

## SECTION XIII.

## MANUFACTURING INDUSTRIES.

## § 1. General.

**1. Industrial Progress.**—The statistics of manufactures in the Commonwealth during recent years shew that many industries have now been permanently established on a secure basis, and also indicate a fairly rapid, though in some cases a somewhat irregular, progress both in regard to the extension of existing industries and the establishment of new ones. The scale on which many manufactories are established in Australia, however, appears small in comparison with those established in older countries of the world; but it should be remembered that owing to the sparseness of its population Australia cannot at present maintain industries on a very extensive scale, and also that until the inauguration of the Commonwealth in 1901 the field was still further limited by intercolonial tariffs.

(i.) *The Gold Discoveries, 1851.* During the period anterior to the gold discoveries (1851) little was done in regard to manufacturing industries in Australia. Such industries as had then been established were chiefly connected with the preparation of food-stuffs, and were to a large extent called into being by the isolated position of the country. It was found that, owing to the comparatively high prices which could be obtained for the products of the pastoral industry, those engaged in such pursuits in Australia could compete successfully in the world's markets. Owing to the sparseness of its population and to the distance of Australia from the world's centres of distribution, there was but little incentive towards any decided progress in agriculture, which was accordingly for many years almost entirely subsidiary to sheep and cattle raising. With the adoption of improved methods of agriculture, however, there were signs of an early extension in the cultivation of wheat, when the discovery of gold in 1851 completely changed the economic aspect in Australia and effected a revolution in all industrial relations. The large towns were practically depleted of their male able-bodied population, and the first effect of the gold rush upon manufacturing industries was disastrous. The supply of labour in many occupations was exhausted, and most branches of industry came to a standstill. There was, however, a rapid change. A decline in the activity of the gold-fields threw many immigrants, whose early lives had been passed in English cities, out of employment. The surplus of labour thus engendered accumulated in Melbourne and a few other large towns, establishing incipient artisan communities. This no doubt intensified the early impulses towards industrial employment. In the State of Victoria, in particular, it was sought to encourage the investment of capital in manufacturing enterprises by the establishment of protective Customs duties. Manufacturing industries were revived on a larger scale than formerly, and the population attracted by the discovery of gold remained in Australia and furnished the labour necessary to operate the factories thus established.

(ii.) *Later Progress.* Soon after the discovery of gold the construction of the first railways (1854) and the re-establishment of regular steamship communication with Europe (1856) helped to encourage the industrial activity which commenced to appear. The States of New South Wales and Victoria, which had recently (1855) received the

benefits of responsible government, soon turned their attention to the settlement of an agricultural population on the land. The Acts which were passed (see Section VI., § 2) had a beneficial effect on the working classes, giving them opportunities for employment not previously open to them, and fostering the manufacturing industries by increasing the measure of primary production. During the following years the various manufacturing industries prospered. The statistics of the States are not sufficiently complete or uniform to enable a statement of the progress of these industries to be given. The following table, however, shewing, so far as returns are available, the number of factories and the number of employees in each State at decennial periods since 1861 and in 1908, will serve to indicate generally the progress which has been made:—

### NUMBER OF FACTORIES AND EMPLOYEES IN EACH STATE, 1861 to 1908.

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
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#### NUMBER OF FACTORIES.

1861	601	531	...	...	...	...	...
1871	1,813	1,740	...	...	...	...	...
1881	2,961	2,488	571†	823†	...	...	...
1891	3,056	3,141	1,328†	996†	175	...	...
1901	3,367	4,003	2,110†	1,335†	662	420*	11,897†
1908	4,453	4,608	1,371	1,243	627	557	12,859

#### NUMBER OF EMPLOYEES.

1861	...	4,395	...	...	...	...	...
1871	13,583	19,569	...	5,629†	...	...	...
1881	31,191	43,209	...	10,995†	...	...	...
1891	50,879	53,525	...	14,099†	...	...	...
1901	66,135	73,063	26,172†	19,283†	12,198	7,466*	204,317†
1908	89,098	93,808	29,200	24,268	12,425	8,727	257,526

\* For 1902. † Not on same basis as other States. ‡ Not on same basis for some of States as in 1908.

Since the inauguration of the Commonwealth, the throwing open of the whole of the Australian markets to the industrial products of each State has facilitated the internal distribution of the products of Australian industry.

**2. Defects in Industrial Statistics.**—A complete statistical account of the growth of the manufacturing industries in Australia unfortunately cannot be given for any lengthy period, owing to the fact that the necessary statistics have not been collected in past years by the several States upon a definite and identical basis. Even in respect of either the definition of a "factory" or (so far as they might be included in related returns) the statistics of persons employed therein, there was formerly no common agreement. The relatively minor place that manufacturing industry held in relation to the total activity of Australia was, perhaps, responsible for the fact that the necessity for uniform method was not earlier recognised.

In 1896 it was agreed, as between Victoria and New South Wales, to adopt a common definition of the term "factory," viz., "any factory, workshop, or mill where four or more persons are employed or power is used." This agreement was adopted for the States generally at the Conference of State Statisticians in 1902, when it was decided, however, that the term "factory" should include also "all establishments, whether making for the trade, wholesale or retail, or for export." It was further agreed that in-

industries should be arranged, as far as possible, under a uniform classification. As a result of the conference of 1902 a higher degree of uniformity in the collection and presentation of industrial statistics was attained in the several States, so that returns upon which anything like a proper comparative study of the development and progress of various manufacturing industries in the Commonwealth may be based date back only as far as the year 1903, when the resolutions of the conference first came to be put into force. All the States did not, however, fall completely into line, and, as may be seen in the succeeding parts of this section, the comparisons afforded by the returns for the years 1903 to 1906, inclusive, are in some cases subject to various limitations. At the conference of statisticians held in Melbourne in 1906 special consideration was given to the methods to be adopted for the collection of statistical information regarding primary and secondary production and industry. A definite classification of industries was adopted, and a set of forms for the collection and compilation of industrial statistics on a definite and uniform basis in each State was agreed upon. The States have not, even yet, fallen entirely into line in collecting and classifying the returns. The particulars for the year 1908 are, however, in more complete co-ordination than those for previous years, and it is hoped that it will be possible to give particulars for future years for the several States in greater detail and on a perfectly uniform basis throughout.

**3. Classification of Manufacturing Industries.**—Under the classification adopted at the Conference of Statisticians held in 1906, factories were placed under nineteen different categories, according to the nature of the industry carried on therein; many of the categories were also subdivided. Where two or more industries are carried on by one proprietor in one building, each industry is, when possible, treated as a separate establishment. The statement given below shows the classification which has been adopted; it must be understood, however, that this classification does not pretend to be exhaustive, but merely serves as a guide for the collection and presentation of statistics in the several States on a definite and uniform basis:—

### CLASSIFICATION OF MANUFACTURING INDUSTRIES.

**CLASS I.—TREATING RAW MATERIALS, ETC.**  
Boiling-down, Tallow Refining, etc.  
Tanneries  
Woolscouring & Fellmong'ring  
Chaff-cutting, etc.

**CLASS II.—OILS AND FAT, ETC.**  
Oil and Grease  
Soap and Candles

**CLASS III.—STONE, CLAY, GLASS, ETC.**  
Bricks and Tiles  
Glass (including Bottles)  
Glass (Ornamental)  
Lime, Plaster, Cement and Asphalt  
Marble, Slate, etc.  
Modelling, etc.  
Pottery and Earthenware

**CLASS IV.—WORKING IN WOOD.**  
Boxes and Cases  
Cooperage  
Joinery  
Saw Mills  
Wood-turning, etc.

**CLASS V.—METAL WORKS, MACHINERY, ETC.**  
Agricultural Implements  
Brass and Copper

Cutlery  
Engineering  
Galvanised Iron-working  
Ironworks and Foundries  
Lead Mills  
Railway Carriages  
Railway and Tramway Work-shops  
Smelting  
Stoves and Ovens  
Tinsmithing  
Wireworking  
Other Metal Works

**CLASS VI.—FOOD AND DRINK, ETC.**

Bacon Curing  
Butter Factories  
Butterine and Margarine  
Cheese Factories  
Condensed Milk  
Meat and Fish Preserving.  
Biscuits  
Confectionery  
Corn-flour, Oatmeal, etc.  
Flour Mills  
Jam and Fruit Canning  
Pickles, Sauces, and Vinegar  
Sugar Mills  
Sugar Refining  
Aerated Waters, Cordials, etc.  
Breweries  
Condiments, Coffee, Spices, etc.  
Distilleries  
Ice and Refrigerating  
Malting  
Tobacco, Cigars, etc.

**CLASS VII.—CLOTHING AND TEXTILE FABRICS.**

Woollen and Tweed Mills  
Boots and Shoes  
Slop Clothing  
Clothing (Tailoring)  
Dressmaking and Millinery—  
Makers' material  
Customers' material  
Dyeworks and Cleaning  
Furriers  
Hats and Caps  
Waterproof and Oilskin  
Shirts, Ties, and Scarfs  
Rope and Cordage  
Tents and Tarpaulins

**CLASS VIII.—BOOKS, PAPER, PRINTING, ETC.**

Electrotyping & Stereotyping  
Paper-making, Paper Boxes, Bags, etc.  
Photo-engraving  
Printing and Binding

**CLASS IX.—MUSICAL INSTRUMENTS, ETC.**

Musical Instruments and Sewing Machines

**CLASS X.—ARMS & EXPLOSIVES**  
Explosives

## CLASSIFICATION OF MANUFACTURING INDUSTRIES.—Continued.

**CLASS XI.—VEHICLES, SADDLERY, HARNESS, ETC.**

Coach and Wagon Building  
Cycles  
Perambulators  
Saddlery, Harness, etc.  
Spokes, etc.

**CLASS XII.—SHIP AND BOAT BUILDING AND REPAIRING.**

Docks and Slips  
Sailmaking  
Ship and Boat Building and Repairing

**CLASS XIII.—FURNITURE, BEDDING, ETC.**

Bedding, Flock, & Upholstery  
Billiard Tables  
Furniture and Cabinet Making  
Picture Frames  
Window Blinds

**CLASS XIV.—DRUGS AND CHEMICALS, ETC.**

Chemicals, Drugs, and Medicines  
Fertilisers  
Paints, Varnishes, and By-products

**CLASS XV.—SURGICAL AND OTHER SCIENTIFIC INSTRUMENTS.**

Surgical, Optical, and other Scientific Instruments

**CLASS XVI.—TIMEPIECES, JEWELLERY, & PLATED WARE.**

Electro-plating  
Manufacturing Jewellery, etc.

**CLASS XVII.—HEAT, LIGHT, AND POWER.**

Coke Works  
Electric Apparatus  
Electric Light and Power  
Gas Works and Kerosene Lamps and Fittings, etc.  
Hydraulic Power

**CLASS XVIII.—LEATHERWARE (N.E.I.)**

Leather Belting, Fancy Leather, Portmanteaux & Bags

**CLASS XIX.—MINOR WARES.**

Basket and Wickerware, Matting, etc.  
Brooms and Brushware  
Rubber Goods  
Toys  
Umbrellas  
Other Industries

## § 2. Number of Manufactories.

1. **General.**—In stating the number of factories in the States of the Commonwealth it is to be remembered that in the collection of statistics, for years prior to 1907, the same basis has not been adopted in each State. In 1906 in Queensland, for example, 689 factories would have been added under the system previously adopted in that State. This would bring the total up to 1993 on the former basis. The factories excluded, however, are those employing only two hands and no power, and the difference in other respects is not material.

In the following table shewing the total number of manufactories in the Commonwealth between the years 1903 and 1908, it should be noted that not only are the results affected by differences of classification, but also that the number of factories from year to year does not unequivocally indicate a change in the position of the industry, since amalgamations may account for part of the reduction of the numbers. Thus in Melbourne a number of breweries have been combined under a single company, and, of the number thus amalgamated, it is intended to keep only three breweries active.

## MANUFACTORIES OF THE COMMONWEALTH, 1903 to 1908.

Year.	N.S.W.	Victoria.	Queensland.	South Aust.	West. Aust.	Tasmania.	C'wealth.
1903 ...	3,476	4,151	2,001*	906*†	586	431	11,551
1904 ...	3,632	4,208	1,909*	906*	672	444	11,771
1905 ...	3,700	4,264	1,911*	985	649	436	11,945
1906 ...	3,861	4,360	1,304	1,012	665	373	11,575
1907 ...	4,432	4,530	1,359	1,086	643	505	12,555
1908 ...	4,453	4,608	1,371	1,243	627	557	12,859

\* Not on same basis as other States. † 1904 results repeated.

