
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	320,707	21,313	59,759	148,899	550,678
4. Industrial Metals, Machines, Conveyances	946,395	34,950	570,717	351,116	1,903,178
5. Precious Metals, Jewellery, Plate	5,815	467	5,493	4,587	16,362
6. Textiles and Textile Goods (Not Dress)	238,882	7,268	99,945	80,541	426,636
7. Skins and Leather (Not Clothing or Footwear)	19,170	942	9,070	6,585	35,767
8. Clothing (Except Knitted)	139,926	2,578	96,531	61,401	300,436
9. Food, Drink, and Tobacco	596,795	16,624	118,363	175,618	907,400
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	80,082	2,280	40,307	26,867	149,536
11. Furniture of Wood, Bedding, etc.	34,615	421	16,809	13,442	65,287
12. Paper, Stationery, Printing, Book-binding, etc.	186,814	8,174	92,314	94,384	381,686
13. Rubber	54,136	3,370	26,085	24,540	108,131
14. Musical Instruments	694	27	581	260	1,562
15. Miscellaneous Products	87,290	4,142	43,390	36,844	171,665
Total, Classes 1 to 15	2,800,162	115,808	1,226,628	1,078,291	5,220,888
16. Heat, Light, and Power	13,262	27,278	17,588	72,294	130,422
GRAND TOTAL	2,813,424	143,086	1,244,216	1,150,585	5,351,311

* 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, 1967-68

(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	51·3	5·4	19·3	24·0
2. Bricks, Pottery, Glass, etc.	32·1	8·4	29·7	29·8
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease ..	58·2	3·9	10·9	27·0
4. Industrial Metals, Machines, Conveyances ..	49·7	1·8	30·0	18·5
5. Precious Metals, Jewellery, Plate	35·5	2·9	33·6	28·0
6. Textiles and Textile Goods (Not Dress) ..	56·0	1·7	23·4	18·9
7. Skins and Leather (Not Clothing or Footwear) ..	53·6	2·6	25·4	18·4
8. Clothing (Except Knitted)	46·6	0·9	32·1	20·4
9. Food, Drink, and Tobacco	65·8	1·8	13·0	19·4
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	53·6	1·5	26·9	18·0
11. Furniture of Wood, Bedding, etc.	53·0	0·7	25·7	20·6
12. Paper, Stationery, Printing, Book-binding, etc. ..	49·0	2·1	24·2	24·7
13. Rubber	50·1	3·1	24·1	22·7
14. Musical Instruments	44·5	1·7	37·2	16·6
15. Miscellaneous Products	50·8	2·4	25·3	21·5
Total, Classes 1 to 15	53·6	2·2	23·5	20·7
16. Heat, Light, and Power	10·2	20·9	13·5	55·4
GRAND TOTAL	52·6	2·7	23·2	21·5

For footnotes see page 411.

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 29·7 per cent and the cost of raw materials 32·1 per cent of the values of the finished articles, while, in Class 9, the expenditure on wages amounts to 13·0 per cent and that on raw materials to 65·8 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 1963-64 to 1967-68 :

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		
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
1966-67	2,679,726	134,418	1,167,872	1,068,499	5,050,515
1967-68	2,813,424	143,085	1,244,216	1,150,585	5,351,311

For footnotes see page 411.

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		
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
1966-67	53.1	2.7	23.1	21.1	100.0
1967-68	52.6	2.7	23.2	21.5	100.0

For footnotes see page 411.

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 1963-64 to 1967-68 :

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

Class of Industry	1963-64	1964-65	1965-66	1966-67	1967-68
1. Treatment of Non-metalliferous Mine and Quarry Products	28,122	28,176	29,968	29,804	29,637
2. Bricks, Pottery, Glass, etc. ..	21,952	22,310	23,192	24,490	26,472
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease	75,812	78,235	81,160	87,612	84,898
4. Industrial Metals, Machines, Conveyances	393,476	442,743	470,730	495,854	528,358
5. Precious Metals, Jewellery, Plate ..	4,350	5,067	4,810	4,877	5,168
6. Textiles and Textile Goods (Not Dress)	77,674	78,596	80,751	87,303	90,487
7. Skins and Leather (Not Clothing or Footwear)	9,382	9,310	9,780	9,642	10,163
8. Clothing (Except Knitted)	58,300	62,152	66,737	69,599	72,832
9. Food, Drink, and Tobacco ..	138,268	149,037	159,823	173,363	187,945
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving	29,102	32,047	34,467	36,541	37,893
11. Furniture of Wood, Bedding, etc. ..	14,104	16,154	17,375	19,582	21,084
12. Paper, Stationery, Printing, Book-binding, etc.	64,062	70,608	82,825	89,569	101,056
13. Rubber	20,150	20,475	22,443	27,173	26,880
14. Musical Instruments	332	433	452	513	573
15. Miscellaneous Products	32,078	32,869	36,184	41,297	43,190
Total, Classes 1 to 15 ..	967,164	1,048,212	1,120,697	1,197,219	1,266,636
16. Heat, Light, and Power	53,630	57,500	56,244	57,536	51,368
GRAND TOTAL	1,020,794	1,105,712	1,176,941	1,254,755	1,318,004

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. Consequently, the totals shown in the tables 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, the capital value of these items 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 1963-64 to 1967-68 :

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

Class of Industry	1963-64	1964-65	1965-66	1966-67	1967-68
1. Treatment of Non-metalliferous Mine and Quarry Products ..	50,682	54,293	57,540	58,136	53,985
2. Bricks, Pottery, Glass, etc. . .	23,766	22,450	23,173	27,111	30,582
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease ..	146,856	143,637	149,872	192,686	185,775
4. Industrial Metals, Machines, Conveyances ..	282,304	322,331	344,775	363,346	377,782
5. Precious Metals, Jewellery, Plate ..	1,350	1,551	1,448	1,491	1,517
6. Textiles and Textile Goods (Not Dress)	59,224	61,847	65,544	70,456	72,178
7. Skins and Leather (Not Clothing or Footwear) ..	3,172	3,346	3,584	3,495	3,816
8. Clothing (Except Knitted) ..	20,134	22,197	23,186	25,298	27,504
9. Food, Drink, and Tobacco ..	123,086	126,623	135,500	152,184	166,705
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving ..	17,064	17,826	19,230	19,219	18,294
11. Furniture of Wood, Bedding, etc. ..	3,096	3,186	3,335	3,531	3,765
12. Paper, Stationery, Printing, Bookbinding, etc. ..	62,370	69,009	74,818	86,258	101,008
13. Rubber ..	15,850	16,196	18,498	26,759	28,551
14. Musical Instruments ..	118	124	144	183	249
15. Miscellaneous Products ..	25,032	30,011	32,566	34,664	38,746
Total, Classes 1 to 15 ..	834,104	894,627	953,213	1,064,817	1,110,457
16. Heat, Light, and Power ..	206,620	233,321	255,800	297,404	256,793
GRAND TOTAL ..	1,040,724	1,127,948	1,209,013	1,362,221	1,367,250

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,* 1967-68

Class of Industry	Steam		Internal Combustion	Water	Motors Driven by Electricity		Total without Duplication
	Reciprocating	Turbine			Purchased	Own Generation	
1. Treatment of Non-metalliferous Mine and Quarry Products ..	1,221	16,750	1,280	..	95,808	6,820	115,059
2. Bricks, Pottery, Glass, etc. . .	125	..	3,887	..	56,031	12	60,043
3. Chemicals, Dyes, Explosives, Paints, Oils, Grease ..	2,229	69,029	5,425	..	188,750	40,453	265,433
4. Industrial Metals, Machines, Conveyances ..	1,351	..	10,754	..	745,548	2,543	757,653
5. Precious Metals, Jewellery, Plate ..	150	..	75	..	3,879	25	4,104
6. Textiles and Textile Goods (Not Dress) ..	205	..	1,095	..	124,808	280	126,108
7. Skins and Leather (Not Clothing or Footwear) ..	690	..	173	..	18,954	460	19,817
8. Clothing (Except Knitted) ..	575	..	151	..	34,241	..	34,967
9. Food, Drink, and Tobacco ..	1,624	2,636	3,447	830	267,348	2,029	275,885
10. Sawmills, Joinery, Boxes, etc., Wood Turning and Carving ..	3,920	200	23,235	..	112,664	6,809	140,019
11. Furniture of Wood, Bedding, etc. ..	..	..	..	..	17,072	..	17,072
12. Paper, Stationery, Printing, Bookbinding, etc. ..	250	23,850	657	..	123,464	51,534	148,221
13. Rubber ..	..	..	144	..	99,886	..	100,030
14. Musical Instruments ..	..	..	..	..	297	..	297
15. Miscellaneous Products ..	..	2,000	127	..	56,197	120	58,324
Total, Classes 1 to 15 ..	12,340	114,465	50,450	830	1,944,947	111,085	2,123,032
16. Gas Works ..	2,711	1,213	3,594	..	20,213	..	27,731
GRAND TOTAL ..	15,051	115,678	54,044	830	1,965,160	111,085	2,150,763

* Includes gas works, but excludes central electric stations.

The total rated horse-power in reserve or idle during 1967-68 and not included above was 251,367.

Motors driven by purchased electricity comprised approximately 91.4 per cent of the total horse-power used in factories other than central electric stations in 1967-68, while steam turbines were next in demand with 5.4 per cent.

A comparison over the five year period 1963-64 to 1967-68 of the total rated horse-power used to drive engines and electric motors ordinarily in use in factories is given in the table which follows :

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

Year	Steam		Internal Combustion	Water	Motors Driven by Electricity		Total without Duplication
	Reciprocating	Turbine			Purchased	Own Generation	
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
1966-67.. ..	15,712	106,715	55,853	880	1,907,935	88,502	2,087,095
1967-68.. ..	15,051	115,678	54,044	830	1,965,160	111,085	2,150,763

* Includes gas works, but excludes central electric stations.