(i.) *Classification of Factories in Commonwealth, 1904 to 1908.* The following table shews the total number of factories in the Commonwealth at the end of each year from 1904 to 1908, classified on the basis indicated in § 1, 3, hereof:—

## CLASSIFICATION OF FACTORIES IN THE COMMONWEALTH, 1904 to 1908.

Class of Industry.	1904.	1905.	1906.	1907.	1908.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ....	751	751	742	807	812
II. Treating oils and fats, animal, vegetable, etc. ....	121	112	99	92	97
III. Processes in stone, clay, glass, etc. ....	615	625	610	626	627
IV. Working in wood ....	1,122	1,126	1,119	1,215	1,322
V. Metal works, machinery, etc. ....	1,484	1,528	1,394	1,504	1,548
VI. Connected with food and drink, etc. ....	2,222	2,253	2,177	2,250	2,253
VII. Clothing and textile fabrics, etc. ....	2,236	2,315	2,335	2,661	2,681
VIII. Books, paper, printing and engraving ....	910	907	919	964	993
IX. Musical instruments, etc. ....	9	10	10	16	17
X. Arms and explosives ....	10	8	8	8	8
XI. Vehicles and fittings, saddlery and harness, etc. ....	1,060	1,087	941	1,071	1,105
XII. Ship and boat building and repairing ....	90	95	83	70	76
XIII. Furniture, bedding, and upholstery ....	454	441	418	470	483
XIV. Drugs, chemicals, and by-products ....	163	150	156	144	153
XV. Surgical and other scientific instruments ....	23	23	26	26	28
XVI. Jewellery, timepieces, and platedware ....	114	110	121	142	153
XVII. Heat, light, and power ....	251	263	272	309	313
XVIII. Leatherware, n.e.i. ....	36	33	41	45	54
XIX. Minor wares, n.e.i. ....	100	108	104	135	136
Total ... ..	11,771	11,945	11,575	12,555	12,859

For the purpose of the returns in the above table the definition of a factory adopted at the Conference of Statisticians in 1902 (see § 1, 2, hereof) is used, viz., "Any factory, workshop or mill where four or more persons are employed or power is used." The total increase in the number of factories according to this table from 1904 to 1908 was 1088, or an average of 272 a year. The state of the manufacturing industries throughout Australia cannot, however, be gauged from a mere enumeration of the number of factories. Some of the factories concerned were practically in their infancy, employing but few hands, while others were developed on a large scale. Also amalgamations may account for a reduction in the numbers.

(ii.) *Classification of Factories in each State, 1908.* The following table shews the number of factories in each State of the Commonwealth at the end of the year 1908, classified according to the nature of the industry. (See classification given in § 1, 3, hereof):—

## CLASSIFICATION OF FACTORIES IN EACH STATE, 1908.

Class of Industry.	N.S.W.	Vic.	Q'land.	S. Aus.	W. Aus.	Tas.	Cwlth.
I. Treating raw material, product of agricul. and pastoral pursuits, etc. ....	278	320	46	130	20	18	812
II. Treating oils and fats, animal, vegetable, etc. ....	37	23	16	14	3	4	97
III. Processes in stone, clay, glass, etc. ....	261	208	33	62	37	26	627
IV. Working in wood ....	543	303	227	87	58	104	1,322
V. Metal works, machinery, etc. ....	423	632	209	167	67	50	1,548
VI. Connected with food and drink, etc. ....	744	649	360	255	153	92	2,253
VII. Clothing and textile fabrics, etc. ....	899	1,238	100	216	111	117	2,681
VIII. Books, paper, printing & engraving ....	374	348	127	67	56	21	993
IX. Musical instruments, etc. ....	13	3	...	1	...	...	17
X. Arms and explosives ....	3	5	...	...	...	...	8
XI. Vehicles and fittings, saddlery and harness, etc. ....	334	390	127	135	51	68	1,105
XII. Ship and boat building & repairing ....	34	11	12	7	3	9	76
XIII. Furniture, bedding, and upholstery ....	147	196	57	41	25	17	483
XIV. Drugs, chemicals, and by-products ....	65	66	3	11	8	...	153
XV. Surgical and other scientific instruments ....	9	12	4	2	1	...	28
XVI. Jewellery, timepieces, & platedware ....	44	59	14	15	3	18	153
XVII. Heat, light, and power ....	173	70	25	15	21	9	313
XVIII. Leatherware, n.e.i. ....	18	28	2	4	2	...	54
XIX. Minor wares, n.e.i. ....	54	47	9	14	8	4	136
Total ... ..	4,453	4,608	1,371	1,243	627	557	12,859

**2. Use of Mechanical Power.**—The principal motive power is steam, but the chief towns possess electric power stations owned either by the Government, or by public bodies or private companies. From these many manufactories find it convenient to derive their motive power. The distinction between factories employing steam, gas, oil, or electric machinery, and those employing either other power or none at all, affords an opportunity of ascertaining how many factories there are in the ordinary sense of the word, that is, establishments which are not merely workshops. For instance, in the Victorian clothing trade, out of 353 factories only 61 employ mechanical power, the balance may consequently be regarded merely as workshops.

The following table shews the number of factories in which machinery is worked by steam, gas, oil, or electricity, and the horse-power of engines or motors used, in each State and in the Commonwealth during the year 1908 :—

**UTILISATION OF MECHANICAL POWER IN FACTORIES IN EACH STATE, 1908.**

State.	Number of Establishments.			Actual Horse-power of Engines Used.				
	Using Machinery worked by Steam Gas, Oil, or Electricity	Others.	Total.	Steam.	Gas.	Oil.	Electricity.	Total.
	No.	No.	No.	H.P.	H.P.	H.P.	H.P.	H.P.
New South Wales	2,907	1,546	4,453	80,884	6,578	483	10,937	98,882
Victoria ...	2,815.	1,793	4,608	47,008	5,740	1,177	5,020	58,945
Queensland ...	985	386	1,371	26,464	1,626	379	3,193	31,562
South Australia ...	838	405	1,243	13,377	2,491	1,387	1,723	18,978
Western Australia	443	184	627	17,822	252	724	2,633	21,431
Tasmania	299	258	557	9,151	116	196	3,054	12,517
Commonwealth	8,287	4,572	12,859	194,706	16,803	4,346	26,560	242,415

The percentage for the Commonwealth of the number of establishments using machinery worked by steam, gas, oil, or electricity on the total number of establishments is 55.17. The total average horse-power in use was 242,415, of which engines in which the motive power was steam formed 80.32 per cent. ; gas, 6.93 per cent. ; oil, 1.79 per cent. ; and electricity, 10.96 per cent.

**§ 3. Number Employed in Australian Factories.**

**1. Total Number Employed.**—Each person employed in and about a factory, in whatever capacity, is now included as a factory employee, consequently every proprietor who works in his business is counted as an employee, and all "outworkers" (see paragraph 6 hereinafter) are also included. The individuals embraced may be classed under the following heads, viz. :—(i.) Working proprietors; (ii.) managers and overseers; (iii.) accountants and clerks; (iv.) enginedrivers and firemen; (v.) skilled and unskilled workers in the factories, mills, or workshops; (vi.) carters and messengers; and (vii.) others.

(i.) *Average Numbers Employed, 1904 to 1908.* The following table shews, for each year from 1904 to 1908 inclusive, (a) the average numbers of persons (including both sexes and all ages) employed in manufacturing industries in each State; (b) the percentage of the numbers employed in each State on the total numbers employed in the Commonwealth; and (c) the numbers employed per ten thousand of the mean population in each State and the Commonwealth :—

**NUMBER OF PERSONS EMPLOYED IN MANUFACTURING INDUSTRIES,  
1904 TO 1908.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
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**AVERAGE NUMBERS EMPLOYED.**

1904	...	68,036	76,287	20,058	18,049	12,685	8,224	203,339
1905	...	72,175	80,235	21,705	19,273	12,733	8,468	214,589
1906	...	77,822	85,229	23,961	20,153	12,897	8,498	228,560
1907	...	86,467	90,903	27,954	22,701	12,607	8,209	248,841
1908	...	89,098	93,808	29,200	24,268	12,425	8,727	257,526

**PERCENTAGE OF AVERAGE NUMBERS ON TOTAL EMPLOYED.**

1904	...	33.44	37.49	9.86	8.94	6.23	4.04	100.00
1905	...	33.62	37.37	10.11	9.03	5.93	3.94	100.00
1906	...	34.03	37.26	10.47	8.88	5.64	3.72	100.00
1907	...	34.75	36.53	11.23	9.12	5.07	3.80	100.00
1908	...	34.60	36.42	11.34	9.42	4.83	3.39	100.00

**AVERAGE NUMBERS EMPLOYED PER 10,000 OF MEAN POPULATION.**

1904	...	472	632	386*	492	536	460	515
1905	...	489	662	413*	518	509	472	534
1906	...	515	696	450	534	496	475	560
1907	...	558	734	519	589	481	458	599
1908	...	563	745	531	609	469	480	608

\* Inclusive of factories with two persons.

(ii.) *Rates of Increase, 1904 to 1908.* From the preceding table it may be seen that, except in Western Australia, there has been a general increase in the average number of persons employed in manufacturing industries during the period referred to. The following table shows the percentage of increase during each year on the average number for the preceding year:—

**PERCENTAGES OF INCREASE IN AVERAGE NUMBER EMPLOYED, 1904 to 1908.**

Years.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.	
1903-4	...	3.66	4.18	4.15	...	7.24	5.64	3.84
1904-5	...	6.08	5.18	8.21	6.67	0.38	3.61	5.52
1905-6	...	7.82	6.22	10.38	4.70	1.29	0.45	6.52
1906-7	...	11.11	6.66	16.67	11.80	— 2.25	— 3.49	8.80
1907-8	...	3.04	2.75	4.46	6.90	— 1.44	6.31	3.49

**2. Classification of Numbers Employed in Factories in the Commonwealth, 1904 to 1908.**—The following table gives a classification of the average numbers of persons employed in factories of different descriptions in the Commonwealth during the years 1904 to 1908 inclusive:—

**AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES IN  
COMMONWEALTH, 1904 to 1908.**

Class of Industry.	1904.	1905.	1906.*	1907.	1908.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ....	7,182	7,460	7,809	8,956	9,042
II. Treating oils and fats, animal, vegetable, etc. ....	1,601	1,717	1,760	1,727	1,735
III. Processes in stone, clay, glass, etc. ....	7,907	8,285	8,779	8,909	9,420
IV. Working in wood ....	16,285	16,938	18,347	19,457	21,310
V. Metal works, machinery, etc. ....	37,164	40,061	43,431	47,060	48,505
VI. Connected with food and drink, etc. ....	33,033	35,026	36,720	40,228	40,652
VII. Clothing and textile fabrics, etc. ....	56,269	59,095	62,594	68,373	70,075
VIII. Books, paper, printing and engraving ....	18,167	18,441	19,565	20,733	21,448
IX. Musical instruments, etc. ....	282	384	386	430	444
X. Arms and explosives ....	302	280	347	323	339
XI. Vehicles and fittings, saddlery and harness, etc. ....	8,161	8,780	9,027	10,288	10,784
XII. Ship and boat building and repairing ....	1,853	1,964	2,124	2,049	2,278
XIII. Furniture, bedding and upholstery ....	5,214	5,422	5,890	6,819	7,117
XIV. Drugs, chemicals and by-products ....	2,153	2,373	2,600	2,895	3,086
XV. Surgical and other scientific instruments ....	142	146	178	170	176
XVI. Jewellery, timepieces, and platedware ....	1,239	1,237	1,397	1,700	1,771
XVII. Heat, light, and power ....	3,992	4,443	4,834	5,372	5,786
XVIII. Leatherware, n.e.i. ....	557	592	731	788	893
XIX. Minor wares, n.e.i. ....	1,836	1,945	2,041	2,564	2,665
<b>Total ... ..</b>	<b>203,339</b>	<b>214,589</b>	<b>228,560</b>	<b>248,841</b>	<b>257,526</b>

\* Excluding Queensland Government Railways. For preceding years the Queensland statistics include all establishments where two or more hands were employed except Government Railway workshops.

The total increase in the average number of hands employed from 1904 to 1908 was 54,187, or an annual average of 13,547. The increase was general throughout all the various classes of industry. The greatest development took place in Classes VII. and V., the increases being 13,806 and 11,341 respectively.

**3. Classification of Numbers Employed in each State, according to Class of Industry, 1908.**—The following table shews a similar classification of employees in manufacturing industries in each State for the year 1908:—

**AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES IN EACH  
STATE, 1908.**

Class of Industry.	N.S.W.	Vic.	Q'land.	S. Aus.	W. Aus.	Tas.	C'wlth.
I. Treating raw material, product of agricul. and pastoral pursuits, etc. ....	3,497	3,322	721	1,207	165	130	9,042
II. Treating oils and fats, animal, vegetable, etc. ....	662	586	159	225	50	53	1,735
III. Processes in stone, clay, glass, etc. ....	3,888	3,577	411	911	439	194	9,420
IV. Working in wood ....	6,300	4,817	3,512	1,267	3,799	1,615	21,310
V. Metal works, machinery, etc. ....	18,627	13,574	5,223	6,913	2,083	2,085	48,505
VI. Connected with food and drink, etc. ....	12,095	13,255	9,235	3,272	1,412	1,383	40,652
VII. Clothing and textile fabrics, etc. ....	22,406	34,278	4,732	4,962	2,112	1,585	70,075
VIII. Books, paper, printing & engraving ....	7,922	7,813	2,284	1,715	1,055	659	21,448
IX. Musical instruments, etc. ....	389	36	...	19	...	...	444
X. Arms and explosives ....	25	314	...	...	...	...	339
XI. Vehicles and fittings, saddlery, and harness, etc. ....	3,532	3,786	1,139	1,463	466	398	10,784
XII. Ship and boat building & repairing ....	1,902	114	94	91	16	61	2,278
XIII. Furniture, bedding, and upholstery ....	2,703	2,354	837	799	283	141	7,117
XIV. Drugs, chemicals, and by-products ....	1,129	1,367	54	474	62	...	3,086
XV. Surgical and other scientific instruments ....	85	58	17	8	8	...	176
XVI. Jewellery, timepieces, & platedware ....	579	762	149	170	29	82	1,771
XVII. Heat, light, and power ....	2,236	1,962	447	510	336	295	5,786
XVIII. Leatherware, n.e.i. ....	316	470	57	32	18	...	893
XIX. Minor wares, n.e.i. ....	805	1,363	129	230	92	46	2,665
<b>Total ... ..</b>	<b>89,098</b>	<b>93,808</b>	<b>29,200</b>	<b>24,268</b>	<b>12,425</b>	<b>8,727</b>	<b>257,526</b>



The largest number employed in any particular class in the Commonwealth was in Class VII., in which there were 70,075 employes, or 27.21 per cent. on the whole number. The class affording employment to the smallest number of hands was Class XV., in which there were 176 hands, or 0.07 per cent. on the total number of employes. Classes VI., VII., and VIII. comprise those industries in which female labour is largely employed. (See § 4 hereof.)

4. **Classification of Numbers Employed in each State according to Nature of Employment, 1908.**—In the following table the average numbers of persons employed in each State during the year 1908 are classified according to the nature of their employment:—

**AVERAGE NUMBER OF PERSONS EMPLOYED IN EACH STATE, CLASSIFIED  
ACCORDING TO NATURE OF EMPLOYMENT, 1908.**

State.	Average Number of Persons Employed.						Total.
	Working Pro-prietors.	Managers and Overseers	Account-ants and Clerks.	Engine-drivers and Firemen.	Workers, Skilled & Unskilled in Factory Mill or Workshop	Carters, Messen-gers and Others.	
New South Wales ...	3,894	2,910	3,010	2,859	75,261	1,664	89,098
Victoria ...	4,685	2,610	2,939	1,568	78,048	3,958	93,808
Queensland ...	1,199	1,047	1,175	1,234	22,262	2,283	29,200
South Australia ...	1,229	580	815	493	20,260	891	24,268
Western Australia ...	488	452	485	381	9,689	930	12,425
Tasmania ...	*	848	348	306	6,824	401	8,727
Commonwealth ...	11,495	8,447	8,772	6,341	212,344	10,127	257,526

\* Included in Managers and Overseers.

5. **Classification of Factories according to Number of Hands Employed, 1908.**—The number of factories in each State classified according to the numbers of hands employed, and the total numbers of hands employed in each class of factory, are shewn in the following table:—

**CLASSIFICATION OF FACTORIES ACCORDING TO NUMBER OF HANDS EMPLOYED,  
1908.**

No. of Persons Employed in each Factory.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.*	C'wealth.
NUMBER OF FACTORIES.							
Under 4 ...	665	656	183	148	109	182	1,943
4 ...	455	545	161	124	56	53	1,394
5 to 10 ...	1,655	1,697	472	503	216	151	4,694
11 to 20 ...	812	823	239	240	125	73	2,312
21 to 50 ...	540	545	179	142	73	66	1,545
51 to 100 ...	181	195	84	51	33	14	558
Over 100 ...	145	147	53	35	15	18	413
Total ...	4,453	4,608	1,371	1,243	627	557	12,859

\* Partly estimated.

## CLASSIFICATION OF FACTORIES ACCORDING TO NUMBER OF HANDS—Continued.

No. of Persons Employed in each Factory.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.*	C'wealth.
TOTAL AVERAGE NUMBER OF HANDS EMPLOYED.							
Under 4 ...	1,551	1,572	441	364	236	367	4,531
4 ...	1,820	2,180	644	496	224	204	5,568
5 to 10 ...	11,452	11,870	3,209	3,483	1,514	1,035	32,563
11 to 20 ...	11,817	12,119	3,466	3,508	1,833	1,033	33,776
21 to 50 ...	17,020	16,818	5,727	4,523	2,307	1,998	48,393
51 to 100 ...	12,601	13,721	6,132	3,577	2,087	926	39,044
Over 100 ...	32,837	35,528	9,581	8,317	4,224	3,164	93,651
Total ...	89,098	93,808	29,200	24,268	12,425	8,727	257,526

\* Partly estimated.

6. **Outworkers.**—The term “outworker” or “homeworker” has acquired a special meaning in connection with manufacturing industries, and technically embraces only those to whom work is given out by factory owners to be wrought upon in their own homes. Individuals working for themselves are not included. The following table gives particulars, so far as available, of the average number of outworkers connected with factories in each State during each year from 1904 to 1908 inclusive :—

## NUMBER OF OUTWORKERS CONNECTED WITH FACTORIES, 1904 to 1908.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
1904 ...	439	991	*	*	*	42	*
1905 ...	374	1,186	*	*	*	86	*
1906 ...	501	1,431	*	*	*	57	*
1907 ...	592	1,429	264	66	18	60	2,429
1908 ...	596	1,457	171	74	11	11	2,320

\* Not available.

Although the figures from 1904 to 1908, for the States of New South Wales and Victoria, shew generally a fairly steady and rapid increase in the number of outworkers, they are considerably smaller than the figures for early years. For example, in 1897 there were 2382 outworkers registered in Victoria in the clothing trades, while the number of employés in factories for those trades was 14,293. The corresponding figures for the same year in New South Wales were 546 outworkers and 8602 factory employés. Thus it will be seen that the number of employés in factories has largely increased, while the increase in the number of outworkers has been relatively small.

The Factories Acts in each State contain provisions regulating the employment of outworkers. Generally records of out-work must be kept by factory proprietors, specifying the names and remuneration of workers, and stating the places where the work is done. Further particulars are given in a later part of this book. (See Section XXVII. *Industrial Unionism and Industrial Legislation.*)

## § 4. Sex Distribution in Factories.

1. **Employment of Females in Factories.**—In all the States the employment of female labour in factories is now regulated by Act of Parliament. In Victoria the first Act dealing with the subject was passed in the year 1873, and provided that no female should be employed for more than eight hours a day without the permission of the Chief Secretary. The number of working hours for women is now limited to forty-eight per

week in all the States except Tasmania, where the maximum number of working hours is ten per day. The maximum periods of continuous labour, and the intervals of cessation therefrom, are also prescribed by the several Acts. Further reference is made to the restrictions regarding the employment of females in a later part of this book. (See Section XXVII. *Industrial Unionism and Industrial Legislation.*)

2. **Distribution of Employes according to Sex, 1904 to 1908.**—In Victoria the ratio of the average number of females to the average number of males employed in factories during the year 1886 was about one to five. Five years later (1891) it was somewhat less, but in 1896 had increased to about one woman to three men, and at present is about one to two. The employment of women is, however, largely confined to a few trades.

In New South Wales the male workers were about seven times the number of females in 1886; in 1891 the proportion had become six to one; in 1903 about four to one; and is now rather higher than three to one. The great prosperity in clothing and textile industries is one of the main causes of increase in female employment. Large numbers are occupied in tailoring and dress making, in wholesale manufactories, in tobacco factories, and preserving works. Certain trades are specifically known as women's trades, such for example as clothing and textile trades, preparation of food, book-binding, and lighter work connected with the drug trade, such for example as wrapping. In common with commercial establishments, a considerable number of women are also employed as clerks and typewriters in factories.

(i.) *Average Numbers of Males and Females Employed, 1904 to 1908.* The following table shews the average numbers of male and female employes, so far as available, in factories in each State from 1904 to 1908:—

**AVERAGE NUMBER OF MALES AND FEMALES EMPLOYED IN MANUFACTURING INDUSTRIES, 1904 to 1908.**

State.	1904.	1905.	1906.	1907.	1908.
<b>MALES.</b>					
New South Wales ...	53,457	56,111	59,979	65,953	67,616
Victoria ...	50,554	52,925	56,339	59,691	60,873
Queensland ...	*16,758	*18,105	*19,961	23,191	24,639
South Anstralia ...	14,408	15,832	16,451	18,423	19,672
Western Australia ...	11,078	11,091	11,015	10,667	10,453
Tasmania ...	6,880	7,105	7,220	6,972	7,334
Commonwealth ...	153,135	161,169	170,965	184,897	190,587
<b>FEMALES.</b>					
New South Wales ...	14,579	16,064	17,843	20,514	21,482
Victoria ...	25,733	27,310	28,890	31,212	32,935
Queensland ...	*3,300	*3,600	*4,000	4,763	4,561
South Australia ...	3,641	3,441	3,702	4,278	4,596
Western Australia ...	1,607	1,642	1,882	1,940	1,972
Tasmania ...	1,344	1,363	1,278	1,237	1,393
Commonwealth ...	50,204	53,420	57,595	63,944	66,939

\* Estimated.

It may be seen that during the years specified there has been for the whole Commonwealth a total increase in the number of male employes of 37,452, or an annual average of 9363, and in the number of female employes a total increase of 16,735, or an annual average of 4184.

(ii.) *Average Numbers of Males and Females Employed per 10,000 of Mean Population, 1904 to 1908.* The following table shews the average numbers of male and female employes per 10,000 of the mean male and female population respectively in each State from 1904 to 1908 :—

**AVERAGE NUMBERS OF MALE AND FEMALE EMPLOYES PER 10,000 OF MEAN  
MALE AND FEMALE POPULATION RESPECTIVELY, 1904 to 1908.**

State.	1904.	1905.	1906.	1907.	1908.
MALES.					
New South Wales ...	701	717	746	796	801
Victoria ...	835	871	919	963	969
Queensland ...	* 582	* 624	* 682	789	823
South Australia ...	762	815	821	902	930
Western Australia ...	789	752	724	696	679
Tasmania ...	739	762	775	753	785
Commonwealth ...	732	755	787	844	854
FEMALES.					
New South Wales ...	214	232	253	284	292
Victoria ...	426	450	471	503	522
Queensland ...	* 141	* 151	* 165	194	182
South Australia ...	207	210	213	235	246
Western Australia ...	161	162	177	178	177
Tasmania ...	155	158	146	143	157
Commonwealth ...	265	278	296	325	334

\* Estimated.

**3. Rate of Increase for each Sex.**—The percentages of annual increase in the average numbers of males and females employed in manufacturing industries, based upon the figures for the preceding year, are shewn below for the whole Commonwealth, for the years 1904 to 1908 :—

**PERCENTAGES OF ANNUAL INCREASE IN AVERAGE NUMBERS OF MALE AND  
FEMALE EMPLOYES, 1904 to 1908.**

Particulars.	1903-4.	1904-5.	1905-6.	1906-7.	1907-8.
Males... %	2.60	5.25	6.08	8.15	3.08
Females ... %	7.82	6.40	7.81	11.02	4.68

The above table shews that there has been relatively a larger increase in the number of female than in the number of male employes. This matter is referred to further in the following paragraph hereof. The subjoined statement shews the percentages of annual increase in each State during the last year (1907-8) :—

**PERCENTAGES OF INCREASE IN AVERAGE NUMBERS OF MALE AND FEMALE EMPLOYEES, 1907-8.\***

Particulars.			N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Males	...	%	2.52	1.98	6.24	6.78	—2.01	5.19	3.08
Females	...	%	4.72	5.52	—4.24	7.43	1.03	12.61	4.68

\* The negative sign indicates a decrease.

**4. Increasing Ratio of Female Employment in Factories.**—The increasing extent to which females are employed in the factories of the Commonwealth may perhaps be best shewn by giving the number of females to every 100 male employes for each year and for each State:—

**NUMBER OF FEMALES PER 100 MALES IN AUSTRALIAN FACTORIES, 1904 to 1908.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
1904	27.27	50.90	*19.89	26.07	14.51	19.53	32.78
1905	28.63	51.60	*19.89	22.35	14.80	19.46	33.15
1906	29.75	51.28	*20.04	23.31	17.09	17.63	33.69
1907	31.10	52.29	20.53	23.22	18.19	17.74	34.58
1908	31.77	54.10	18.51	23.36	18.86	18.99	35.12

\* Estimated.

Although this table shews that from 1904 to 1908 there has been an increase in the percentage specified from 32.78 to 35.12, the tables given in the next succeeding paragraph shew that this increase has not been due so much to the incursion of female labour into what may be termed men's trades, as to the activity in those trades in which women are ordinarily engaged, more especially in dressmaking, millinery, etc.

**5. Employment of Females in Particular Industries, 1908.**—The employment of women in manufacturing industries in Australia is largely confined to a few trades, of which the more important are comprised in Classes VI., VII., and VIII. (see § 1, 3, above), viz., in connection with food, drink, etc., clothing and textile fabrics, and books, paper, printing, etc. The following table shews the average number of females employed in each of these classes during the year 1908 in each State, and also shews the percentages of the average numbers so employed on the total average numbers of females employed in all classes of factories:—

**AVERAGE NUMBERS OF FEMALES EMPLOYED IN PARTICULAR INDUSTRIES AND PERCENTAGES ON AVERAGE TOTAL EMPLOYED, 1908.**

Class.	N.S.W.	Vict.	Q'land.	S. Aust.	W.Aust.	Tas.	Cwlt.
<b>AVERAGE NUMBERS.</b>							
VI. Food, drink, etc. ....	2,753	3,588	589	465	124	220	7,739
VII. Clothing and textile fabrics ....	15,429	25,628	3,373	3,533	1,628	1,048	50,639
VIII. Books, paper, printing, etc. ....	1,845	2,030	389	455	145	64	4,928
Total ... ..	20,027	31,246	4,351	4,453	1,897	1,332	63,306
<b>PERCENTAGES ON TOTAL AVERAGE FEMALE EMPLOYEES.</b>							
VI. Food, drink, etc. ....	12.81	10.89	12.91	10.12	6.29	15.79	11.56
VII. Clothing and textile fabrics ....	71.82	77.82	73.97	76.89	82.56	75.24	75.65
VIII. Books, paper, printing, etc. ....	8.59	6.17	8.52	9.90	7.35	4.59	7.36
Total ... ..	93.22	94.88	95.40	96.91	96.20	95.62	94.57

It will be seen that by far the greater part of the total number of females employed in factories work in one or other of the three classes of industry indicated, Class VII. being the most important.