The following table shows the total rated horse-power for each year from 1963-64 to 1967-68 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
1963-64	161,471	60,501	221,972
1964-65	173,182	55,420	228,602
1965-66	181,057	54,520	235,577
1966-67	188,763	57,280	246,043
1967-68	191,527	59,840	251,367

* 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 1967-68 are shown in the following table :

VICTORIA—POWER EQUIPMENT INSTALLED IN CENTRAL ELECTRIC STATIONS, 1967-68

Particulars	Capacity of Engines and Generators			
	Steam Turbine	Internal Combustion	Water	Total
Engines Installed .. Rated H.P.	3,070,300	27,279	445,574	3,543,153
Generators Installed—				
Kilowatt Capacity—				
Total Installed kW	2,291,500	19,545	332,515	2,643,560
Effective Capacity kW	2,282,500	17,545	331,500	2,631,545
Horse-power—				
Total Installed H.P.	3,070,610	26,190	445,570	3,542,370
Effective Capacity H.P.	3,058,550	23,510	444,210	3,526,270

Similar information to that shown in the preceding table, but giving a comparison over the years 1963-64 to 1967-68 is shown below :

VICTORIA—POWER EQUIPMENT INSTALLED IN CENTRAL ELECTRIC STATIONS

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Central Electric Stations .. No.	29	29	22	18	16
Engines Installed .. Rated H.P.	2,213,474	2,520,744	2,903,307	3,354,145	3,543,153
Generators Installed—					
Kilowatt Capacity—					
Total Installed kW	1,660,828	1,885,831	2,081,834	2,453,782	2,643,560
Effective Capacity kW	1,640,697	1,831,925	1,973,961	2,337,369	2,631,545
Horse-power Equivalent—					
Total Installed H.P.	2,226,311	2,527,924	2,789,658	3,288,068	3,542,370
Effective Capacity H.P.	2,199,326	2,455,664	2,645,108	3,132,074	3,526,270

Principal Factory Products

Annual Quantity and Value

The next table shows the quantities and values of the principal articles manufactured in Victoria, and corresponding figures for Australia during 1967-68. Owing to the limited number of producers, it is not permissible under statute to publish particulars regarding some articles of manufacture which would otherwise appear in the following table :

VICTORIA AND AUSTRALIA—PRINCIPAL ARTICLES
MANUFACTURED, 1967-68

Commodity Code No.	Article	Unit of Quantity	Victoria		Australia	
			Quantity	Value	Quantity	Value
				\$'000		\$'000
023.10, 14, 17	Bacon and Ham†	mill lb	20·6	13,430	67·6	49,887
027.02-29	Meat—Canned	mill lb	24·5	6,200	42·7	12,933
051.21-27	Milk—Condensed	mill lb	97·5	13,494	135·3	15,658
051.31	Butter	mill lb	231·9	79,491	420·9	143,067
051.35	Cheese	mill lb	73·6	17,686	155·4	36,657
051.61	Ice Cream	mill gals	11·2	10,746	37·4	36,543
051.72-73	Milk—Powdered : Full Cream	mill lb	21·8	6,134	47·3	13,197
062.01	Flour, Plain—Wheaten (Including Sharps)	'000 short ton	403	30,775	1,351·5	110,346
063.11	Malt—Barley	mill bush	9·2	19,911	13·5	29,383
064.03-13	Bread—2 lb Loaves Equivalent	mill	211·8	34,536	806	146,945
064.21	Biscuits	mill lb	82·0	18,521	233·4	63,560
064.43-45	Cakes, Pastry, Pies, etc. (Including Canned Puddings)	..	†	28,879	†	96,717
	Fruit : Preserved—					
076.15	Peaches	mill lb	149·4	17,223	253·6	30,149
076.22	Pears	mill lb	139·9	18,146	152·8	19,802
076.60	Jams, Fruit Spreads, Fruit Butters, etc.	mill lb	37·4	6,661	83·9	14,937
094.02-49	Vegetables Canned or Bottled (Including Pickled)	mill lb	46·5	8,008	182·0	28,560
	Confectionery—					
104.06-18	Chocolate Base	mill lb	42·8	21,402	98·9	48,757
104.21-29	Other than Chocolate	mill lb	45·5	15,138	112·8	38,111
122.02	Soup—Tomato	mill imp pint	17·6	2,719	23·4	3,568
123.18	Sauce—Tomato	mill imp pint	21·3	5,013	32·2	7,723
139.14	Sausage Casings—Sheep and Lamb	'000 bundles	2,949	5,410	4,646	8,290
152.06	Pollard	'000 short ton	84·3	3,342	305·5	12,305
171.03-05	Aerated and Carbonated Waters	mill imp gals	34·9	23,930	126·9	88,201
183.02, 11, 21-28	Tobacco, Cigars, and Cigarettes§	mill lb	34·6	94,205	59·0	158,674
242.07-11	Wool—Scoured or Carbonised	mill lb	56·6	4,459	157·8	17,966
242.32	Wool Tops	mill lb	15·4	15,206	42·4	35,582
261.41	Briquettes—Brown Coal	'000 ton	1,745	12,276	1,745	12,276
281.04	Ice	'000 ton				
	Leather (Dressed)—					
301.31-37	Vegetable Tanned : Sole	'000 lb	3,969	1,600	10,399	4,540
301.43-65	Chrome Tanned	mill sq ft	22·4	8,201	72·2	28,025
331.01-19	Timber Produced from Logs—Australian	mill sup ft	317·5	*	1,447	*
369.11	Ropes and Cables (Excluding Wire)	'000 cwt	63·3	2,360	117·7	4,374
	Cloth Piece Goods Woven—					
372.02-20	Worsted or Predominantly Worsted	'000 sq yd	3,557	9,340	9,530	21,006
372.22-36, 48, 50	Woollen or Predominantly Woollen	'000 sq yd	7,107	9,204	14,852	18,563
372.52-62, 374.51-55	Blankets, Bed¶	'000 pair	771	5,006	1,594	10,994
401.57	Acid—Sulphuric	'000 ton	468	1,814	1,892	14,647
403.02, 18, 20, 52-92, 96; 404.02-98	Plastics and Synthetic Resins ..	'000 ton	1,525	31,196	3,349	72,327
412.02, 04, 08, 10	Paints (Not Water) and Enamels Ready Mixed (Excluding Bituminous and Marine)	'000 imp gals	4,773	18,113	15,624	62,416
412.42-46	Paints, Water (Excluding Powder Form)	'000 imp gals	1,299	4,827	4,358	17,313
434.09	Gas, Towns	'000 mill cu ft	23·8	*	·0	*
447.81	Pipe Fittings, Ferrous .. ..	..	†	3,090	†	13,320
461.20	Steel, Constructional—Fabricated	'000 ton	132·0	33,334	584·8	165,538
461.30	Window Frames—Metal .. ..	..	†	15,022	†	50,077
465.04	Bolts and Nuts—For Sale as Such	..	†	14,823	†	25,594
472.01, 03	Bricks—Clay	mill	412	19,652	1,440	68,173
	Tiles, Roofing—					
472.12	Terra Cotta	mill	13·9	1,704	47·5	5,236
475.30	Concrete	mill	33·5	2,582	96·8	10,024
475.46	Pipes—Concrete (Excluding Agricultural)	'000 long ton	232·1	6,954	701·6	21,418
479.32, 33	Plaster Sheets	mill sq yd	12·8	8,744	32·8	20,701
499.42	Electricity Generated	'000 mill kWh	11·0	*	43·4	*
503.21-32	Electric Motors	'000	659	*	2,911	*

VICTORIA AND AUSTRALIA—PRINCIPAL ARTICLES MANUFACTURED,
1967-68—continued

Commodity Code No.	Article	Unit of Quantity	Victoria		Australia	
			Quantity	Value	Quantity	Value
	Machinery : Industrial—			\$'000		\$'000
507.51	Pumping (Including Pumps)	..	†	20,080	†	36,746
511.01	Conveyors (and Appliances)	..	†	12,090	†	23,972
512.01, 11 ; 589.31	Hoists, Cranes, Lifting	..	†	12,100	†	26,346
521.01	Mining and Drilling	..	†	9,892	†	21,327
523.01, 02, 05	Metal Working	..	†	10,174	†	25,343
528.17	Food Processing and Canning	..	†	8,772	†	9,813
	Finished Motor Vehicles || —					
581.02-08	Cars	No.	117,990	199,670	270,963	447,654
581.10-16 ; 582.04-28	Other	No.	40,811	73,838	106,485	185,907
584.11-49	Trailers and Semi-Trailers	No.	4,177	6,905	20,710	16,817
626.01	Tyres Retreaded and Recapped	'000	1,153.2	*	4,012.4	*
643.01-37	Radios and Radiograms (Domestic)	'000	158.3	4,631	522.4	22,146
649.51, 55 ; 683.03-61	Transformers, Chokes, etc.	'000	2,826	*	9,848	*
651.11-17	Radiators and Electric Fires (Domestic)	'000	595.5	4,652	624.0	5,240
661.21-23	Toasters (Domestic) ..	'000	199.0	1,132	331.7	2,243
671.14	Sinks—Stainless Steel ..	'000	83.2	1,750	212.8	4,214
672.01	Steam, Gas, and Water Fittings, Valves, etc. (Non-ferrous)	..	†	22,821	†	48,378
693.02, 06, 12	Clothes Washing Machines (Domestic)	'000	22.5	4,240	191.5	27,668
	Furniture and Office Equipment—					
741.01	Wooden .. .. .	..	†	34,843	†	126,916
744.01	Metal .. .. .	..	†	19,558	†	58,314
773.01-31	Shirts (Men's and Boys')	'000 doz	1,024	19,522	2,226	37,595
	Underwear—					
774.01-18	Men's and Boys'	'000 doz	1,033	7,436	2,373	16,514
774.41-47, 60-67	Women's and Girls'	'000 doz	2,415	20,486	3,952	33,684
775.01-19	Stockings—Women's	'000 doz pair	4,451	*	5,040	*
775.51-776, 22	Socks and Stockings—Men's and Children's	'000 doz pair	2,618	14,577	2,824	15,708
	Footwear—					
791.01, 03, 09, 15, 17, 20, 25, 27	Boots, Shoes, and Sandals** —Men's and Youths' ..	'000 pair	4,488	21,702	9,619	46,677
791.31, 33, 39, 45, 47, 50, 55, 57	Women's and Maids'	'000 pair	10,074	40,466	16,079	63,719
791.61, 62, 66, 70, 71, 72, 76, 79, 81, 82, 87, 88, 92, 93, 97, 99	Children's (Including Infants')	'000 pair	2,840	4,909	5,541	11,191
791.05, 07, 10, 23, 35, 37, 40, 53, 63, 64, 69, 75, 83, 85, 86, 91, 96	Slippers	'000 pair	9,477	10,726	11,039	13,877
	Soaps and Detergents—					
805.01-13 ; 806.02-06	Personal Toilet Use	'000 cwt	133	3,197	553	22,668
805.22-60 ; 806.10-44	Other Purposes	'000 cwt	587	8,497	3,349	61,032
871.01	Pharmaceutical Products for Human Use	for ..	†	30,379	†	112,675
844.01-61	Mattresses—All Types	'000	459	7,013	1,704	23,260
941.11	Cans, Canisters, Containers—Metal	..	†	46,747	†	106,538
943.02-08	Containers—Paperboard††	..	†	56,374	†	149,616
944.11, 21, 31, 41	Boxes and Cases—Wooden .. .. .	..	†	4,849	†	23,483
945.21	Cans, Canisters, Containers—Plastic	..	†	8,340	†	18,965

* Quantity only available.
† Value only available.
‡ Cured bone-in weight of smoked, cooked, and canned bacon and ham.
§ Source : Department of Customs and Excise.
¶ Double, threequarter, single ; wool, wool mixture and other fibre.
|| Excludes vehicles finished by specialist body building works outside the motor vehicle manufacturers' organisation.
** Excluding wholly of rubber.
†† Includes composite wood and paperboard butter boxes.