The classification of the employment of women in Class VII. in the two States of largest population is of interest. The following table shews, also, for the sake of comparison, the number of males employed:—

**NEW SOUTH WALES AND VICTORIA.—EMPLOYMENT IN CLASS VII., 1908.**

Class VII.	New South Wales.		Victoria.	
	Males.	Females.	Males.	Females.
Woollen and tweed mills ... ..	210	245	813	944
Boots and shoes ... ..	3,048	1,602	4,109	2,239
Slop clothing ... ..	2,771	6,543	1,984	6,584
Clothing (tailoring) ... ..				
Dressmaking and millinery ... ..	59	4,397	196	8,767
Dyeworks and cleaning ... ..	38	35	47	77
Furriers ... ..	18	22	30	65
Hats and caps ... ..	361	860	594	926
Waterproof and oilskin ... ..	28	126	44	128
Shirts, ties, and scarves ... ..	114	1,399	288	5,461
Rope and cordage ... ..	165	3	454	277
Tents and tarpaulins ... ..	165	197	83	44
Other ... ..	...	...	8	116
Total ... ..	6,977	15,429	8,650	25,628

## § 5. Child Labour in Factories.

**1. Conditions of Child Labour.**—The employment of young persons in factories in each State of the Commonwealth is regulated by Acts of Parliament in a similar manner to the employment of female labour. Excepting under special circumstances, children under a certain age may not be employed at all in factories. The minimum age in New South Wales, Queensland, and Western Australia is fourteen, and in the other States is thirteen years. Other restrictions on the employment of young persons in factories are more particularly referred to in a later part of this book. (See Section XXVII. *Industrial Unionism and Industrial Legislation*.) The general object of the restrictions imposed is to assure that a proper period shall be devoted to primary education, and that the early years of toil shall not exhaust the worker before the attainment of full growth.

**2. Average Number of Children Employed in Factories, 1904 to 1908.**—In the statistical compilations of the various States the term “child” may be taken to denote any person under sixteen years of age, excepting in New South Wales, where it denoted, for years prior to 1907, any person under fifteen. The following table shews the average number of children of each sex employed in manufacturing industries in each State during the year 1908. It will be seen that the Commonwealth figures for years prior to 1907 are incomplete. There have been increases in the average number employed in all the States for which returns are available; in Victoria, however, there has only been a very small increase during the period under review. The largest increase was in New South Wales, where the numbers rose from 1200 in 1904 to 4334 in 1908, a total increase of 3134, or an annual average of 784. These figures are, however, subject to the disability mentioned on the next page.

## AVERAGE NUMBER OF CHILDREN EMPLOYED IN FACTORIES, 1904 to 1908.

State.	1904.	1905.	1906.	1907.	1908.
MALES.					
New South Wales ...	748	668	881	2,406	2,475
Victoria ...	3,058	3,261	3,213	3,253	3,049
Queensland ...	*	*	*	1,119	1,084
South Australia ...	1,245	1,362	1,166	1,127	1,179
Western Australia ...	217	197	203	216	289
Tasmania ...	168	284	251	214	239
Commonwealth ...	†5,436	†5,772	†5,714	8,335	8,265
FEMALES.					
New South Wales ...	452	473	579	1,880	1,859
Victoria ...	2,952	3,034	2,997	3,095	3,065
Queensland ...	*	*	*	576	583
South Australia ...	395	324	400	480	568
Western Australia ...	94	81	126	159	251
Tasmania ...	75	128	99	97	135
Commonwealth ...	†3,968	†4,040	†4,201	6,287	6,461
TOTAL.					
New South Wales ...	1,200	1,141	1,460	4,286	4,334
Victoria ...	6,010	6,295	6,210	6,348	6,114
Queensland ...	*	*	*	1,695	1,617
South Australia ...	1,640	1,686	1,566	1,607	1,747
Western Australia ...	311	278	329	375	540
Tasmania ...	243	412	350	311	374
Commonwealth ...	†9,404	†9,812	†9,915	14,622	14,726

\* Not available. † Incomplete.

The relatively large increase in the figures for the Commonwealth for the year 1907 is accounted for largely by the fact that in New South Wales, the term "child" denoted any person under the age of fifteen years, which, in 1907, was raised to sixteen years in order to come into line with the other States of the Commonwealth. It should be noted also that the Commonwealth figures for the years 1904 to 1906 are exclusive of returns for Queensland.

**3. Industries Employing Child Labour, 1908.**—The employment of children is largely confined to a limited number of industries, the most important of which are specified in the table below, which shows the average number of children of each sex, employed in the several industries indicated, in each State during the year 1908 :—

## NUMBER OF CHILDREN ENGAGED IN VARIOUS INDUSTRIES, 1908.

Class.	Industry.	N.S.W.		Victoria.		Q'land.		S. Aust.		W. Aust.		Tas.		Cwlth.	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
V.	Engin'ring, ironworks, foundries, etc. ....	189	4	228	...	21	...	95	...	46	...	8	...	587	4
VI.	Biscuits, cakes, etc. ....	60	49	55	23	17	14	12	1	4	...	...	...	148	91
"	Confectionery ....	62	66	44	28	30	31	29	12	...	11	...	...	165	148
"	Jams, pickles, sauces, etc. ....	44	9	52	41	18	2	22	31	3	2	64	46	203	131
"	Aerated waters, cordials, etc. ....	31	2	57	...	45	3	24	1	10	...	1	...	168	6
"	Tobacco, cigars, etc. ....	45	56	25	74	8	1	3	23	2	5	...	...	78	159
VII.	Boots and shoes ....	215	247	287	333	65	54	60	77	10	6	20	6	657	723
"	Clothing ....	99	430	107	543	8	177	36	175	16	65	4	12	270	1,402
"	Dressmaking and millinery ....	1	377	9	857	...	45	...	61	...	106	...	47	10	1,493
"	Hats and caps ....	24	97	44	73	4	11	3	1	...	...	...	...	75	182
"	Shirts, ties, scarfs, etc. ....	10	128	18	521	3	127	1	75	...	33	...	13	32	897
"	Woollen & tweed mills ....	10	10	135	125	9	7	10	18	...	...	2	5	166	165
VIII.	Electrotyping, stereotyping, printing and binding ....	425	112	529	198	217	33	108	14	68	11	43	4	1,390	372
"	Paper making, paper bags, boxes, etc. ....	35	68	20	46	4	24	34	68	1	2	...	...	94	208
XIII.	Billiard tables, furniture & cabinetmaking	64	1	62	...	52	1	25	...	9	...	2	...	214	2

4. **Apprenticeship.**—The apprenticeship systems of the several States may be summarised as follows :—

In New South Wales, no child may be apprenticed until the attainment of the age of fourteen years, in Victoria and Queensland, twelve years. There is no limitation in the case of the other States, nor any regulating Acts except as applying to charity apprentices. The statutes limiting the age at which children may begin to work may be regarded as applicable by way of preventing too early apprenticeship, so also may those directing that education be continued up to a certain age or standard.

Indentures must be entered into specifying the conditions of the employment. Apprenticeships may not exceed seven years in duration, and become inoperative at twenty-one years of age, or in the case of women, on marriage.

The Arbitration Courts and Wages Boards have power to limit the number of apprentices which may be taken into a factory. No general statistics of the number of apprentices in Australia have been collected up to the present time. Other enactments relating to child labour are referred to elsewhere.

## § 6. Amount of Wages Paid and Value of Production.

1. **Introduction.**—The importance of the manufacturing industries of the Commonwealth is indicated by the fact that the total value of the output for 1908, exclusive of the State of Tasmania, for which particulars are not available, was £96,669,282, of which amount the sum of £59,401,040 represents the value of the raw materials used. The difference between these two amounts, viz., £37,268,242, represents the amount by which the value of the raw materials was enhanced in the process of manufacture. The total amount of salaries and wages paid in factories in all the States during 1908 was £19,886,432, the corresponding amount exclusive of the State of Tasmania being £19,192,840.

2. **Amounts of Salaries and Wages Paid, 1908.**—The total amounts of salaries and wages paid during the year 1908 in various classes of factories in the Commonwealth (excluding all sums drawn by working proprietors) are shewn in the following table.



It has been found that it is not practicable to shew satisfactorily in this book the rates of wages paid to employes in various classes of manufacturing industries in Australia, owing to the facts—firstly that the rates in many industries vary very considerably in different parts of the country; and secondly that the necessary particulars are not collected by the several States on a uniform basis, while for some of the States the information given is meagre and unsatisfactory.

**AMOUNT OF SALARIES AND WAGES PAID IN FACTORIES IN COMMONWEALTH,  
1908.\***

Class of Industry.	N.S.W.	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	Cwlth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	236,651	231,805	64,777	78,048	16,177	9,621	637,079
II. Treating oils and fats, animal, vegetable, etc. ...	51,385	47,302	13,923	18,961	4,653	4,844	141,068
III. Processes in stone, clay, glass, etc. ...	352,411	311,056	30,920	71,531	44,700	13,649	823,567
IV. Working in wood ...	504,071	406,394	266,499	109,468	515,119	120,294	1,921,845
V. Metal works, machinery, etc. ...	2,042,244	1,268,613	526,168	698,608	277,767	247,589	5,060,989
VI. Connected with food and drink, etc. ...	935,708	965,802	635,206	267,651	168,060	82,022	3,054,449
VII. Clothing and textile fabrics, etc. ...	1,210,677	1,482,980	213,823	237,312	135,565	74,655	3,355,012
VIII. Books, paper, printing and engraving ...	663,971	674,710	211,527	137,053	161,250	50,936	1,899,447
IX. Musical instruments, etc. ...	36,628	2,817	...	1,404	...	...	40,849
X. Arms and explosives ...	1,590	20,558	...	...	...	...	22,148
XI. Vehicles and fittings, saddlery and harness, etc. ...	253,037	245,344	81,672	105,896	47,635	26,297	759,881
XII. Ship and boat building and repairing ...	234,639	11,369	8,722	15,207	986	4,555	275,478
XIII. Furniture, bedding and upholstery ...	210,531	181,716	62,476	62,498	30,012	9,655	556,878
XIV. Drugs, chemicals, and by-products ...	84,006	111,368	3,777	35,617	5,177	...	239,945
XV. Surgical and other scientific instruments ...	5,731	3,683	1,718	896	791	...	12,819
XVI. Jewellery, timepieces, and plated ware ...	50,193	66,473	11,041	14,698	3,804	6,134	152,343
XVII. Heat, light, and power ...	276,786	233,557	50,829	58,014	57,694	42,316	719,196
XVIII. Leatherware, n.e.i. ...	20,517	29,764	2,663	1,857	794	...	55,595
XIX. Minor wares, n.e.i. ...	47,780	84,985	6,974	12,330	4,750	1,025	157,844
Total ...	7,218,556	6,380,296	2,192,015	1,927,039	1,474,934	693,592	19,886,432

\* Excluding all amounts drawn by working proprietors.

The maximum amount of salaries and wages paid in any particular class was in Class V., the amount being £5,060,989, or 23.37 per cent. on the total amount; the minimum amount was in Class XV., £12,819, or 0.06 per cent. on the total amount. The State in which the largest amount was paid was New South Wales, where the amount paid was over ten times as much as was paid in Tasmania. The following statement shews the average amount paid per employe in each State respectively; the figures are exclusive of working proprietors:—

**AVERAGE AMOUNT OF SALARIES AND WAGES PAID PER EMPLOYEE, 1908.**

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Amount paid ... £	81.02	68.01	75.07	79.40	118.71	79.47	77.22

In comparing the figures in the above table regard should be paid to the nature of certain industries which are carried on to a greater extent in some States than in others (see § 2 hereof). In Victoria, for instance, where the average is lowest, there are a large

number of factories and hands employed in Class VII., and in that class wages are low, a great many women and children being employed. The position occupied by Western Australia is no doubt partly due to the increased cost of living in that State.

**3. Value of Raw Materials used in Factories, 1908.**—The total value of raw materials worked up (*i.e.*, exclusive of fuel, lubricants, etc.) in factories in the Commonwealth, exclusive of the State of Tasmania, for which particulars are not available, during 1908, was £59,401,040, which represents 61.45 per cent. of the total value of the finished products. (See next paragraph hereof.) The following table shews the value of the raw materials worked up in various factories in each State, except Tasmania, during the year 1908:—

**VALUE OF RAW MATERIALS WORKED UP IN FACTORIES IN COMMONWEALTH,  
1908.**

Class of Industry.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.*	Cwlth.†
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	3,151,993	1,982,659	1,021,287	747,534	141,162	...	7,044,635
II. Treating oils and fats, animal, vegetable, etc. ...	433,338	297,116	56,665	91,147	51,283	...	929,549
III. Processes in stone, clay, glass, etc. ...	185,375	142,295	8,533	30,643	11,657	...	378,503
IV. Working in wood ...	1,433,302	622,079	401,833	511,207	53,694	...	3,022,115
V. Metal wks. machinery, etc. ...	4,771,520	1,757,950	708,306	1,840,415	283,984	...	9,362,175
VI. Connected with food and drink, etc. ...	11,070,120	8,354,376	4,012,115	2,391,839	618,752	...	26,447,202
VII. Clothing and textile fabrics, etc. ...	2,039,253	2,901,079	428,051	439,786	217,602	...	6,025,771
VIII. Books, paper, printing, and engraving ...	588,707	631,891	101,166	134,161	74,401	...	1,530,326
IX. Musical instruments, etc. ...	64,594	1,353	...	1,828	...	...	67,775
X. Arms and explosives ...	6,183	52,594	...	...	...	...	58,777
XI. Vehicles and fittings, saddlery and harness, etc. ...	320,501	300,880	76,449	159,255	50,729	...	907,814
XII. Ship and boat building and repairing ...	115,209	7,802	3,812	7,980	260	...	135,063
XIII. Furniture, bedding, and upholstery ...	312,781	312,766	61,665	63,463	39,376	...	790,051
XIV. Drugs, chemicals, and by-products ...	382,439	481,548	8,622	194,024	17,304	...	1,083,937
XV. Surgical and other scientific instruments ...	6,015	2,203	1,267	441	52	...	9,978
XVI. Jewellery, timepieces, and platedware ...	66,127	126,564	16,928	23,332	7,053	...	240,004
XVII. Heat, light, and power ...	354,342	217,166	21,745	37,337	15,946	...	646,536
XVIII. Leatherware, n.e.i. ...	83,138	120,939	9,811	4,391	2,775	...	221,054
XIX. Minor wares, n.e.i. ...	122,477	348,810	8,295	14,007	6,186	...	499,775
<b>Total ...</b>	<b>25,507,414</b>	<b>18,662,070</b>	<b>6,946,550</b>	<b>6,692,790</b>	<b>1,592,216</b>	<b>...</b>	<b>59,401,040</b>

\* Figures not available. † Exclusive of Tasmania.

The class in which the maximum value of raw materials was used was Class VI., "Connected with Food and Drink, etc.," the value being £26,447,202, or nearly three times the value of any other class. The next important class in order of value was Class V., "Metal Works, Machinery, etc.," in which raw materials to the value of £9,362,175 were used. The class in which the minimum value appears is Class XV., "Surgical and other Scientific Instruments," the value being only £9978.

**4. Total Value of Output of Manufacturing Industries, 1908.**—The value of the output of new goods manufactured and repairs effected in factories of various classes in each State, except Tasmania, during the year 1908 is shewn in the following table. The figures given represent not only the increased value due to the process of manufacture, but also include the value of the raw materials used. The difference between the value of the materials used and the total output (see paragraph 5 hereof) is the real value of production from manufactories.

## TOTAL VALUE OF OUTPUT OF FACTORIES IN COMMONWEALTH, 1908.

Class of Industry.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.*	Cwth.†
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural & pastoral pursuits, etc.	3,762,369	2,470,988	1,217,820	905,386	176,304	...	8,532,867
II. Treating oils and fats, animal, vegetable, etc. ...	656,118	437,709	101,000	165,627	65,131	...	1,425,585
III. Processes in stone, clay, glass, etc. ...	929,351	734,972	62,205	162,536	93,682	...	1,982,746
IV. Working in wood ...	2,256,033	1,248,867	846,324	676,199	723,694	...	5,761,117
V. Metal works, machinery, etc. ...	8,333,250	3,799,349	1,431,418	3,161,262	636,768	...	17,362,047
VI. Connected with food and drink, etc. ...	13,821,942	10,902,277	5,550,367	3,256,448	1,099,769	...	34,630,803
VII. Clothing and textile fabrics, etc. ...	3,942,010	5,129,795	813,365	813,183	416,278	...	11,114,631
VIII. Books, paper, printing, and engraving... ..	1,678,089	1,967,016	484,242	314,512	310,557	...	4,754,416
IX. Musical instruments, etc.	136,087	5,794	...	3,869	...	...	145,750
X. Arms and explosives ...	9,126	108,907	...	...	...	...	118,033
XI. Vehicles and fittings, saddlery and harness, etc.	771,646	701,123	226,173	328,151	121,451	...	2,149,544
XII. Ship and boat building and repairing ...	406,583	28,037	15,642	24,724	1,835	...	476,821
XIII. Furniture, bedding, and upholstery ...	642,713	592,879	152,093	152,511	82,207	...	1,622,403
XIV. Drugs, chemicals, and by-products ...	681,177	820,901	18,617	268,513	31,393	...	1,820,601
XV. Surgical and other scientific instruments ...	23,081	8,898	5,105	1,830	970	...	39,884
XVI. Jewellery, timepieces, and plated ware ...	156,467	253,406	34,861	48,402	12,663	...	505,799
XVII. Heat, light, and power ...	1,695,676	896,066	192,535	156,327	266,101	...	3,116,728
XVIII. Leatherware, n.e.i. ...	124,317	168,184	15,161	7,337	4,120	...	317,119
XIX. Minor wares, n.e.i. ...	217,791	512,572	17,078	32,505	13,442	...	793,388
Total ... ..	40,163,826	30,787,760	11,182,009	10,479,322	4,056,365	...	96,669,282

\* Not available. † Exclusive of Tasmania.

It may be seen that the State of New South Wales far outstrips the other States in the total value of the output of her factories, the value being £40,163,826, or 41.55 per cent. on the total value for the five States. The next State in order of value is Victoria, which produces 31.85 per cent.; the value of the output of Queensland is 11.57 per cent., of South Australia 10.84 per cent., and of Western Australia 4.19 per cent. on the total value for the five States. The two most important classes in order of value of output (Classes VI. and V.) are the same as in order of value of raw materials used; the next class is, however, Class VII., as regards output, but is Class I. as regards raw materials used. The following statement shews the value of output per head of mean population during 1908. The population of the Commonwealth is taken exclusive of Tasmania, for which particulars are not available:—

## VALUE OF OUTPUT OF FACTORIES PER HEAD OF MEAN POPULATION, 1908.

Particulars.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.*	Cwth.†
Amount per head ... £	25.40	24.46	20.35	26.32	15.30	...	23.86

\* Not available. † Exclusive of Tasmania.

5. Value of Production of Manufacturing Industries, 1908.—The difference between the figures given in paragraph 4 and the corresponding figures in paragraph 3 hereof represents the amount added to the value of the raw materials by the process of manufacture. This is the real measure of the value of production from manufacturing industries. The following table shews the value added in this manner in each State for which figures are available during the year 1908 for various classes of factories:—

**VALUE OF PRODUCTION FROM MANUFACTURING INDUSTRIES IN COMMON-WEALTH, 1908.**

Class of Industry.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.*	Cwlth.†
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	610,376	488,329	196,533	157,852	35,142	...	1,488,232
II. Treating oils and fats, animal, vegetable, etc. ...	222,780	140,593	44,335	74,480	13,848	...	496,036
III. Processes in stone, clay, glass, etc. ...	743,976	592,677	53,672	131,893	82,025	...	1,604,243
IV. Working in wood ...	532,731	626,788	444,491	164,992	670,000	...	2,739,002
V. Metal works, machinery, etc. ...	3,561,730	2,041,399	723,112	1,320,847	352,784	...	7,999,872
VI. Connected with food and drink, etc. ...	2,751,822	2,547,901	1,538,252	864,609	481,017	...	8,183,601
VII. Clothing and textile fabrics, etc. ...	1,902,757	2,228,716	385,314	373,397	198,676	...	5,088,860
VIII. Books, paper, printing, and engraving ...	1,089,382	1,335,125	383,076	180,351	236,156	...	3,224,090
IX. Musical instruments, etc. ...	71,493	4,441	...	2,041	...	...	77,975
X. Arms and explosives ...	2,943	56,313	...	...	...	...	59,256
XI. Vehicles and fittings, saddlery and harness, etc. ...	451,145	400,243	149,724	168,996	70,722	...	1,240,730
XII. Ship and boat building and repairing ...	291,374	20,235	11,830	16,744	1,575	...	341,758
XIII. Furniture, bedding, and upholstery ...	329,932	280,113	90,428	89,048	42,831	...	832,352
XIV. Drugs, chemicals, and by-products ...	298,738	339,353	9,995	74,489	14,089	...	736,664
XV. Surgical and other scientific instruments ...	17,066	6,695	3,838	1,389	918	...	29,906
XVI. Jewellery, timepieces, and platedware ...	90,340	126,842	17,933	25,070	5,610	...	265,795
XVII. Heat, light, and power ...	1,251,334	678,920	170,793	118,990	250,155	...	2,470,192
XVIII. Leatherware, n.e.i. ...	41,179	47,245	3,350	2,946	1,345	...	96,065
XIX. Minor wares, n.e.i. ...	95,314	163,762	8,783	18,498	7,256	...	293,613
Total ...	14,656,412	12,125,690	4,235,459	3,786,532	2,464,149	...	37,268,242

\* Not available. † Exclusive of Tasmania.

It may be seen that as regards the amount of the value added the classes are approximately in the same order as in the case of value of production. The value added to raw material by process of manufacture per head of mean population is shewn in the following statement :—

**VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES PER HEAD OF MEAN POPULATION, 1908.**

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.*	Cwlth.†
Value ...	£ 9.27	9.63	7.71	9.51	9.30	...	9.20

\* Not available. † Exclusive of Tasmania.

Thus it may be seen that the position of the two leading States, New South Wales and Victoria, in regard to total value of output of factories per head of mean population is reversed in regard to value added per head, though the difference in either case is small. The next State in order, South Australia, retains its relative position, but the order of the other two States (Queensland and Western Australia) for which particulars are available is reversed.

As the total value of the output for the five States for which particulars are available was estimated at £96,669,282, there remained, after payment of £59,401,040, the value of the raw materials used, of £19,192,840 for salaries and wages, and of £2,061,276 for fuel, the sum of £16,014,126 to provide for all other expenditure and profits. The

following table gives corresponding particulars for each State for which particulars are available, expressed absolutely and as percentages of the total value of the output:—

### VALUE OF OUTPUT AND COST OF PRODUCTION, 1908.

State.	Raw Materials Used.	Fuel.	Salaries and Wages.	All other Expenditure Interest, and Profits.	Total Value of Output.
VALUE AND COST, ETC.					
	£	£	£	£	£
New South Wales ...	25,507,414	876,565	7,218,556	6,561,291	40,163,826
Victoria ...	18,662,070	538,571	6,380,296	5,206,823	30,787,760
Queensland ...	6,946,550	196,908	2,192,015	1,846,536	11,182,009
South Australia ...	6,692,790	307,883	1,927,039	1,551,610	10,479,322
Western Australia ...	1,592,216	141,349	1,474,934	847,866	4,056,365
Tasmania ...	*	*	693,592	*	*
Commonwealth† ...	59,401,040	2,061,276	19,192,840	16,014,126	96,669,282

### PERCENTAGE OF COSTS, ETC., ON TOTAL VALUE.

	%	%	%	%	%
New South Wales ...	63.57	2.16	17.95	16.32	100.00
Victoria ...	60.61	1.75	20.73	16.91	100.00
Queensland ...	62.12	1.76	19.60	16.52	100.00
South Australia ...	63.86	2.94	18.39	14.81	100.00
Western Australia ...	39.25	3.48	36.36	20.91	100.00
Tasmania ...	*	*	...	*	*
Commonwealth† ...	61.45	2.13	19.85	16.57	100.00

\* Not available. † Exclusive of Tasmania.

For every hundred pounds worth of goods manufactured in each State and in the Commonwealth the percentages given in the above table represent the proportions of the various elements included in the price of the goods as they left the factories.

## § 7. Investment of Capital in Manufacturing Industries.

1. **General.**—The amount of capital invested in manufacturing industries may be estimated approximately by taking the sum of the value of land and buildings occupied as manufactories and the value of the plant and machinery used in connection therewith. As an indication of the permanent character and stability of the industries which have been established in the Commonwealth, it may be noted that the values of both land and buildings and of machinery and plant used in the factories are rapidly increasing. Thus, for the whole Commonwealth the total value of land and buildings and plant and machinery has increased from 1904 to 1908 by £7,410,421, from £45,437,894 to £52,848,315, that is, at the rate of £1,852,605 per annum.

The following statement shews for the year 1908 the values of land and buildings and of machinery and plant used in connection with manufacturing industries in each State:—

## CAPITAL INVESTED IN MANUFACTURING INDUSTRIES, 1908.

Value of—	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Cwltth.
	£	£	£	£	£	£	£
Land and buildings ...	10,530,260	8,569,027	2,763,085	2,313,644	1,646,702	1,644,893	26,887,611
Machinery and plant ...	9,718,842	6,957,606	4,470,145	2,095,038	1,744,652	974,421	25,960,704
Total ...	20,249,102	15,546,633	7,233,230	4,408,682	3,391,354	2,019,314	52,848,315

It may be seen from the above table that the total capital invested in the manufacturing industry in the Commonwealth during the year 1908 was approximately £52,848,315, or £12.48 per head of mean population; of that sum £26,887,611 was invested in land and buildings occupied as manufactories, the remaining £25,960,704 being the value of the plant and machinery used in connection therewith.