Monthly Production Statistics

The Bureau collects monthly production returns and makes available printed tables of Australian production statistics 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, Cocoa, Confectionery
2	Chemicals, etc.	30	Storage Batteries—Wet Cell
3	Plastics and Synthetic Resins and Plasticisers	32	Perambulators, Pushers and Strollers
4	Paints and Other Surface Coatings	33	Motor Vehicles
5	Electricity and Gas	34	Radio, etc., Television Sets and Cabinets
6	Soaps, Detergents, Glycerine and Fatty Acids	35	Bed Bases and Mattresses
7	Internal Combustion Engines	36	Preserved Milk Products
8	Lawn Mowers	38	Canned Fish
9	Electrical Appliances	39	Jams and Preserved Fruit and Vegetables
10	Motor Bodies, Trailed Vehicles, Lift-on Freight Containers, etc.	40	Cereal Products
11	Pedal Cycles	41	Margarine and Other Edible Processed Fats
12	Meters	42	Malt and Beer
13	Building Fittings	43	Stock and Poultry Meals (Other than Cereal)
14	Cotton Goods	45	Phonograph Records
15	Woolscouring, Carbonising, and Fellmongering	47	Aerated and Carbonated Waters, Cordials and Syrups, and Concentrated Cordial Extract
16	Woolen and Worsted Carding, Combing, and Spinning	48	Sports Goods
17	Wool Weaving	49	Building Materials
18	Hosiery	50	Electrodes for Manual Welding
19	Women's, Maids' and Girls' Clothing	51	Hides and Skins Used for Tanning
20	Cellulosic and Synthetic Fibre Tops, Yarns and Woven Fabrics	52	Electric Power Frequencies Transformers, Chokes and Ballasts
21	Paper, Wood Pulp and Adhesive Tapes	53	Plastics Film, Sheeting and Coated Materials
22	Floor Coverings	55	Butter and Cheese
23	Electric Motors	56	Canned Meat
24	Men's, Youths' and Boys' Clothing	58	Steel Wire and Wire Products
25	Foundation Garments	59	Non-ferrous Rolled, Extruded and Drawn Products
27	Gloves and Slide/Zip Fasteners		
28	Footwear		

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 published in these Bulletins and Production Summaries than are published in the monthly *Bulletin of Production Statistics*. Victorian figures are published in the Victorian monthly bulletin *Production Statistics*.

*Individual Industries***Introductory**

Particulars on pages 395 to 401 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 ; Textile Industry, 1968 ; Canning of Foodstuffs, 1969

Details of Industries

The industrial and heavy chemical industry expanded considerably during the five year period 1963-64 to 1967-68 as the particulars below indicate :

VICTORIA—INDUSTRIAL AND HEAVY CHEMICALS AND ACIDS (301)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	92	91	88	87	85
Number of Persons Employed ..	4,377	4,763	4,920	5,178	5,238
Salaries and Wages Paid \$'000	13,484	15,536	16,743	19,105	20,346
Value of Power, Fuel, etc., Used \$'000	6,273	6,891	7,151	7,801	9,175
Value of Materials Used \$'000	49,501	58,650	60,792	73,255	76,077
Value of Production \$'000	45,248	51,166	52,988	61,160	72,547
Value of Output \$'000	101,021	116,707	120,930	142,216	157,799
Value of Land and Buildings \$'000	18,946	20,492	21,524	23,598	24,636
Value of Plant and Machinery \$'000	59,404	59,430	60,814	70,583	64,746
Horse-power of Engines Ordinarily in Use H.P.	71,726	77,722	85,373	98,127	97,502

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	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	69	70	70	68	69
Number of Persons Employed ..	3,157	3,437	3,474	3,529	3,512
Salaries and Wages Paid \$'000	6,801	7,975	8,496	9,141	9,576
Value of Power, Fuel, etc., Used \$'000	568	670	699	787	754
Value of Materials Used \$'000	18,000	20,720	20,561	22,683	23,161
Value of Production .. \$'000	21,175	22,097	23,437	23,953	26,202
Value of Output .. \$'000	39,742	43,488	44,697	47,424	50,117
Value of Land and Buildings \$'000	15,635	16,200	17,324	17,156	15,057
Value of Plant and Machinery \$'000	7,550	7,668	7,710	7,721	7,485
Horse-power of Engines Ordinarily in Use .. H.P.	11,111	11,928	12,423	12,709	12,975

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 the years 1963-64 to 1967-68 are shown below :

VICTORIA—MINERAL OILS (306)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	20	20	20	22	22
Number of Persons Employed ..	1,222	1,375	1,301	1,406	1,453
Salaries and Wages Paid \$'000	4,158	4,847	4,711	5,704	6,041
Value of Power, Fuel, etc., Used \$'000	5,435	6,263	5,883	6,527	8,131
Value of Materials Used \$'000	106,093	103,493	96,168	112,028	132,536
Value of Production .. \$'000	34,576	38,538	39,485	46,330	55,137
Value of Output .. \$'000	146,104	148,294	141,535	164,884	195,804
Value of Land and Buildings \$'000	8,978	8,350	7,940	9,760	9,268
Value of Plant and Machinery \$'000	54,786	48,922	46,061	76,882	76,995
Horse-power of Engines Ordinarily in Use .. H.P.	46,065	46,165	46,373	65,331	75,717

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 1,453 persons were employed in 1967-68 and the horse-power of engines used totalled 75,717.

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 First and Second World 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 metal manufactures.

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, 1967-68

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) . . .	66	2,182	7,088	988	5,798	11,432	18,218	3,932	2,470	9,831
3. Plant, Equipment and Machinery, etc. . . .	1,189	36,188	116,061	4,396	185,302	189,596	379,295	91,568	57,338	143,243
4. Other Engineering . . .	916	12,687	37,435	1,733	46,111	63,406	111,250	36,678	29,482	69,181
6. Electrical Machinery, Cables, and Apparatus	494	21,552	60,875	3,088	127,820	100,716	231,625	53,812	29,793	56,156
7. Tramcars and Railway Rolling Stock	22	6,441	15,843	393	10,787	21,933	33,113	6,807	2,638	24,156
9. Motor Vehicle Construction and Assembly	20	15,540	51,622	4,637	82,302	84,252	171,191	65,374	59,305	89,832
10. Motor Repairs . . .	2,704	20,034	45,664	1,500	49,057	73,173	123,730	74,516	9,629	23,173
11. Motor Bodies	702	10,196	28,747	1,311	44,712	41,265	87,288	34,523	22,526	24,881
13. Motor Accessories	116	10,626	29,792	1,829	47,242	45,773	94,843	20,358	19,431	39,138
14. Aircraft . . .	26	9,098	34,818	920	28,544	39,819	69,283	15,499	12,245	22,769
20. Agricultural Machines and Implements	208	6,967	21,463	1,157	27,022	29,259	57,439	13,783	11,641	24,382
22. Non-ferrous Metals—Founding, Casting, etc.	161	4,240	12,104	906	24,750	22,732	48,388	10,759	6,381	16,014
24. Sheet Metal Working—Pressing and Stamping . .	457	12,095	34,350	1,783	84,708	64,477	150,968	33,110	20,917	40,223
26. Wire and Wire Working (Including Nails)	86	3,291	9,697	736	35,040	19,585	55,361	10,170	8,956	16,044
32. Wireless and Amplifying Apparatus . .	111	3,894	10,275	258	18,320	15,385	33,963	8,006	3,339	2,391
Other Sub-classes	405	17,042	54,883	9,315	128,880	99,031	237,223	49,463	81,691	156,239
Total, Class 4 . .	7,683	192,073	570,717	34,950	946,395	921,834	1,903,178	528,358	377,782	757,653

Further particulars of certain of the industries listed in the table above are given on pages 424-6.

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	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	507	525	534	570	605
Number of Persons Employed ..	20,816	23,242	23,453	24,604	25,446
Salaries and Wages Paid \$'000	46,748	56,064	58,729	64,605	71,150
Value of Power, Fuel, etc., Used \$'000	2,408	2,721	2,774	3,042	3,346
Value of Materials Used \$'000	96,508	120,927	123,599	135,565	146,140
Value of Production .. \$'000	76,724	92,074	97,846	106,889	116,101
Value of Output .. \$'000	175,640	215,721	224,218	245,496	265,588
Value of Land and Buildings \$'000	40,636	47,203	49,763	56,709	61,818
Value of Plant and Machinery \$'000	23,944	26,731	28,936	31,337	33,132
Horse-power of Engines Ordinarily in Use .. H.P.	44,485	49,518	48,597	55,305	58,547

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	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	22	22	22	22	22
Number of Persons Employed ..	6,846	6,664	6,690	6,566	6,441
Salaries and Wages Paid \$'000	14,568	16,181	16,843	16,676	15,843
Value of Power, Fuel, etc., Used \$'000	428	431	448	400	393
Value of Materials Used \$'000	12,426	12,518	12,739	12,226	10,787
Value of Production .. \$'000	18,820	21,582	21,821	22,227	21,933
Value of Output .. \$'000	31,674	34,531	35,009	34,853	33,113
Value of Land and Buildings \$'000	6,776	6,827	6,929	6,841	6,807
Value of Plant and Machinery \$'000	3,154	3,074	2,986	2,810	2,638
Horse-power of Engines Ordinarily in Use .. H.P.	24,365	24,040	24,115	24,086	24,156

The work performed in this sub-class of industry was, for the most part, 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	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	3,314	3,445	3,488	3,504	3,542
Number of Persons Employed ..	51,668	54,811	53,852	54,756	56,396
Salaries and Wages Paid \$'000	118,768	133,054	132,130	143,180	155,825
Value of Power, Fuel, etc., Used \$'000	7,196	7,912	7,924	8,581	9,277
Value of Materials Used \$'000	179,376	198,182	187,477	205,497	223,313
Value of Production .. \$'000	188,404	199,973	202,528	221,195	244,463
Value of Output .. \$'000	374,976	406,067	397,931	435,272	477,052
Value of Land and Buildings \$'000	145,780	167,211	175,213	180,371	194,771
Value of Plant and Machinery \$'000	87,318	99,489	103,259	109,118	110,891
Horse-power of Engines Ordinarily in Use .. H.P.	136,439	153,836	168,533	158,893	177,024

The relative importance of each sub-class of the motor vehicle industry is shown on page 423.