2. *Value of Land and Buildings.*—The value of the land and buildings occupied in connection with manufacturing industries may be conveniently classified according to the nature of the industry conducted therein.

(i.) *Total Value in Commonwealth, 1904 to 1908.* The following table shews for the whole Commonwealth the approximate values of land and buildings occupied in connection with manufacturing industries of various classes during each year from 1904 to 1908 inclusive:—

VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN COMMONWEALTH,  
1904 TO 1908.

Class of Industry.	1904.	1905.	1906.	1907.	1908.
	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	788,816	791,535	777,871	781,733	847,113
II. Treating oils & fats, animal, vegetable, etc. ...	374,000	375,097	363,622	343,424	359,624
III. Processes in stone, clay, glass, etc. ...	734,573	741,110	728,995	820,332	937,789
IV. Working in wood. ...	1,172,010	1,132,615	1,219,155	1,090,551	1,335,581
V. Metal works, machinery, etc. ...	3,341,310	3,231,594	3,313,200	3,709,314	4,378,755
VII. Connected with food and drink, etc. ...	6,787,869	6,956,539	6,638,474	6,708,611	7,161,845
VII. Clothing and textile fabrics, etc. ...	2,875,560	2,931,080	2,919,301	3,396,599	3,377,905
VIII. Books, paper, printing, and engraving ...	2,174,697	2,155,476	2,134,021	2,357,799	2,483,693
IX. Musical instruments, etc. ...	26,141	26,041	27,741	27,405	31,054
X. Arms and explosives ...	28,832	29,233	30,314	31,152	34,586
XI. Vehicles & fittings, saddlery & harness, etc. ...	1,011,668	980,969	951,288	1,079,859	1,253,551
XII. Ship and boat building and repairing ...	1,105,053	1,102,918	1,111,752	991,907	988,141
XIII. Furniture, bedding, and upholstery ...	629,304	652,976	618,422	633,237	666,289
XIV. Drugs, chemicals, and by-products ...	291,506	307,593	335,393	444,060	531,765
XV. Surgical and other scientific instruments ...	53,217	32,736	37,197	31,779	33,054
XVI. Jewellery, timepieces, and platedware ...	161,604	140,535	159,356	204,734	226,262
XVII. Heat, light, and power ...	1,831,126	1,858,594	1,857,610	1,855,438	1,930,728
XVIII. Leatherware, n.e.i. ...	63,897	61,472	60,365	57,043	91,086
XIX. Minor wares, n.e.i. ...	138,029	139,666	143,204	193,797	218,540
Total ...	23,589,452	23,647,799	23,427,281	24,758,774	26,887,611

The figures in the above table for the years 1904 to 1906 inclusive, are subject to the limitations that the actual returns for these years for the States of New South Wales and South Australia are not available. In order to present an approximate total for the Commonwealth, however, 1901 figures for New South Wales, and 1907 figures for South Australia are included for the years specified. It may be seen that the total net increase was £3,298,159, or an annual average of £824,540. In three classes, viz., Classes II., XII., and XV., there were comparatively small decreases, the total of which amounted to £151,451. The largest increases were in Classes V. and VII., and amounted to £1,037,445 and £502,345 respectively.

(ii.) *Value in each State, 1908.* The following table gives similar information for each State up to the 31st December, 1908 :—

**VALUES OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN EACH STATE, 1908.**

Class of Industry.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	Cwlth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	341,085	338,937	46,734	74,947	28,347	17,063	847,113
II. Treating oils and fats, animal, vegetable, etc. ...	159,975	110,476	25,683	54,660	5,070	3,760	359,624
III. Processes in stone, clay, glass, etc. ...	460,393	321,856	34,621	54,684	49,066	17,199	937,789
IV. Working in wood ...	642,237	252,196	133,315	95,787	158,140	53,906	1,335,581
V. Metal works, machinery, etc. ...	1,913,223	993,009	494,070	404,396	414,247	159,810	4,378,755
VI. Connected with food and drink, etc. ...	2,266,538	2,236,321	1,085,734	657,350	374,298	541,604	7,161,845
VII. Clothing and textile fabrics, etc. ...	1,262,386	1,369,279	179,705	328,527	125,618	112,390	3,377,905
VIII. Books, paper, printing and engraving ...	888,409	811,680	367,948	214,402	164,238	37,016	2,483,693
IX. Musical instruments, etc. ...	24,104	5,250	...	1,700	...	...	31,054
X. Arms and explosives ...	5,432	29,154	...	...	...	...	34,586
XI. Vehicles and fittings, saddlery and harness, etc. ...	412,045	356,891	120,874	168,526	154,010	41,205	1,253,551
XII. Ship and boat building and repairing ...	580,038	381,585	7,800	12,413	2,390	3,915	988,141
XIII. Furniture, bedding and upholstery ...	243,730	231,804	70,084	73,250	35,071	12,350	666,289
XIV. Drugs, chemicals, and by-products ...	178,565	248,454	10,250	77,509	16,987	...	531,765
XV. Surgical and other scientific instruments ...	13,712	8,902	4,970	1,830	3,640	...	33,054
XVI. Jewellery, timepieces, and platedware ...	65,056	97,434	28,952	23,400	3,120	8,300	226,262
XVII. Heat, light, and power ...	940,261	675,967	136,775	40,668	102,582	34,475	1,930,728
XVIII. Leatherware, n.e.i. ...	34,098	41,038	7,100	6,460	2,340	...	91,036
XIX. Minor wares, n.e.i. ...	98,973	78,794	8,470	23,135	7,568	1,900	218,840
Total ...	10,530,260	8,589,027	2,763,085	2,313,614	1,646,702	1,044,893	26,887,611

The maximum value for the Commonwealth of land and buildings in any particular class was in Class VI., amounting to £7,161,845, or 26.63 per cent. on the total value. The next classes in importance were Classes V., VII., VIII., and XVII., in which the values were £4,378,755, £3,377,905, £2,483,693, and £1,930,728 respectively. The sum of the values for the five classes mentioned amounted to £19,352,926, or 71.90 per cent. on the total value for all classes.

(iii.) *Total Values in each State, 1904 to 1908.* The following table shews the total values, so far as returns are available, of land and buildings occupied as manufactories in each State at the end of each year from 1904 to 1908 inclusive :—

**TOTAL VALUES OF LANDS AND BUILDINGS OCCUPIED AS FACTORIES IN EACH STATE, 1904 to 1908.**

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1904	*8,029,890	7,641,051	2,699,191	2,487,606†	1,731,233	1,000,481	23,589,452
1905	*8,029,890	7,771,238	2,709,951	2,487,606†	1,685,597	963,517	23,647,799
1906	*8,029,890	8,062,110	2,405,559	2,487,606†	1,775,279	666,837	23,427,281
1907	9,508,259	8,376,642	2,261,539	2,140,516	1,637,207	834,611	24,758,774
1908	10,530,260	8,589,027	2,763,085	2,313,644	1,646,702	1,044,893	26,887,611

\* According to Census 1901. † 1907 figures, those for previous years not being available.

It may be seen that, so far as returns are available, there has been a general though irregular increase in the States of Victoria and Western Australia, as well as for the

whole Commonwealth. There have been irregular decreases in Queensland and Tasmania. The irregularities, however, are probably due partly to the returns having been made on different bases for the succeeding years in carrying into effect the resolutions passed at the Conferences of Statisticians (see § 1, 2, hereof).

**3. Value of Plant and Machinery.**—The following table shews for the whole Commonwealth the approximate value of plant and machinery used in connection with factories at the end of each year from 1904 to 1908 inclusive. The figures, however, are subject to certain limitations, inasmuch as returns for South Australia for the years 1904 to 1906 inclusive are not available; South Australia figures for 1907 have therefore been taken for these years :—

**VALUE OF PLANT AND MACHINERY USED IN FACTORIES IN COMMONWEALTH,  
1904 TO 1908.**

Class of Industry.	1904.	1905.	1906.	1907.	1908.
	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ....	568,476	578,382	618,891	644,597	671,015
II. Treating oils & fats, animal, vegetable, etc. ....	312,539	327,182	328,484	331,595	349,997
III. Processes in stone, clay, glass, etc. ....	691,881	734,285	745,504	752,084	833,809
IV. Working in wood, ....	1,491,195	1,490,402	1,422,545	1,506,933	1,583,496
V. Metal works, machinery, etc. ....	3,580,434	3,657,936	3,749,781	4,237,810	4,633,656
VI. Connected with food and drink, etc. ....	7,267,717	7,177,535	7,436,991	7,340,941	7,746,682
VII. Clothing and textile fabrics, etc. ....	903,216	962,164	1,177,456	1,132,063	1,158,698
VIII. Books, paper, printing, and engraving ....	1,795,758	1,824,315	1,889,705	1,993,135	2,091,168
IX. Musical instruments, etc. ....	6,030	6,750	6,327	7,829	9,124
X. Arms and explosives ....	45,017	44,037	44,476	45,613	46,113
XI. Vehicles & fittings, saddlery & harness, etc. ....	157,743	161,479	194,136	195,271	204,138
XII. Ship and boat building, and repairing ....	243,770	256,340	241,371	240,466	432,803
XIII. Furniture, bedding, and upholstery ....	92,631	94,768	97,392	106,613	117,481
XIV. Drugs, chemicals, and by-products ....	278,244	282,293	306,285	332,349	398,028
XV. Surgical and other scientific instruments ....	4,865	5,013	7,329	6,340	8,144
XVI. Jewellery, timepieces, and platedware ....	31,831	32,972	38,796	45,927	46,160
XVII. Heat, light, and power ....	4,299,529	4,524,472	4,895,419	5,555,544	5,512,700
XVIII. Leatherware, n.e.i. ....	12,230	11,867	15,499	16,523	18,989
XIX. Minor wares, n.e.i. ....	65,316	65,407	68,831	82,435	96,503
Total ... ..	21,848,442	22,237,599	23,285,208	24,574,108	25,960,704

It may be seen that during the period in question there has been a steady and substantial net increase amounting in all to £4,112,262; or an annual average of £1,028,065. The increase has occurred in all classes of industry, the largest increase being in Class XVII., "Heat, Light, and Power," amounting to £1,213,171, while the next largest was in Class V., "Metal Works, Machinery, etc." and amounted to £1,053,222.

(i.) *Total Value in each State, 1904 to 1908.* The classified figures in the preceding table for the whole Commonwealth are shewn below for each State. It will be seen that the increase in value referred to is general throughout the States, with the exception of Queensland, where there is apparently a small decrease. This apparent decrease may, however, be really due to the reclassification of factories, so as to come into line with the other States :—

**VALUE OF PLANT AND MACHINERY IN FACTORIES, 1904 to 1908.**

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1904	7,536,903	6,027,134	4,200,303	1,553,654*	1,776,481	753,967	21,848,442
1905	7,919,948	6,187,919	3,988,056	1,553,654*	1,834,098	753,924	22,237,599
1906	8,295,397	6,450,355	4,282,502	1,553,654*	1,861,477	841,883	23,285,208
1907	9,043,772	6,771,458	3,989,679	1,900,744	1,893,351	975,104	24,574,108
1908	9,718,842	6,957,606	4,470,145	2,095,038	1,744,652	974,421	25,960,704

\* Figures for 1907, previous years not being available.



(ii.) *Classified Value in each State, 1908.* The following table shows the value of plant and machinery used in factories in each State during the year 1908, classified according to the nature of the industry in which used:—

**VALUE OF PLANT AND MACHINERY USED IN FACTORIES IN EACH STATE, 1908.**

Class of Industry.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Cwealth.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	£ 255,266	£ 235,979	£ 98,682	£ 55,882	£ 12,530	£ 12,676	£ 671,015
II. Treating oils and fats, animal, vegetable, etc. ...	170,786	115,808	35,794	17,949	4,910	4,750	349,907
III. Processes in stone, clay, glass, etc. ...	474,083	225,093	46,210	45,195	34,101	9,127	833,809
IV. Working in wood ...	483,510	235,732	314,007	49,974	389,857	110,416	1,583,496
V. Metal wks., machinery, etc. ...	2,066,233	972,138	615,969	388,658	315,244	275,414	4,633,656
VI. Connected with food and drink, etc. ...	2,666,805	1,559,911	2,562,736	532,212	300,419	124,599	7,746,682
VII. Clothing and textile fabrics, etc. ...	323,780	616,172	87,720	68,271	21,730	41,025	1,158,698
VIII. Books, paper, printing, and engraving ...	801,638	732,727	197,675	172,417	139,139	47,572	2,091,168
IX. Musical instruments, etc. ...	7,487	1,387	...	250	...	...	9,124
X. Arms and explosives ...	500	45,613	...	...	...	...	46,113
XI. Vehicles and fittings, saddlery and harness, etc. ...	66,050	67,933	18,967	32,188	12,827	6,173	204,138
XII. Ship and boat building and repairing ...	354,446	51,575	16,647	5,370	650	4,115	432,803
XIII. Furniture, bedding, and upholstery ...	34,329	40,109	19,698	16,483	4,799	2,063	117,481
XIV. Drugs, chemicals, and by-products ...	151,982	142,681	3,950	90,487	8,928	...	398,028
XV. Surgical and other scientific instruments ...	3,238	2,146	960	900	900	...	8,144
XVI. Jewellery, timepieces, and platedware ...	16,618	18,477	3,590	3,590	850	3,035	46,160
XVII. Heat, light, and power ...	1,799,813	1,824,656	446,062	612,228	496,515	333,426	5,512,700
XVIII. Leatherware, n.e.i. ...	6,875	10,910	570	325	309	...	18,989
XIX. Minor wares, n.e.i. ...	35,403	58,559	908	2,659	944	30	98,503
Total ...	9,718,842	6,957,606	4,470,145	2,095,038	1,744,652	974,421	25,960,704

The greatest value for any particular class of industry is for Class VI., "Connected with Food and Drink, etc.," and amounts to £7,746,682, or 29.84 per cent. on the total value for all classes. The next greatest value is for Class XVII., "Heat, Light, and Power," and amounts to £5,512,700, or 21.23 per cent. on the total. The next greatest is for Class V., "Metal Works, Machinery, etc.," amounting to £4,633,656, or 17.85 per cent. on the total value. The total for the three classes just specified amounts to £17,893,038, or 68.92 per cent. on the total value for all classes.