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

VICTORIA—AGRICULTURAL MACHINERY AND IMPLEMENTS (420)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	141	162	183	205	208
Number of Persons Employed ..	6,961	7,901	7,078	6,841	6,967
Salaries and Wages Paid \$'000	18,740	21,800	18,795	20,229	21,463
Value of Power, Fuel, etc., Used \$'000	1,198	1,345	1,014	1,051	1,157
Value of Materials Used \$'000	28,514	29,516	20,448	33,356	27,022
Value of Production .. \$'000	25,046	28,909	25,217	32,336	29,259
Value of Output .. \$'000	54,758	59,770	46,679	66,743	57,439
Value of Land and Buildings \$'000	10,780	12,196	12,490	12,743	13,783
Value of Plant and Machinery \$'000	7,622	8,760	10,078	10,191	11,641
Horse-power of Engines Ordinarily in Use .. H.P.	22,705	22,540	24,180	25,072	24,382

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

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

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	160	170	167	166	161
Number of Persons Employed ..	4,154	4,495	4,071	4,186	4,240
Salaries and Wages Paid \$'000	9,574	11,119	10,303	11,139	12,104
Value of Power, Fuel, etc., Used \$'000	748	874	781	864	906
Value of Materials Used \$'000	19,438	24,200	21,485	22,980	24,750
Value of Production .. \$'000	17,584	21,388	19,072	21,936	22,732
Value of Output .. \$'000	37,770	46,462	41,338	45,781	48,388
Value of Land and Buildings \$'000	8,478	9,830	9,405	10,372	10,759
Value of Plant and Machinery \$'000	5,584	5,781	6,261	6,521	6,381
Horse-power of Engines Ordinarily in Use .. H.P.	14,401	14,897	14,958	15,911	16,014

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 such as the making of packers' cans, canisters and containers, baths, sinks, hot water services, and refrigeration and air conditioning equipment, are the subject of the table which follows :

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

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	435	449	452	449	457
Number of Persons Employed ..	11,122	11,468	11,984	12,141	12,095
Salaries and Wages Paid \$'000	25,344	28,083	31,092	32,808	34,350
Value of Power, Fuel, etc., Used \$'000	1,378	1,535	1,640	1,726	1,783
Value of Materials Used \$'000	60,710	70,647	72,840	77,135	84,708
Value of Production .. \$'000	47,848	51,595	53,436	59,576	64,477
Value of Output .. \$'000	109,936	123,777	127,916	138,438	150,968
Value of Land and Buildings \$'000	24,796	27,115	28,322	29,898	33,110
Value of Plant and Machinery \$'000	17,402	17,071	18,423	19,620	20,917
Horse-power of Engines Ordinarily in Use .. H.P.	33,761	34,488	36,946	38,235	40,223

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

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

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	78	78	73	70	71
Number of Persons Employed ..	10,183	9,934	9,221	8,820	8,639
Salaries and Wages Paid \$'000	18,253	19,473	18,721	18,865	19,440
Value of Power, Fuel, etc., Used \$'000	1,500	1,561	1,567	1,531	1,548
Value of Materials Used \$'000	59,175	56,729	52,757	50,532	47,499
Value of Production .. \$'000	28,212	26,657	26,594	27,757	30,062
Value of Output .. \$'000	88,887	84,948	80,919	79,821	79,108
Value of Land and Buildings \$'000	13,799	14,186	15,139	15,842	15,985
Value of Plant and Machinery \$'000	13,943	14,608	13,465	14,773	14,939
Horse-power of Engines Ordinarily in Use .. H.P.	40,271	37,781	33,829	36,037	36,137

Victorian woollen mills are responsible for more than half the total Australian woollen mill production. These factories cover the full range of activities from the scouring of greasy wool to the weaving of cloth.

Particulars of the hosiery, etc., industry for the five years to 1967-68 are given below :

VICTORIA—HOSIERY AND OTHER KNITTED GOODS
(604)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	441	444	438	421	412
Number of Persons Employed ..	18,412	18,947	19,088	19,111	18,871
Salaries and Wages Paid \$'000	31,262	34,576	36,429	39,163	40,595
Value of Power, Fuel, etc., Used \$'000	1,268	1,359	1,442	1,570	1,727
Value of Materials Used \$'000	71,702	78,790	79,821	86,953	87,633
Value of Production .. \$'000	58,745	63,789	65,845	71,247	71,977
Value of Output .. \$'000	131,715	143,938	147,109	159,769	161,337
Value of Land and Buildings \$'000	24,575	26,664	28,508	29,186	30,262
Value of Plant and Machinery \$'000	18,739	20,073	23,075	22,909	24,335
Horse-power of Engines Ordinarily in Use .. H.P.	17,670	18,868	20,557	20,886	21,413

Factories in Victoria contribute more than two thirds of the total production of knitted goods in Australia. Among 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	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	1,308	1,283	1,285	1,267	1,271
Number of Persons Employed ..	28,796	29,343	30,542	30,969	31,612
Salaries and Wages Paid \$'000	44,527	48,517	52,477	57,331	61,383
Value of Power, Fuel, etc., Used \$'000	868	910	1,000	1,048	1,132
Value of Materials Used \$'000	70,963	76,281	78,485	82,667	85,850
Value of Production .. \$'000	73,746	79,022	84,044	90,210	97,355
Value of Output .. \$'000	145,577	156,214	163,529	173,925	184,336
Value of Land and Buildings \$'000	34,185	36,413	39,771	41,560	44,435
Value of Plant and Machinery \$'000	6,677	7,227	7,842	8,689	10,526
Horse-power of Engines Ordinarily in Use .. H.P.	11,583	12,295	13,108	13,330	14,316

In the following table the industries combined in the preceding table are shown in detail for 1967-68 :

VICTORIA—CLOTHING (DRESS), EXCLUDING WATERPROOF CLOTHING, KNITTED GOODS, AND BOOTS AND SHOES : INDIVIDUAL INDUSTRIES, 1967-68

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	333	700	53	134	26	25	1,271
Number of Persons Employed ..	8,931	12,761	714	6,586	2,068	552	31,612
Salaries and Wages Paid \$'000	18,678	24,233	1,308	12,394	3,740	1,030	61,383
Value of Power, Fuel, etc., Used \$'000	343	454	45	201	65	24	1,132
Value of Materials Used \$'000	28,043	28,931	1,271	20,059	5,581	1,965	85,850
Value of Production .. \$'000	29,508	39,643	2,053	18,850	5,664	1,637	97,355
Value of Output .. \$'000	57,894	69,028	3,368	39,110	11,310	3,626	184,336
Value of Land and Buildings \$'000	10,517	19,852	1,794	8,084	3,101	1,087	44,435
Value of Plant and Machinery \$'000	3,339	3,018	162	3,032	842	133	10,526
Horse-power of Engines Ordinarily in Use H.P.	4,277	5,305	254	3,152	1,149	179	14,316

In the above table, tailoring and ready-made clothing, and dressmaking together represented 81·3 per cent of the factories, 68·6 per cent of employment, and 70·4 per cent of the horse-power in use ; shirts and underclothing contributed 10·6 per cent, 20·8 per cent, and 17·8 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	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories ..	193	199	203	200	191
Number of Persons Employed ..	12,145	12,038	11,799	11,696	11,499
Salaries and Wages Paid \$'000	21,250	22,782	22,197	23,614	24,046
Value of Power, Fuel, etc., Used \$'000	410	444	466	499	503
Value of Materials Used \$'000	37,974	38,732	36,187	38,879	40,547
Value of Production .. \$'000	34,322	35,466	37,207	38,854	39,803
Value of Output .. \$'000	72,706	74,641	73,860	78,233	80,853
Value of Land and Buildings \$'000	9,869	9,858	10,643	11,472	11,616
Value of Plant and Machinery \$'000	8,335	9,595	9,766	10,702	11,075
Horse-power of Engines Ordinarily in Use .. H.P.	7,852	7,950	8,426	8,090	8,312

A feature of this industry is the large proportion of females employed. Numbering 7,059, they represented 61·4 per cent of the total number of persons employed in the manufacture of boots and shoes (not rubber) in 1967-68.

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, condensery 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, 1967-68

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 ..	21	1,215	3,597	632	46,646	10,051	57,328	5,578	4,108	16,826
2. Cereal Foods and Starch ..	29	1,301	3,398	655	15,717	6,617	22,990	5,772	5,364	13,205
5. Bakeries ..	922	6,434	13,727	1,841	33,954	27,008	62,804	26,060	11,537	12,746
6. Biscuits ..	25	2,297	5,147	561	12,044	7,144	19,750	7,833	5,253	6,518
9. Confectionery ..	63	3,497	8,619	718	22,288	17,131	40,136	12,505	11,988	21,364
10. Jam, Fruit and Vegetable Canning ..	34	5,776	17,080	1,544	72,704	36,977	111,225	23,705	26,882	27,400
13. Butter Factories	63	2,876	8,983	2,233	91,192	17,777	111,202	11,613	15,850	29,285
14. Cheese Factories	25	1,243	4,088	565	31,368	8,677	40,611	7,771	5,398	7,369
15. Condensed and Dried Milk Factories ..	21	1,508	4,637	1,146	32,593	10,070	43,809	6,514	9,751	15,078
18. Condiments, Coffee, Spices	56	1,220	3,151	272	11,535	8,740	20,548	6,994	3,183	5,775
19. Ice and Refrigeration ..	91	987	2,964	983	948	6,695	8,625	10,720	5,382	27,974
21. Aerated Waters, Cordials, etc.	87	1,363	3,200	292	15,090	11,287	26,669	5,764	3,902	4,131
28. Tobacco, Cigars, Cigarettes, Snuff ..	5	2,475	6,649	406	48,675	45,763	94,844	7,617	9,698	7,157
Other Sub-classes	392	11,951	33,123	4,776	162,041	80,043	246,859	49,499	48,409	81,057
Total, Class 9	1,834	44,143	118,363	16,624	596,795	293,980	907,400	187,945	166,705	275,885

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

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

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	1,056	1,035	1,002	950	922
Number of Persons Employed ..	6,336	6,420	6,557	6,512	6,434
Salaries and Wages Paid \$'000	10,684	11,681	12,193	12,972	13,727
Value of Power, Fuel, etc., Used \$'000	1,622	1,688	1,713	1,725	1,841
Value of Materials Used \$'000	29,842	32,236	33,656	33,563	33,954
Value of Production .. \$'000	22,004	23,700	24,633	26,244	27,008
Value of Output .. \$'000	53,468	57,624	60,002	61,531	62,804
Value of Land and Buildings \$'000	20,872	21,845	22,846	23,279	26,060
Value of Plant and Machinery \$'000	10,776	10,838	10,608	10,297	11,537
Horse-power of Engines Ordinarily in Use .. H.P.	10,936	11,707	11,978	11,986	12,746

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	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	54	52	53	49	50
Number of Persons Employed ..	5,642	5,707	6,205	6,192	6,082
Salaries and Wages Paid \$'000	12,654	13,939	15,841	17,090	17,758
Value of Power, Fuel, etc., Used \$'000	1,298	1,447	1,639	1,657	1,597
Value of Materials Used \$'000	52,023	57,321	71,442	72,048	75,286
Value of Production .. \$'000	32,459	34,153	40,328	43,653	38,823
Value of Output .. \$'000	85,780	92,921	113,409	117,357	115,706
Value of Land and Buildings \$'000	20,121	20,860	23,489	25,134	25,238
Value of Plant and Machinery \$'000	18,442	19,501	22,667	23,806	27,648
Horse-power of Engines Ordinarily in Use H.P.	25,120	25,470	27,950	28,758	28,697

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 greatly influence the number of persons employed and the quantity of goods produced.

Three sub-classes of industry, namely, butter, cheese, and 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 429. 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	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	123	120	119	117	109
Number of Persons Employed ..	5,788	5,824	5,719	5,837	5,627
Salaries and Wages Paid \$'000	14,292	15,096	15,558	17,059	17,708
Value of Power, Fuel, etc., Used \$'000	3,318	3,569	3,638	3,871	3,944
Value of Materials Used \$'000	132,448	150,909	151,109	164,549	155,153
Value of Production .. \$'000	33,412	38,953	38,771	36,697	36,524
Value of Output .. \$'000	169,178	193,431	193,518	205,117	195,622
Value of Land and Buildings \$'000	17,026	19,202	21,936	25,051	25,898
Value of Plant and Machinery \$'000	21,822	22,564	26,109	30,879	30,999
Horse-power of Engines Ordinarily in Use .. H.P.	48,570	48,295	51,002	55,262	51,732

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 small amount of butter and cheese made on farms. Further reference to the Dairying Industry will be found on pages 348-350.

Manufacture of Butter, Cheese, and Processed Milk Products

Historical

On 25 May 1836, a few years after the first settlement in Victoria, 100 cattle of all kinds were recorded; this number had increased to 722,000 in 1861 and 1,783,000 in 1891, of which 197,000 in 1861 and 395,000 in 1891 were dairy cattle. The industry is now widely distributed throughout those areas of Victoria which have an annual rainfall of 25 inches or more, and those irrigated. The principal regions are Gippsland, the western districts, the northern irrigation areas, and the north-east.

Dairy farming was first established in the Yarra Valley beyond Melbourne and later spread into the western districts, the Gippsland area, and the north and north-east of the State. The western districts area extends from Geelong to Portland, and from the coast inland as far as Colac, Camperdown, and Mortlake; the Gippsland dairying area extends east of Melbourne, between the Alps and the coast, as far as Orbost; and the north and north-eastern areas extend on the Victorian side of the Murray River, and along the valleys of the rivers running north into it, from Corryong to Swan Hill. Currently, these areas contain approximately a third each of Victorian milk productive capacity, and the manufacturing industry is distributed similarly. Of Victoria's 123 butter, cheese, milk processing, and ice cream factories operating in 1967-68, twenty are located in the western districts, twenty-six in the north and north-east, twenty-one in Gippsland, and thirty-eight in the Melbourne Metropolitan Area.

In the early days, dairy farmers produced milk for human consumption near centres of population, and, further afield, for cheese and butter which was made mainly on farms. By the end of the 1890s,

there was a trend from farm to factory production. Thus, in 1891, about 10·9 mill. lb of butter and 2·5 mill. lb of cheese were produced on farms, compared with 5·8 mill. lb of butter and 0·8 mill. lb of cheese in factories ; by 1900, farm production of butter was only 6·8 mill. lb and of cheese 1·8 mill. lb, while the amounts produced in factories had risen to 48·8 mill. lb of butter and 2·5 mill. lb of cheese. Three important developments hastened this move to factory production, and stimulated the whole industry, at a time when local markets were more or less stagnant. First, about 1883, refrigeration came into use; second, in about 1886, centrifugal cream separators turned manually, or by horses were introduced in the factories and later on the farms ; and third, the Babcock method of testing for butterfat, introduced in 1892, enabled factories to rationalise payment for milk or cream on the basis of butterfat content.

At about the same time, the Vegetable Products Commission was appointed to collect local data on dairying and to investigate the organisation of butter factories in other States, especially New South Wales. The Commission visited Mittagong, Kiama, and Albion Park in New South Wales, and obtained information which aided the establishment of a number of butter factories in Victoria. In 1888, the Deakin-Gillies Government allocated a sum of £233,000 (\$466,000) as a bonus for the establishment of butter and cheese factories and creameries in Victoria, to improve and standardise the quality of butter and cheese, penetrate more export markets, and to diminish the amount of farm butter made. In 1888, the amount of butter exported overseas was 39,410 lb, valued at £1,244 (\$2,488), and cheese exported was 2,939 lb, valued at £72 (\$144). By 1895, however, exports of butter had risen to 21,690,706 lb, valued at £815,291 (\$1,630,582), and exports of cheese to 1,058,008 lb, valued at £20,764 (\$41,528).

Between 1901 and 1910–11, farm and factory butter production rose by almost 40 mill. lb as much of Gippsland, in particular, was cleared and, in general, dairying land was developed. Throughout the State the area of land occupied between 1891 and 1911 increased by 4 mill. acres. However, farming the more difficult hill country in Gippsland declined for a short time after 1914, owing to the labour shortages caused by the First World War. About this time rabbits increased in numbers, and as superphosphate was not used until the 1920s, pastures were generally inferior to those now in Gippsland. Between 1920 and 1940, however, production increased as pastures were improved and the area of pasture was greatly increased. The number of dairy cows rose from 620,005 in 1921 to 904,915 in 1941 ; butter production rose by about 96,000 mill. lb, and cheese production by more than 15,000 mill. lb. Improved milking techniques also assisted production. In 1916, there had been only 1,510 milking plants in the State, but by 1936 there were 4,994 and their use increased as the effects of the depression of the early 1930s were overcome. By 1945, 106 mill. lb of butter were produced and 27 mill. lb of cheese ; in the 1954–55 season, the figures had risen to 180 mill. lb and 45 mill. lb, respectively ; and in 1967–68, over 241 mill. lb of butter and 75 mill. lb of cheese were produced.

The manufacture of preserved and concentrated milk as well as butter and cheese has also been important. In 1890, a factory was established at Bacchus Marsh to manufacture processed milk, and a small shipment was made to England in 1893-94. In 1906, exports from Victoria overseas reached 90,315 lb, and, by 1910, it was 95,897 lb. Production expanded during the First World War, and for a period afterwards; so that in 1916-17, 34 mill. lb were produced, and in 1920-21, it reached approximately 43 mill. lb. There was a decline, however, during the 1930s, and in 1931-32 only 41 mill. lb were produced. By 1936-37, the figure had reached 53 mill. lb, and during the Second World War output again increased—in 1940-41 to 112 mill. lb and in 1945-46 to 124 mill. lb. Production has continued to expand and reached 290 mill. lb in 1967-68.

Location

Milk is a bulky and perishable commodity which is expensive to transport. Thus manufacturing units are, in general, located within the milk producing areas. In the early years, without the advantages of refrigerated bulk transport, factories tended to be smaller and closer together, and some were merely refrigerated collection points for milk or cream.

Organisation

Milk is manufactured into a wide range of products, the most important of which are butter and casein, cheese, pasteurised liquid milk and cream for human consumption, condensed and dried full cream milk, ice cream, skim milk, and buttermilk powder. In the main, factories specialise; however, there are many instances of factories making a range of products.

The development of the co-operative movement has been of primary importance for Australian manufactured dairy products since 1888, when the Cobden Co-operative Butter Factory, generally considered to be Victoria's pioneer butter co-operative factory, was established by one of a number of groups of producers who pooled capital to erect factories to handle produce from local suppliers.

Since the Second World War the development of tanker transports has resulted in the bulk collection and handling of whole milk for factories for both manufacture and pasteurisation. Bulk transport and amalgamations since 1960 have enabled firms to rationalise and increase their productive capacity at fewer locations.

Pricing

It was inevitable that Australia, and therefore Victoria, as an exporter of butter and cheese, would be affected by the international supply situation and in particular, by competition in the London market from continental suppliers. Encouraged by the high prices during and following the First World War, world production of dairy products increased, but with the decline in prices after 1921, many farmers in the early stages of establishing herds were unable to survive. A statutory organisation within the industry became necessary, and in 1925, under the *Dairy Produce Export Control Act 1924*, a producer referendum established the Dairy Produce Control Board, now the Australian

Dairy Produce Board, to regulate the export and sale of butter and cheese. It acted as producers' agent for all Australian butter and cheese sold in Great Britain, and all cheese sold in Japan, while also working to develop new markets. In 1926, the Paterson plan was introduced as a voluntary scheme of price control, under which participating factories pooled a fixed sum of money for every pound of butter produced. This pool, less administrative expenses, was distributed in the form of a bounty to raise the returns of butter exported from participating factories. The plan operated at a time when production was rising slowly despite a world wide depression. In the early 1930s, exports of butter exceeded home consumption for the first time, so placing greater strain on the subsidy scheme for exports. In 1936, therefore, a further voluntary scheme was adopted, whereby returns for butter and cheese sold on the local and overseas market would be equalised. Since the price of butter on the London market was still low, and as it was necessary to have support from all factories, the industry's leaders sought adherence to price equalisation, although it was still on a voluntary basis. As a result of their efforts the Commonwealth Dairy Produce Equalisation Committee was established.

At the beginning of the Second World War, a reduced labour force caused difficulties. At the same time, production was encouraged as the British Government undertook to purchase exportable surpluses at a satisfactory price, and, in addition, requested diversion from the production of cheese and processed milk to production of butter. The Commonwealth Government, to prevent workers leaving a vital industry, brought the wages of milkers on dairy farms under the Arbitration Court, and in 1942, for the first time, the bounty payment exceeded £1.5m (\$3m). Immediately after the war, several disputes arose about the adequacy of bounty payments and in 1946 the Government appointed the Joint Dairying Industry Advisory Committee, whose findings prompted the Government to guarantee dairy farmers' production costs for the period 1 April 1947 to 30 June 1952.

From 1945 to 1952, the overseas price for butter was greater than the local price, and excess realisations were paid into the Dairy Industry Stabilisation Fund. In 1952, a series of five year stabilisation plans was introduced, whereby an annual bounty was fixed for each of the five years, the most recent coming into force in 1967.

Technological Progress

Pasteurisation, introduced progressively from the late 1890s, was the first important technological advance in the butter making industry. Neutralisation, introduced to facilitate the batch pasteurisation of sour cream, was also found to improve the keeping qualities of butter. Pasteurisation methods were gradually improved further : flash pasteurisation, by means of a heat exchanger, was introduced about 1928 and is still in use in some factories ; and in 1930, the process of vacuumation, the direct introduction of steam into cream under a vacuum, by which weed and feed taints are reduced, was established. New materials, particularly stainless steel have been introduced into the industry

to replace such items as wooden butter churns and tinned copper alloy components of the 1950s. This has further improved the keeping quality of butter. Continuous butter making machines were introduced early in the 1960s, and were generally adopted by 1968. Similar machines have now been adapted to sweet-cream butter making.