## § 8. Individual Industries.

1. **General.**—The preceding remarks and tables furnish a general view of the recent development of particular classes of industries in Australia treated under the nineteen categories referred to in § 1.3 hereof. In order to make the information complete, it must necessarily be supplemented by details exhibiting the development of individual industries. This alone will furnish adequate information as to the channels into which the main efforts of Australian manufacture flow. While it is not possible, within the limits of this article, to give anything like a detailed account of the manufacturing industries of the Commonwealth, it is proposed to deal herein with such particular industries as are of special importance by reason either of the number of persons employed, the number of factories, the amount of capital invested therein, the value of the production, or other features of special interest. In cases where there are only either one or two establishments of a particular class in any State, returns are not published, in order to avoid disclosing information as to the operations of individual factories.

2. **Tanning Industry.**—In Class I. (see § 1. 3 hereof) the most important industry is tanning. Until recent years the production of tanneries in Australia was confined to the coarser class of leathers, but lately the tanning of the finer leathers has been undertaken with satisfactory results. The position of the industry in the several States in 1908 was as follows:—

### TANNERIES, 1908.

Item.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Cwlth.
Number of factories ... ..	82	57	19	11	3	9	181
"    employés ... ..	928	1,474	213	282	69	78	3,044
Actual horse-power of engines employed	906	925	145	167	103	65	2,311
Approx. value of lands and buildings £	104,736	123,432	18,318	22,597	10,620	12,462	292,165
Approx. value of plant and machinery £	74,161	85,093	12,388	9,876	5,640	7,476	191,634
Total amount of wages paid during year £	81,628	122,446	17,602	23,493	7,008	6,877	259,054
Value of raw material worked up	£ 695,503	693,825	110,836	118,690	35,542	*	1,654,396†
Total value of output ... ..	£ 898,235	937,372	155,352	154,810	45,920	*	2,191,689†
Value added in process of manufacture £	202,732	243,547	44,516	36,120	10,378	*	537,293†

\* Not available.

† Exclusive of Tasmania.

(i.) *Progress of Tanning, etc., Industries, 1905 to 1908.* For years prior to 1908 returns for tanneries are not generally available separately, but are grouped with the wool-scouring and fellmongering industries. The development of the tanning, fellmongering, and wool-scouring industries during the period 1905 to 1908 is shewn in the following table, from which it will be seen that the decrease in the number of factories, due to the closing of a number of small establishments, was not accompanied by a corresponding decrease in the number of employés.

### DEVELOPMENT OF TANNING, ETC., INDUSTRIES, 1905 to 1908.

State.	Number of Factories.				Number of Employés.				Approximate Value of Plant and Machinery.			
	1905.	1906.	1907.	1908.	1905.	1906.	1907.	1908.	1905.	1906.	1907.	1908.
New South Wales	166	154	152	146	2,228	2,427	2,507	2,396	£ 156,830	£ 172,553	£ 159,850	£ 167,071
Victoria ... ..	88	84	90	92	1,614	1,657	1,893	2,001	114,863	114,951	124,064	133,376
Queensland ... ..	48	40	37	39	477	513	615	685	70,246	84,750	81,225	91,492
South Australia ...	14	14	12	14	335	344	294	341	*	*	9,197	11,991
Western Australia	2	2	3	3	55	61	64	69	4,500	5,500	5,500	5,640
Tasmania ... ..	3	3	6	9	56	56	67	78	4,550	6,600	6,550	7,476
Commonwealth ...	321	297	300	303	4,765	5,058	5,440	5,570	350,989†	384,354†	386,386	417,046

\* No information available. † Exclusive of South Australia.

(ii.) *Production of Tanneries, 1908.* The quantity of raw materials used and the quantity and value of leather produced in tanneries in each State during the year 1908 are shewn in the following table:—

### RAW MATERIALS USED AND LEATHER PRODUCED IN TANNERIES, 1908.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
RAW MATERIALS USED.							
Hides ... No. (,000 omitted)	469	497	76	92	24	19	1,177
Pelts treated No. ... ..	3,610	687	*	*	...	*	*
Bark ... .. Tons	10,578	10,024	1,734	1,767	615	564	25,282
LEATHER AND BASILS PRODUCED.							
LEATHER—							
Quantity lbs. (,000 omitted)	13,547	19,255	2,455	2,588	849	*	38,694†
Value ... .. £	667,485	906,000	131,676	157,110	40,352	*	1,902,623†
BASILS—							
Quantity lbs. (,000 omitted)	3,572	610	*	*	...	*	4,182†
Value ... .. £	192,378	30,000	*	*	...	*	222,378†

\* Not available.

† Incomplete.

3. **Soap and Candle Factories.**—In Class II. (See § 1. 3 hereof) the manufactures of soap and candles are the most important industries. These two manufactures are frequently carried on in the same establishments, so that separate returns cannot be obtained; it may, however, be said generally that the manufacture of soap is the more important of the two. The following table gives particulars of soap and candle factories in each State during the year 1908:—

SOAP AND CANDLE FACTORIES, 1908.

Item.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.*	Cwlth. †
Number of factories ... ..	29	17	16	6	3	...	71
"    employés ... ..	553	535	159	164	50	...	1,461
Actual horse-power of engines employed ... ..	352	923	117	100	25	...	1,517
Approximate value of land and buildings ... ..	£ 112,661	98,896	25,683	41,675	5,070	...	283,985
"    plant and machinery ... ..	£ 135,786	109,768	35,794	12,484	4,910	...	298,742
Total amount of wages paid during year ... ..	£ 40,162	43,463	13,923	16,961	4,653	...	119,162
Value of raw material worked up ... ..	£ 267,075	271,958	56,665	87,129	51,283	...	734,110
Total value of output ... ..	£ 441,960	402,306	101,000	157,046	65,131	...	1,167,443
Value added in process of manufacture ... ..	£ 174,865	130,348	44,335	69,917	13,848	...	433,333

\* As there are only two soap and candle factories in this State, returns are not disclosed.  
† Exclusive of Tasmania.

(i.) *Development of Soap and Candle Factories, 1905 to 1908.* The following table gives particulars for the last four years regarding the numbers of factories and employés and the value of plant and machinery in these industries in each State:—

DEVELOPMENT OF SOAP AND CANDLE FACTORIES, 1905 to 1908.

State.	Number of Factories.				Average Number of Employés.				Approximate Value of Plant and Machinery.			
	1905.	1906.	1907.	1908.	1905.	1906.	1907.	1908.	1905.	1906.	1907.	1908.
New South Wales	40	41	34	29	574	602	553	553	£ 119,717	£ 121,313	£ 127,311	£ 135,786
Victoria ... ..	20	15	15	17	500	523	510	535	105,529	104,244	106,326	109,768
Queensland ... ..	21	14	15	16	142	142	142	159	34,303	33,599	35,562	35,794
South Australia ... ..	9	8	7	6	222	207	166	164	9,771	8,216	11,896	12,484
Western Australia ... ..	4	3	3	3	68	61	57	50	†	†	6,938	4,910
Tasmania ... ..	†	†	†	...	†	†	†	†	†	†	†	†
Commonwealth	94	81	74	71	1,506	1,535	1,428	1,461	269,320	267,372	288,033	298,742

\* Information not available. Totals exclusive. † See note \* to preceding table.

(ii.) *Production of Soap and Candles, 1905 to 1908.* The subjoined statement shews that there has been a considerable increase in the production of both these industries. As regards the production of soap there was an increase of 84,763 cwt., or an annual average of 28,224 cwt. The returns as to the production of candles are incomplete; it may be seen, however, that there has been a considerable increase in New South Wales.

PRODUCTION OF SOAP AND CANDLES, 1905 to 1908.

State.	Soap.				Candles.			
	1905.	1906.	1907.	1908.	1905.	1906.	1907.	1908.
New South Wales	cwt. 212,658	cwt. 221,834	cwt. 225,217	cwt. 217,321	lbs. 4,226,082	lbs. 4,799,898	lbs. 5,656,354	lbs. 5,566,776
Victoria ... ..	150,261	154,570	153,478	162,757	4,709,488	4,826,528	5,341,056	4,222,960
Queensland ... ..	55,167	64,130	59,900	67,755	*	*	1,975,075	1,028,160
South Australia ... ..	...	56,745	61,614	...	...	...	†	1,806,725
Western Australia ... ..	28,065	26,960	31,774	29,767	1,626,000	1,567,768	†	1,259,214
Tasmania ... ..	8,360	7,360	†	†	479,360	703,360	†	†
Commonwealth	454,451	474,854	527,114	539,214	11,040,930	11,897,554	12,972,485	13,883,835

\* Not available. Totals exclusive of these States. † See note \* to second table above. ‡ Not available for publication.

(iii.) *Raw Material Used, 1908.* The following statement shews the quantity of raw materials used in soap and candle factories in each State during the year 1908 :—

#### RAW MATERIAL USED IN SOAP AND CANDLE FACTORIES, 1908.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.*	Cwlth.†
Tallow ... cwt.	114,712	127,193	40,352	43,608	13,364	...	339,229
Copra ... cwt.	...	8,744	7	165	...	...	8,916
Alkali ... lbs.	46,199	26,313	14,640	9,510	4,684	...	101,346

\* As there are only two soap and candle factories in this State, particulars are not disclosed.  
† Exclusive of Tasmania.

4. **Saw Mills.**—The most important industry in Class IV. is the saw-milling industry, of which particulars are given below. To compare this class of industry in the several States all saw mills, including both forest and other mills, are combined; joinery, moulding, and box works, etc., are excluded :—

#### SAW MILLS, FOREST AND OTHER, 1908.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Cwlth.
Number of factories ...	385	120	175	26	27	90	823
"    employés ...	4,127	1,637	2,960	703	3,343	1,456	14,226
Actual horse-power of engines employed	7,034	1,584	4,643	708	2,130	1,698	17,857
Approx. value of land and buildings £	438,734	15,764	86,697	60,883	102,112	44,111	748,301
"    plant and machinery £	367,005	98,804	273,484	31,875	351,274	106,170	1,228,612
Total amount of wages paid during year‡	327,334	126,409	223,793	60,832	457,132	107,702	1,303,202
Value of raw material worked up	£ 960,463	1,155	342,896	439,174	*	*	1,743,688†
Total value of output ...	£ 1,479,391	226,415	711,060	538,984	619,339	*	3,575,189†
Value added in process of manufacture‡	518,928	225,260	368,164	99,810	*	*	1,212,162†

\* Not available. † Exclusive of Western Australia and Tasmania. ‡ Exclusive of Tasmania.

5. **Agricultural Implement Factories.**—The manufacture of agricultural implements is an important industry in Australia, and is of particular interest owing to the fact that it is one of the first industries to which what has been called the "New Protection" system was sought to be applied (see Section XXVII. hereof). The nature of the machines manufactured may be gathered from the machines scheduled in the Customs tariff, 1906-7, which includes stripper harvesters, strippers, stump-jump ploughs, disc cultivators, winnowers, corn-shellers and baggers, drills, and other implements usually employed in agriculture. The stripper-harvester, which combines the stripper with a mechanism for winnowing and bagging grain, is an Australian invention, and is exported to many countries.

No information is available concerning the actual production or the number and value of the machines and implements of local production used in Australia.

The following table gives particulars of the agricultural implement works of Australia :—

#### AGRICULTURAL IMPLEMENT WORKS, 1908.

Items.	N.S.W.	Victoria	Q'land.*	S.Aust.	W.A.	Tas.	Cwlth.†
Number of factories ...	20	52	...	54	3	9	138
"    employés ...	434	1,441	...	1,092	25	34	3,026
Actual horse-power of engines employed	139	704	...	604	26	†	1,473§
Approx. value of land and buildings £	50,779	71,825	...	41,074	1,840	950	166,468
"    plant and machinery £	16,008	69,335	...	38,157	4,259	235	127,994
Total amount of wages paid during year‡	33,497	134,884	...	80,850	300	1,556	251,087
Value of raw material worked up	£ 123,526	177,488	...	97,368	2,934	†	401,316§
Total value of output ...	£ 183,713	437,023	...	230,500	7,092	†	858,328§
Value added in process of manufacture‡	£ 60,187	259,535	...	133,132	4,158	†	457,012§

\* As there are only two factories of this class in Queensland particulars are not disclosed.  
† Exclusive of Queensland. ‡ Not available. § Exclusive also of Tasmania.