Knowledge of the precise role of various types of bacteria in cheese making is fairly recent, and consequently progress since the Second World War has been rapid. Single-strain starter cultures were first developed in the late 1940s, and now over 80 per cent of all Australian cheddar is produced in this way.

The most significant effect on marketing has been the introduction of rindless cheddar cheese, first exported from Australia in November 1957, and since 1965 export requirements have specified this type. Recently, mechanisation of the cheese industry has been particularly significant. Research was begun by the C.S.I.R.O. in 1954 and by 1958 a pilot plant for the making of cheese by a continuous process was in operation. Continuous cheese makers are now responsible for over 60 per cent of all cheddar produced in the Commonwealth. Seventeen machines are now operating in Australian factories and a further seventeen have been exported to New Zealand, the United Kingdom, Holland, and the United States of America. Similar progress has been made in the technology of producing skim milk, casein, milk powders, and in processed milk production.

Marketing

Individual manufacturers and distributors, some of which are co-operatives, are responsible for marketing within Australia. They are currently seeking to increase the home consumption of dairy products by means of a marketing allowance of 0·75 of one cent a pound of commercial butter, made available, in 1967, by dairy farmer organisations to stimulate brand promotion. The Australian Dairy Produce Board administers levy funds to promote butter, cheese, and ghee consumption, and to carry out research and development, the contribution being matched by the Commonwealth Government on a dollar for dollar basis. The State Milk Board promotes the consumption of fluid whole milk and cream. Consumption of butter, after a period of decline, levelled off at just under 22 lb a head a year in 1966, while consumption of cheese has increased in recent years, being now just under 8 lb a head annually. Liquid milk consumption has remained fairly static, and in 1968 was about two thirds of a pint a head a day in the metropolitan area.

Overseas, falling prices and increased competition, aggravated by heavily subsidised over-production in certain countries, have led to a difficult market situation. With the exception of Britain and Japan, exports are on a trader-to-trader basis, with terms, conditions, and prices being fixed by the Board. The Board now acts as the sole marketing agent for all Australian butter and cheese exports to Britain and Japan. Under the Dairy Produce Export Control Act, the Board

may develop new markets and, in recent years, has worked with Asian interests to set up plants to produce recombined condensed milk, using Australian raw materials. Plants are now established in Singapore, Bangkok, Manila, and Djakarta, and one will shortly be set up in Phnom Penh. These plants have a potential usage of 8,000 tons of butter oil, (equivalent to 10,000 tons of butter), and 22,000 tons of skimmed milk powder annually.

The following table shows the production of, and exports from, Victoria of butter, cheese, and processed milk products during the period 1891 to 1967-68 :

VICTORIA—PRODUCTION AND EXPORTS OF BUTTER,
CHEESE, AND PROCESSED MILK PRODUCTS

('000 lb)

Year	Butter		Cheese		Processed Milk Products	
	Production	Exports	Production	Exports	Production	Exports
1891 ..	16,704	3,800	2,311	*	..	..
1901 ..	46,858	24,571	3,975	94	..	..
1910-11 ..	86,500	39,694	4,550	306	..	442
1920-21 ..	59,852	32,813	3,144	970	42,644	18,907
1930-31 ..	110,007	61,751	8,064	680	45,665	12,365
1940-41 ..	156,346	89,537	18,377	14,730	112,453	38,081
1950-51 ..	132,263	50,882	50,573	29,157	123,117	67,031
1960-61 ..	201,447	100,552	44,799	22,579	195,979	79,380
1967-68 ..	241,240	123,602	73,570	37,572	290,300	106,359

* 229 lb.

Australian Dairy Produce Board

The Dairy Produce Control Board, now called the Australian Dairy Produce Board, was established in 1925 by a producer referendum, carried out under the provisions of the *Dairy Produce Export Control Act 1924*, to regulate the exports and sale of butter and cheese. It consisted at first of twelve members, and after various alterations, the number was fixed at thirteen in 1953. They represented the Commonwealth Government, the dairy farmers, the dairy factories, and their employees. Funds were provided by a levy on butterfat production.

During the Second World War, the Board was represented on the Dairy Produce Control Committee, which dealt with sales to Britain. Since 1955, the Board has purchased and marketed all butter and cheese for the British market and since 1958 it has administered the *Dairy Produce Research and Sales Promotion Act 1958-1965*.

The power and functions of the Board are to make recommendations to the Minister for controlling the export, sale, and distribution of dairy produce; to report on, and improve the quality of export dairy produce; and to seek new and wider markets. All exported dairy produce is quality tested by the Department of Primary Industry.

The Board also administers a programme of research and sales promotion within Australia. To June 1968, funds allocated to research in all States totalled \$4.4m and annual expenditure stands at approximately \$0.75m.

Sales promotion within Australia annually amounts to nearly \$800,000, and the Board also administers funds for overseas promotion. The Commonwealth Government matches expenditure on approved research and on certain overseas sales promotions. Funds are provided by a single levy on the butterfat content of all Australian butter, cheese, butter oil, and ghee.

The Victorian *Dairy Products Act 1933* established the Victorian Dairy Products Board, which supports the Commonwealth Dairy Produce Equalisation Committee Limited. This is a voluntary organisation, which arranges for the equalisation of returns from overseas and local sales. Separate agreements exist for butter, cheese, and casein, and the Board recommends to the Government month by month quotas for their local sale and export.

The Board consists of five members who hold office for three years. Two members are nominated by the Minister for Agriculture, and represent the Department of Agriculture and the consumers; the three other members are nominated by the Co-operative Dairy Factories Association of Victoria, the Association of Victorian Proprietary Manufacturers of Butter, Cheese, and Milk Products, and the Victorian Dairyfarmers Association. Funds are provided by a levy determined by the Board on every manufacture.

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	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	1,761	1,759	1,758	1,780	1,759
Number of Persons Employed ..	18,177	18,270	18,500	18,693	18,908
Salaries and Wages Paid \$'000	37,755	40,524	42,211	44,864	48,107
Value of Power, Fuel, etc., Used \$'000	1,722	1,764	1,807	1,877	1,973
Value of Materials Used \$'000	77,043	82,864	83,637	87,983	91,926
Value of Production .. \$'000	65,160	70,710	71,692	76,243	79,651
Value of Output .. \$'000	143,925	155,339	157,136	166,103	173,551
Value of Land and Buildings \$'000	34,592	38,429	41,477	45,377	48,298
Value of Plant and Machinery \$'000	12,974	13,441	15,363	15,901	15,336
Horse-power of Engines Ordinarily in Use .. H.P.	136,824	130,483	135,938	139,248	142,804

The following table shows the particulars of the individual industries combined in the preceding table for 1967-68 :

**VICTORIA—SAWMILLS, WOODWORKING, FURNITURE,
ETC. : INDIVIDUAL INDUSTRIES, 1967-68**

Particulars	Sawmills 1001	Joinery 1004	Boxes and Cases 1006	Wood Turning and Wood Carving 1007	Furniture Making, etc. 1101	Total
Number of Factories	442	727	56	84	450	1,759
Number of Persons Employed	5,938	6,830	697	763	4,680	18,908
Salaries and Wages Paid .. \$'000	15,126	17,684	1,670	1,841	11,786	48,107
Value of Power, Fuel, etc., Used \$'000	1,118	435	55	68	297	1,973
Value of Materials Used .. \$'000	35,826	30,230	2,581	1,996	21,293	91,926
Value of Production \$'000	25,642	28,362	2,563	3,002	20,082	79,651
Value of Output \$'000	62,586	59,028	5,199	5,065	41,672	173,550
Value of Land and Buildings .. \$'000	12,319	17,915	1,937	1,629	14,498	48,298
Value of Plant and Machinery .. \$'000	7,776	4,276	447	499	2,338	15,336
Horse-power of Engines Ordinarily in Use H.P.	88,011	32,728	4,106	3,778	14,181	142,804

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	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	122	123	123	124	121
Number of Persons Employed ..	3,796	4,175	4,295	4,303	4,486
Salaries and Wages Paid \$'000	9,991	10,965	11,520	13,205	14,268
Value of Power, Fuel, etc., Used \$'000	371	392	430	443	519
Value of Materials Used \$'000	19,425	20,607	21,333	21,834	22,783
Value of Production \$'000	16,343	18,163	18,269	21,666	23,764
Value of Output \$'000	36,139	39,161	40,032	43,944	47,066
Value of Land and Buildings \$'000	6,916	6,769	8,032	8,189	13,541
Value of Plant and Machinery \$'000	9,134	9,273	9,320	10,448	12,852
Horse-power of Engines Or- dinarily in Use .. H.P.	12,550	13,151	13,798	14,311	14,389

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	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	659	683	683	707	718
Number of Persons Employed ..	10,857	10,733	11,122	11,335	11,479
Salaries and Wages Paid \$'000	23,024	25,582	27,633	29,895	32,140
Value of Power, Fuel, etc., Used					
\$'000	780	891	992	1,029	1,097
Value of Materials Used \$'000	29,904	32,967	33,919	36,341	39,645
Value of Production .. \$'000	41,936	47,021	50,791	55,584	59,176
Value of Output .. \$'000	72,620	80,879	85,702	92,953	99,917
Value of Land and Buildings \$'000	23,009	25,148	27,097	30,315	33,334
Value of Plant and Machinery \$'000	17,577	19,405	20,660	21,999	23,242
Horse-power of Engines Ordinarily in Use .. H.P.	17,556	18,388	18,852	19,794	20,641

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	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	66	65	66	66	66
Number of Persons Employed ..	3,562	3,527	3,683	3,718	3,894
Salaries and Wages Paid \$'000	7,737	8,473	8,730	9,535	10,401
Value of Power, Fuel, etc., Used					
\$'000	338	350	365	394	459
Value of Materials Used \$'000	26,633	27,867	28,920	33,174	35,963
Value of Production .. \$'000	16,944	18,003	18,931	20,698	23,187
Value of Output .. \$'000	43,915	46,220	48,216	54,265	59,608
Value of Land and Buildings \$'000	9,461	11,422	13,581	14,425	14,974
Value of Plant and Machinery \$'000	7,924	8,500	8,510	8,914	10,182
Horse-power of Engines Ordinarily in Use .. H.P.	7,535	7,760	9,280	10,034	10,853

The following table gives particulars of rubber goods manufacture :

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

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	52	50	51	49	49
Number of Persons Employed ..	7,614	7,697	7,415	7,296	7,660
Salaries and Wages Paid \$'000	18,397	21,001	20,274	21,538	23,907
Value of Power, Fuel, etc., Used \$'000	2,726	2,734	2,679	2,883	3,103
Value of Materials Used \$'000	42,507	46,674	43,882	44,303	49,272
Value of Production .. \$'000	33,383	32,818	32,074	34,377	44,761
Value of Output .. \$'000	78,616	82,225	78,635	81,563	97,136
Value of Land and Buildings \$'000	15,246	15,360	17,249	21,864	22,226
Value of Plant and Machinery \$'000	14,445	14,542	16,863	25,003	26,790
Horse-power of Engines Ordinarily in Use .. H.P.	73,487	78,083	81,162	93,669	96,369

Tyres and tubes, shoes, soles and heels, hose, toys, belting, sponge and foam rubber are among 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	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	175	178	186	191	192
Number of Persons Employed ..	6,384	7,059	7,278	7,704	8,050
Salaries and Wages Paid \$'000	14,658	17,763	18,510	20,938	23,774
Value of Power, Fuel, etc., Used \$'000	1,298	1,568	1,730	2,002	2,246
Value of Materials Used \$'000	35,648	42,127	41,935	48,793	58,540
Value of Production .. \$'000	31,434	35,921	35,348	42,732	44,903
Value of Output .. \$'000	68,380	79,615	79,013	93,527	105,689
Value of Land and Buildings \$'000	13,171	14,859	17,986	21,106	21,782
Value of Plant and Machinery \$'000	15,587	16,961	19,512	20,698	23,717
Horse-power of Engines Ordinarily in Use .. H.P.	32,581	36,778	41,417	45,199	48,285

Introduced as a new sub-class to the Classification of Factories 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, floor coverings, etc.

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

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

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	29	29	22	18	16
Number of Persons Employed ..	3,356	3,674	3,883	3,965	3,654
Salaries and Wages Paid \$'000	10,180	11,808	12,841	13,498	13,094
Value of Power, Fuel, etc., Used \$'000	24,410	25,345	25,904	26,135	26,028
Value of Materials Used \$'000	1,779	2,032	3,192	3,976	3,093
Value of Production .. \$'000	44,905	54,902	60,701	63,978	72,259
Value of Output .. \$'000	71,094	82,280	89,797	94,089	101,381
Value of Land and Buildings \$'000	44,848	48,079	46,665	48,068	41,935
Value of Plant and Machinery \$'000	178,450	203,249	223,477	266,696	227,819
Total Installed Horse-power of Engines Used to Drive Generators* .. '000 H.P.	2,213	2,521	2,903	3,354	3,543

* 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 generates and supplies practically all of the electricity consumed in Victoria.

Ministry of Fuel and Power

Following the discovery of natural gas off the East Gippsland coast early in 1965, and anticipating the discovery of oil, the Government passed the *Fuel and Power Act 1965*, establishing the Ministry of Fuel and Power, to determine the means by which the present and future supplies could be developed and utilised. Private oil and gas companies may refer legislative and other problems, concerned with the production and marketing of energy, to the Ministry, which has authority to examine proposals and give decisions.

The Ministry co-ordinates the activities of the State Electricity Commission of Victoria, the Gas and Fuel Corporation of Victoria, and the Victorian Pipelines Commission, as well as any future bodies which may be established to utilise sources of primary and secondary energy.

Further Reference, 1969

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, develop the State's hydro-electric resources, and form or acquire interests in any company for the purpose of selling char, coal, and briquettes.

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.

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 99 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.

By far the greater part of the State's electricity is generated 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 1968-69 from the three open cuts at Yallourn, Yallourn North, and Morwell totalled 22,465,756 tons, of which 18,046,688 tons were used in the Commission's own power stations, and 3,998,082 tons were manufactured into 1,471,328 tons of brown coal briquettes, 20 per cent of the briquette output then being used for electricity production in metropolitan and other 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 1969, the number of ultimate consumers in Victoria was 1,212,919. Of these, 1,212,748 were served by the State system and 171 by local country undertakings. The State system supplies all the Melbourne metropolitan area and 2,330 other centres of population.

By 30 June 1969, almost all of the one million homes in the State and 72,760 of Victoria's 75,600 farms were supplied with electricity.

State-wide electrification is now nearing completion. It is expected that fewer than 3,000 homes and 1,250 farms in remote and isolated areas will be out of reach of public supply mains. Efforts will continue to be made to supply as many of these as possible.

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 580,960. Of the new consumers connected to supply each year, more than two thirds are outside the metropolitan area. New farm connections currently are about 2,000 a year.

The Commission's retail consumers numbered 981,535 at 30 June 1969. 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 1969, there were branch and district supply offices in Melbourne and 102 other cities and towns in Victoria.

Electricity Production, Transmission, and Distribution

Electricity generated in the State system or purchased by it totalled 12,868 mill. kWh in 1968-69, 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 1969, was 3,337,000 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 Hazelwood, which alone generates 45 per cent of Victoria's electricity. It now has six of its planned eight

200MW generating sets in service. Other power stations in the interconnected system comprise two further base-load power stations—Yallourn (which contributes 30 per cent) and Morwell; 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 major power stations 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 Reservoir 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 1969, comprised 58,944 miles of power lines, 25 terminal receiving stations, 96 main transmission sub-stations, and over 59,000 distribution sub-stations. Main transmission is by 330 kV, 220 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 1,577 route 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, commenced operations during 1968 at 220 kV.

Future Development

Major new construction is concentrated on increasing the capacity of the large brown coal burning power station at Hazelwood, designed to operate on raw brown coal fuel supplied by belt conveyor direct from the Morwell brown coal open cut. Hazelwood Power Station is the largest project undertaken by the Commission and is designed to have a capacity of 1,600 MW in 1971. By that year the State's power resources, including Victoria's share of the output of the Snowy scheme, will have increased by 12 per cent to 3,744,000 kW.

The first of Hazelwood's eight 200 MW turbo-generators was commissioned in October 1964 and five more have been installed at yearly intervals. The remaining two sets will also be installed at approximately yearly intervals to 1971. 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 (Yallourn "W") will be built about a half mile west of the present Yallourn Power Station. It will also operate on brown coal which will be supplied by conveyors from Yallourn open cut. Yallourn "W" will have two 350 MW turbo-generators, the first to be in service in 1972 and the second in 1973.

Local Country Electricity Undertakings

At 30 June 1969, Mallocoota was the only independent electricity undertaking in Victoria generating and distributing its own local supply. Under the State Electricity Commission's rural electrification programme this undertaking is to be acquired and absorbed into the State system.

For the year 1968-69, the total production of the independent undertaking was 14 mill. kWh. The number of consumers at 30 June 1969 was 171 including those in the Bendoc area receiving supply from the Monaro County Council in New South Wales. The operation of independent undertakings is governed by the *Electric Light and Power Act 1958*, which is administered by the State Electricity Commission.

Capital Financing since the Second World War

Over the six years of the Second World War, capital expenditure amounted to \$17m, of which only \$5m was financed by S.E.C. loans and no State loan funds were allotted by Treasury. Internal funds provided 70 per cent of capital expenditure. The Commission had been granted its own borrowing powers as recently as 1934, and there were no redemptions of maturing loans to be re-financed.

After the War, the Commission was faced with a greatly diminished reserve generating capacity and a rapid increase in consumers' demand for electricity. In successive years, capital expenditure increased from \$3.5m in 1944-45 to \$5m, \$6.4m, \$9.3m, \$15m, \$29.9m and \$66.5m in 1950-51.

The semi-Government loan market after minimum activity in favour of Commonwealth War Loans was sufficiently buoyant to finance the bulk of this expenditure, and was predominantly available in the form of private loan offers. From 1948, post-war cost inflation had a marked effect on operating expenditure, and for five years regular annual tariff increases were necessary to keep ahead of operating expenditure and internal capital funds were of negligible proportions.

The following table comparing 1968–69 with 1948–49 illustrates the important changes in the capital finance situation over the two decades :

	1968–69	1948–49
	\$m	\$m
Capital Requirements—		
Capital Expenditure	103.7	15.0
Redemption of Maturing S.E.C. Loans	24.2	—
	<hr/>	<hr/>
	127.9	15.0
	<hr/>	<hr/>
Capital Finance—		
S.E.C. Loans—		
Public	17.7	2.0
Private	32.0	12.0
	<hr/>	<hr/>
Total Cash Raisings	49.7	14.0
State Government Advances ..	17.0	—
“Self-help” Extension Deposits and Miscellaneous Capital Contributions and Advances	16.4	—
Internal Funds	44.8	1.0
	<hr/>	<hr/>
	127.9	15.0
	<hr/>	<hr/>

The following aspects are noteworthy :

- (1) Capital requirements now include a regular substantial amount to replace redeemed loan maturities.
- (2) The semi-Government loan market provides about 40 per cent of present day capital requirements.
- (3) The business is so capital intensive that, like other electricity bodies throughout the world, the Commission must finance about 50 per cent of its expenditure on capital works from internal resources. The Commission increased its electricity tariffs twice in 1956 and again in 1958 to provide more internal funds for capital expenditure. Erosion of these funds by regular cost inflation necessitated further tariff increases in 1965 and 1967.

- (4) State loan funds provide valuable assistance.
- (5) The "self-help" scheme commenced with the national financial emergency of 1951, when all available capital finance was required for new power plants and the development of the main transmission system and existing distribution reticulation. High voltage extensions of supply to new consumers could be undertaken only if they advanced the cost of their extensions. The scheme is still in operation because of the shortage of available loan funds.

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 SOURCES OF POWER, 1967-68

Station or Origin of Power	Source T=Thermal* H=Hydro	Quantity Mill. kWh	Percent- age of Pro- duction
State Electricity Commission—			
Own Generation—			
Hazelwood Power Station	T	4,686·6	39·0
Yallourn Power Station and Briquette Factory	T	3,779·0	31·4
Morwell Power Station	T	1,233·2	10·2
Newport Power Station	T	575·1	4·8
Spencer Street Power Station (M.C.C.†)	T	56·9	0·5
Richmond Power Station	T	46·8	0·4
Provincial Thermal Power Stations ..	T	44·0	0·4
Total S.E.C. Thermal Generation ..	T	10,421·6	86·7
Eildon	H	338·4	2·8
Kiewa	H	202·6	1·7
Total S.E.C. Hydro Generation ..	H	541·0	4·5
Other Public Supply Generation	T	20·7	0·2
Total Generation by Public Supply Undertakings	T and H	10,983·3	91·4
Electricity Generated in Factories for Internal Consumption‡	T	435·6	3·6
Total Electricity Generated in Victoria ..	T and H	11,418·9	95·0
Net Interstate Purchases	T and H	597·1	5·0
Total	T and H	12,016·0	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	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	27	30	30	29	29
Number of Persons Employed ..	1,379	1,347	1,329	1,312	1,233
Salaries and Wages Paid \$'000	3,834	3,868	4,339	4,512	4,495
Value of Power, Fuel, etc., Used \$'000	1,296	1,279	1,183	1,184	1,250
Value of Materials Used \$'000	8,733	8,506	9,522	9,661	10,169
Value of Production .. \$'000	14,407	16,328	15,507	17,475	17,623
Value of Output .. \$'000	24,436	26,114	26,212	28,319	29,041
Value of Land and Buildings \$'000	8,782	9,422	9,579	9,468	9,432
Value of Plant and Machinery \$'000	28,170	30,053	32,323	30,708	28,973
Horse-power of Engines Ordinarily in Use .. H.P.	26,291	25,916	26,998	27,021	27,731

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.

Gas Industry

Introduction

The gas industry in Victoria provides a reticulated gas supply to the Melbourne metropolitan area and to about twenty-five country centres throughout the State. The Melbourne metropolitan area accounts for approximately 90 per cent of all gas sales.

Gas is supplied by the Gas and Fuel Corporation of Victoria, a public authority of the State, and three privately owned public companies, The Colonial Gas Association Ltd, The Geelong Gas Co, and The Gas Supply Company Ltd. Consumer and sales statistics for the individual undertakings for the year ended 30 June 1968 are set out in the following table :

VICTORIA—CONSUMER AND GAS SALES

Undertaking	Consumers at 30 June 1968	Sales Year Ended 30 June 1968
Gas and Fuel Corporation of Victoria	424,359	95.9
The Colonial Gas Association Ltd	83,133	15.4
The Geelong Gas Company	22,244	3.8
The Gas Supply Company Ltd	17,266	6.5
Total	547,002	121.6

Gas and Fuel Corporation of Victoria

The Gas and Fuel Corporation of Victoria came into being by Act of Parliament in 1950. It was formed by the merger of the Metropolitan and Brighton Gas Companies which supplied gas to adjoining areas. The privately held shares in the two companies were exchanged for fully paid up preference shares in the Gas and Fuel Corporation and the State Government of Victoria invested \$8m which was held as ordinary shares in the Corporation. Three directors are appointed by the preference shareholders and the chairman and three other directors are appointed by the Government.

The Corporation was originally formed to make possible the use of the vast resources of brown coal in the Latrobe Valley for town gas production. Its duties include, among other things, the duty of encouraging and promoting the use of gas and the task of advising the Government on the steps necessary to secure a safe, economical and effective supply of gas in Victoria.

The Lurgi high pressure gasification plant was erected on the brown coal field at Morwell between 1951 and 1956 and came into operation in 1956. It now produces some 34 mill. therms of town gas each year from brown coal briquettes.

Changes in raw material availability and parallel development of new gas making processes have led to considerable diversification in the methods of gas production over the years. The Corporation has progressively introduced new gasification processes making use of new feedstocks to achieve minimum production costs.

Changes in the production pattern of types of gases during the last fifteen years appear in previous issues of the *Victorian Year Book*.

- (1) Refinery gases and L.P.G. have become most important and in 1967-68 accounted for 36.1 per cent or 37.5 mill. therms (including 7.2 mill. therms liquefied petroleum gases directly supplied to customers).
- (2) Lurgi gas from the Morwell Lurgi pressure gasification plant was the second most important gas and accounted for 32.5 per cent or 33.7 mill. therms.
- (3) Oil gas in 1967-68 accounted for 20.7 mill. therms or 19.9 per cent of all gases. The total output of gas by the Corporation was 103.8 mill. therms.
- (4) Black coal gas and water gas production declined during 1967-68 to 9.0 per cent and 2.5 per cent of all gas made (9.3 and 2.6 mill. therms).

The Corporation's metropolitan distribution system, which includes supply to the Mornington Peninsula, now covers an area of approximately 235 sq miles. Gas is also supplied to the country centres of Bendigo, Castlemaine, Kyneton, Morwell, Traralgar, and Traralgon. At 30 June 1968, the Corporation was supplying 424,359 consumers through a system involving approximately 4,433 miles of main.

Initial deliveries of natural gas to Melbourne commenced in March 1969. This gas comes from fields in the offshore Gippsland Basin.

Transmission of natural gas from the outlet at the Esso-B.H.P. treatment plant at Dutson to the Corporation's city gate at Dandenong is the responsibility of the Victorian Pipelines Commission. The Corporation has been appointed the Commission's consultant for the design and construction of the Dutson-Dandenong pipeline, the metering station at Dutson, and the city gate stations at Dandenong and points where the gas passes to other gas distributors. Construction of the 30 inch diameter high pressure transmission pipeline commenced in February 1968, and was completed in January 1969.

The Corporation will transport gas from the city gate at Dandenong through its high pressure trunk distribution system. In addition to meeting its own distribution requirements, the Corporation will use this system to carry gas, on behalf of the Victorian Pipelines Commission, to the city gate stations of other distributors. A major feature of the design of the trunk distribution system is a high pressure ring main which will operate at pressures up to 400 psi. This ring main consists of a 51 mile long 18 inch diameter northern loop running between Dandenong, Doncaster, Keilor, North Melbourne, and West Melbourne, which will be joined by a 23 mile 30 inch diameter loop between Dandenong and West Melbourne.

The Corporation's conversion operation will take place in two stages. The first or pre-work stage commenced on 8 April 1968, and will continue after the final conversion operation commenced in March 1969. International Gas and Power Engineers Pty Ltd will carry out the conversion on the Corporation's behalf working with the Corporation's conversion division. The latter was established to undertake the task of planning and administering the actual conversion of consumers' appliances to natural gas.

Before the introduction of natural gas, the Corporation's entire metropolitan distribution system will be divided into sections, each containing approximately 3,000 consumers. Valves will be inserted in the existing mains to allow each section to be isolated from its neighbours and fed with natural gas at the time of conversion. Over the nineteen months from March 1969 to September 1970 the conversion contractor will convert approximately one million domestic, industrial, and commercial appliances on the premises of the Corporation's consumers. Two sections of approximately 3,000 consumers will be converted each week and inconvenience to consumers will be minimised.

The availability of natural gas is expected to result in significant growth in domestic and commercial gas usage. However, estimates indicate that some 75 per cent of the potential market for this fuel lies in the industrial sphere. Natural gas will probably have a major impact on the brick and tile, food processing, textile, metal and chemical industries, and at the same time is expected to offer considerable advantages as a fuel in all industrial and commercial steam raising installations.

Colonial Gas Association Ltd

The Colonial Gas Association Ltd was incorporated in 1888. It supplies gas in the Footscray and Box Hill areas of Melbourne and in the country centres of Benalla, Horsham, Seymour, Shepparton, and Wangaratta.

Until 1959, the Association's gas works operated with conventional carbonisation methods to produce gas from black coal imported from New South Wales. Between 1959 and 1963 its country undertakings were modified to operate on tempered liquefied petroleum gas and, at the same time, liquefied petroleum gas became significant feedstock in its metropolitan gas undertakings.

At 30 June 1968, the Association was supplying gas to 83,133 consumers in Victoria (77,449 in the Melbourne metropolitan area) through approximately 1,320 miles of main. A total of 17.5 mill. therms of gas was issued during 1967-68. The Association planned to convert appliances in its eastern area of supply to natural gas in the period April to July 1969 whilst conversion in the western area was to be carried out from August to December 1969.

Geelong Gas Company

The Geelong Gas Company was incorporated by Victorian Act of Parliament in 1858. At 30 June 1968, it was supplying manufactured gas to 22,244 consumers in the Geelong area through a mains system approximately 315 miles in length. In the year ended 30 June 1968, the Company issued some 4.1 mill. therms of town gas, the major proportion of which was produced from refinery products in a catalytic reforming plant.

The Company has contracted to purchase natural gas and has established the basis of supplying natural gas to the large industrial consumers within its franchise area. When the necessary facilities to transport gas to the Geelong city gate have been installed by the Victorian Pipelines Commission the Company plans to convert consumers' appliances and distribute natural gas throughout its franchise area.

Gas Supply Company Ltd

The Gas Supply Co. Ltd was incorporated in Victoria in 1926 and operates gas undertakings in Victoria, New South Wales, and Queensland. At the present time the company provides a reticulated gas service in the Victorian towns of Ararat, Bacchus Marsh, Ballarat, Colac, Hamilton, Portland, Queenscliff, Sale, Stawell, Warrnambool, and Wodonga.

Originally, all the gas supplied in these areas was manufactured from coal, but following production of liquefied petroleum gas by local refineries all plants were rebuilt to supply either reformed or tempered liquefied petroleum gas. A total of 7.4 mill. therms of gas was issued by the Company's Victorian undertakings in 1967-68 through mains systems totalling 371 miles in length.

In 1962, the Company constructed the first tempered liquefied petroleum gas satellite plant in Australia to supply industry. Six such satellite plants have now been built in Victoria. The Company has entered into an agreement to purchase natural gas and plans to distribute this gas in Ballarat when the necessary transmission facilities have been constructed.

Victorian Pipelines Commission

Formation

The Victorian Pipelines Commission, consisting of a full-time chairman and four part-time commissioners, commenced operations on 1 March 1967, under the provisions of the *Victorian Pipelines Commission Act 1966*. The Commission is responsible for the construction, operation, and maintenance of natural gas transmission pipelines in Victoria. It is to act as a common carrier of natural gas, and may also buy and sell natural gas, although it must not retail gas in any area served by the Gas and Fuel Corporation of Victoria, or any other corporation, without the prior consent of the relevant corporation.

Operations

The Commission's initial activity was the construction of the pipeline from the producer's treatment plant at Dutson (near Sale) to Dandenong where it connects with the metropolitan gas distribution network. This pipeline is 108 miles long, 30 inches in diameter and designed for an operating pressure of 1,000 psi. The metering and testing station has been constructed at Dutson and metering and regulating stations constructed at Dandenong, Ringwood, and Footscray, where the gas is delivered by the Commission to the metropolitan distribution systems of the Gas and Fuel Corporation and Colonial Gas Association Ltd.

The energy requirements in provincial centres have been studied to determine the probable extent of the Commission's natural gas pipeline network. The Commission has also completed a preliminary feasibility study on transmission of gas to Geelong, based on estimated gas demand for industrial, commercial, and domestic use. This study included consideration of alternative means of transporting the gas from Dandenong to the western side of Melbourne.

At 30 June 1969, the loan liability of the Commission was \$17,750,000.

Further Reference, 1969

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	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Factories	312	321	315	320	317
Number of Persons Employed ..	32,074	32,672	32,941	33,937	33,304
Salaries and Wages Paid \$'000	79,758	87,213	93,526	100,845	102,865
Value of Power, Fuel, etc., Used \$'000	29,382	30,249	30,760	31,148	31,073
Value of Materials Used \$'000	71,204	66,459	73,290	83,095	78,769
Value of Production .. \$'000	136,458	157,827	170,886	182,778	194,660
Value of Output .. \$'000	237,044	254,535	274,936	297,021	304,503
Value of Land and Buildings \$'000	123,822	128,012	127,764	130,348	122,073
Value of Plant and Machinery \$'000	276,864	304,791	329,368	372,499	331,259

The above table includes 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 1967-68, Government factories absorbed 7.4 per cent of employment; expended 8.3 per cent of salaries and wages; and accumulated 8.1 per cent of the value of production.