(i.) *Development of Agricultural Implement Works.* The following table shews the progress of this industry during the years 1905 to 1908 :—

## AGRICULTURAL IMPLEMENT WORKS, 1905 to 1908.

State.	Number of Factories.				Number of Employés.				Approximate Value of Plant and Machinery.			
	1905.	1906.	1907.	1908.	1905.	1906.	1907.	1908.	1905.	1906.	1907.	1908.
New South Wales	17	17	21	20	386	440	499	434	£ 11,524	£ 12,850	£ 16,425	£ 16,008
Victoria ...	53	53	55	52	1,624	1,747	1,618	1,441	65,203	62,808	66,492	69,335
Queensland ...	...	8	4	*	...	117	142	*	...	11,470	9,444	*
South Australia...	45	49	49	54	750	874	827	1,092	...	...	34,034	38,157
Western Australia	4	6	*	3	37	56	*	25	2,710	2,470	*	4,259
Tasmania ...	...	...	13	9	...	...	45	34	...	...	796	235
Commonwealth	119	133	142	138	2,797	3,234	3,131	3,026	79,437	89,598	127,192	127,994

\* See note \* to preceding table.

6. **Engineering, Ironworks, and Foundries.**—The classification in these industries is not very satisfactory. Generally, engineering shops, ironworks, and foundries are included, while factories for making nails, safes, patterns, meters, and springs are excluded. Railway workshops, agricultural implement factories, smelting and metallurgical works, galvanised ironworks, and ordinary blacksmiths' shops are also excluded. The combination of industries is rendered necessary by the limited classification still adopted by some of the States :—

## ENGINEERING, IRONWORKS, AND FOUNDRIES, 1908.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Cwlt.h.†
Number of factories ...	200	307	100	50	55	17	729
" employés ...	6,401	6,356	2,024	1,683	854	379	17,699
Actual horse-power of engines employed	4,292	3,522	612	984	514	276	10,200
Approx. value of land and buildings £	534,247	413,069	125,508	79,543	84,610	31,300	1,268,277
" plant and machinery £	487,486	542,960	144,044	98,798	80,383	22,756	1,376,427
Total amount of wages paid during year £	624,039	582,717	188,403	149,103	91,889	39,027	1,675,178
Value of raw materials worked up £	860,330	737,020	127,948	173,823	*	*	1,899,121†
Total value of output ...	1,799,196	1,685,112	434,004	368,902	281,466	*	4,568,680†
Value added in process of manufacture £	938,866	948,092	306,056	195,079	*	*	2,388,093†

\* Not available. † Exclusive of Tasmania. ‡ Exclusive of Western Australia and Tasmania.

In addition to engineering works which supply local domestic requirements, there are now a number of large and important establishments which engage in the manufacture of special classes of machinery and implements. The manufacture of mining and smelting machinery and apparatus forms an important section of this industry, and many Australian mines have been locally equipped.

7. **Railway Carriages and Rolling Stock, Railway and Tramway Workshops.**—The railway workshops of Australia form an important item in the metal and machinery class, and are chiefly State Institutions. The following table gives the details concerning them, but includes also private establishments manufacturing rolling stock :—

## RAILWAY CARRIAGES AND ROLLING STOCK, RAILWAY AND TRAMWAY WORKSHOPS, 1908.

Items.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Cwlt.h.
Number of factories ...	26	15	7	8	7	6	69
" employés ...	5,688	2,601	1,004	1,326	1,191	483	12,293
Actual h.p. of engines employed	1,703	441	1,455	306	1,552	917	6,674
Approx. value of land and buildings £	786,663	272,476	284,772	199,828	324,677	113,700	1,982,116
Approx. value of plant and mach'ny £	480,334	181,833	159,752	140,330	230,102	79,623	1,271,974
Total amt. of wages paid during year £	667,548	321,992	115,264	154,968	181,956	58,206	1,499,934
Value of raw materials worked up £	528,260	380,206	147,418	115,098	155,055	*	1,326,037†
Total value of output ...	£1,280,774	782,688	254,909	273,065	345,980	*	2,937,416†
Value added in process of manuf'ct're £	752,514	402,482	107,491	157,967	190,925	*	1,611,379†

\* Not available. † Exclusive of Tasmania.

8. **Smelting Works.**—The subjoined table gives particulars of metal smelting, cyanide, pyrites, and metallurgical works. The classification of these works does not appear to be carried out on an uniform basis in the several States, and the combination of industries is somewhat unsatisfactory. The returns do not include particulars of plants used on mines:—

**SMELTING, CYANIDE, PYRITES, ETC., WORKS, 1908.**

Items.	N. S. W.	Vic.	Q'land.	S. A.	*W. A.	Tas.	Cwltth.†
Number of factories ... ..	40	102	13	7	...	4	166
" employes ... ..	3,678	850	1,146	1,803	...	1,067	8,544
Actual horse-power of engines employed	8,949	462	1,925	3,587	...	3,088	18,011
Approx. value of land and buildings £	274,475	19,125	10,195	19,312	...	7,000	330,107
" plant and machinery £	952,816	63,799	266,809	67,009	...	170,735	1,521,168
Total am't of wages paid during year £	521,175	68,643	155,275	238,962	...	142,502	1,126,557
Value of raw materials worked up £	2,769,015	86,014	299,914	1,265,444	...	*	4,420,387†
Total value of output ... ..	£4,247,798	117,641	495,012	1,988,730	...	*	6,849,181†
Value added in process of manufacture £	1,478,783	31,627	195,098	723,286	...	*	2,428,794†

\* Not available. † Exclusive of Western Australia. ‡ Exclusive also of Tasmania.

Blast furnaces for the smelting of iron ores have been established at Lithgow, in New South Wales. During the year 1908 work was interrupted for some weeks owing to a dispute with the men respecting wages, and during this period the opportunity was taken to make considerable alterations and additions to the plant and rolling mills, with the object of increasing the output. Further reference to this industry is made in Section XII. of this book (see page 509).

9. **Bacon-curing Factories.**—The following table gives particulars of factories engaged in bacon curing in each State during the year 1908:—

**BACON-CURING FACTORIES, 1908.**

Items.	N. S. W.	Vic.	Q'land.	S. A.	W. A.	Tas.	Cwth.
Number of factories ... ..	18	26	4	10	3	6	67
" persons employed ... ..	142	340	189	60	27	38	796
Actual horse-power of engines employed	197	312	270	34	21	16	850
Approx. value of land and buildings £	41,417	32,843	13,207	9,990	10,730	4,900	113,087
" plant and machinery £	14,816	26,448	46,304	3,370	3,700	5,138	99,776
Total amount of salaries and wages paid £	14,583	27,862	16,179	4,527	4,007	1,651	68,809
Value of raw material worked up £	223,761	300,597	236,053	62,218	77,204	*	1,009,833†
Total value of output ... ..	£260,898	446,199	208,549	70,685	80,101	*	1,156,432†
Value added in process of manufacture £	37,137	55,602	42,496	8,467	2,897	*	146,599†

\* Not available. † Exclusive of Tasmania.

Further information regarding the bacon-curing industry may be found in Section IX., *Farmyard and Dairy Production*.

(i.) *Quantity and Value of Production, 1908.* The following table shews the number of pigs killed and the quantity and value of the production of bacon-curing factories in each State during the year 1908:—

**PRODUCTION OF BACON-CURING FACTORIES, 1908.**

Particulars.	N. S. W.	Victoria.	Q'land.	S. Aust.	W. Aust.*	Tasmania.	C'wealth.
QUANTITY. (,000 omitted).							
Bacon & ham lbs.	7,297	11,518	9,194	2,381	...	434	30,824
Lard ... lbs.	316	539	457	87	...	20	1,419
VALUE.							
Bacon & ham £	244,566	390,000	281,677	75,266	...	18,075	1,009,584
Lard ... £	8,087	14,000	12,783	2,350	...	550	37,780
Other products £	8,582	20,000	4,089	534	...	...	33,205
PIGS KILLED.							
Number ... ..	86,636	129,677	105,118	30,005	...	7,293	358,729

\* In Western Australia all bacon and hams are imported and some are subsequently smoked in that State.

10. **Butter and Cheese Factories.**—The subjoined table gives particulars of butter and cheese factories in each State during the year 1908. The returns include factories for making condensed or concentrated milk, but are exclusive of creameries and of butterine and margarine factories :—

### BUTTER AND CHEESE FACTORIES, 1908.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Cwlth. †
Number of factories ... ..	183	215	82	54	...	24	558
" employees ... ..	979	1,294	1,238	212	...	95	3,818
Actual horse-power of engines employed ... ..	1,834	2,440	1,036	303	...	135	5,815
Approximate value of land and buildings £	133,902	244,638	83,282	36,038	...	19,968	517,878
" plant & machinery £	247,878	282,012	145,531	27,539	...	11,618	714,378
Total amount of wages paid £	94,746	108,152	78,898	12,414	...	5,238	299,448
Value of raw materials worked up £	2,682,558	2,061,085	1,088,867	223,487	...	†	6,055,997
Total value of output ... ..	£2,866,952	2,327,328	1,187,341	257,378	...	†	6,638,999
Value added in process of manufacture £	184,394	266,243	98,474	33,891	...	†	583,002

\* As there are only two factories in this State particulars are not disclosed. † Exclusive of Western Australia. ‡ Not available. § Exclusive also of Tasmania.

(i.) *Development of Factories, 1905 to 1908.* The following table shews the progress of the factories in this industry from 1905 to 1908, and illustrates the recovery of the principal States from the effects of the drought :—

### DEVELOPMENT OF BUTTER, ETC., FACTORIES, 1905 to 1908.

State.	Number of Factories.				Number of Persons Employed.				Approximate Value of Plant and Machinery.			
	1905.	1906.	1907.	1908.	1905.	1906.	1907.	1908.	1905.	1906.	1907.	1908.
									£	£	£	£
New South Wales	164	178	190	183	937	1,018	1,047	979	210,772	218,566	244,438	247,678
Victoria ... ..	215	222	224	215	1,381	1,490	1,248	1,284	306,559	307,635	311,241	282,012
Queensland ... ..	59	70	83	82	407	1,249	1,351	1,238	77,392	104,157	133,861	145,531
South Australia ...	53	55	57	54	158	141	213	212	†	†	25,224	27,539
Western Australia ...	26	20	23	24	123	76	73	95	13,686	13,351	5,199	11,618
Tasmania ... ..												
Commonwealth	517	545	577	558	3,006	3,974	3,932	3,818	608,409	643,709	722,963	714,378

\* See note \* to preceding table. † Not available. ‡ Exclusive of Western Australia.

(ii.) *Quantity and Value of Production, 1908.* The following table shews the quantity and value of butter and cheese produced, and the quantity of milk used in butter and cheese factories in each State during 1908 :—

### PRODUCTION OF BUTTER AND CHEESE FACTORIES, 1908.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.*	Tas.	Cwlth.†
QUANTITY (,000 OMITTED).							
Butter ... .. lbs.	56,956	44,383	21,949	4,463	...	1,310	129,061
Cheese ... .. "	2,771	2,474	2,999	1,554	...	833	10,631
VALUE (£,000 OMITTED).							
Butter ... .. £	2,731	2,190	999	216	...	44	6,180
Cheese ... .. £	86	77	114	41	...	21	339
MILK USED (,000 OMITTED).							
Butter factories ... gals.	142,673	101,349	48,157	9,499	...	3,280	304,958
Cheese " ... .. "	2,953	2,514	2,903	1,575	...	970	10,915

\* See note \* to preceding table. † Exclusive of Western Australia.

**11. Meat and Fish Preserving, Ice and Refrigerating Works.**—These industries are now of considerable importance in Australia. The freezing of various kinds of produce for export has long been an established industry. Large freezing works have now been installed at many ports in the Commonwealth for the purpose of freezing produce chiefly for export, and insulated space for the carriage of frozen produce is provided by a number of steamship companies trading between Australia and other parts of the world. Particulars regarding the export of frozen beef and mutton may be found on pages 349 and 353 hereof respectively. Special terms have been made by the Commonwealth Government in its new English mail contract for the provision by the contractors of increased cold-storage facilities. The export of frozen produce is stated to be capable of considerable expansion. The particulars given in the subjoined table include ice-making and freezing works, and also meat-canning factories, separate particulars for all the States not being available:—

**MEAT AND FISH-PRESERVING, ICE AND REFRIGERATING WORKS, 1908.**

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Cwlth.
Number of factories ... ..	69	29	34	14	5	4	155
" employes ... ..	1,416	757	1,258	233	78	30	3,772
Actual horse-power of engines employed	2,830	2,629	2,861	699	429	25	9,473
Approx. value of land and buildings £	425,497	256,648	335,946	145,844	41,552	2,800	1,208,287
" " plant and machinery £	411,161	150,151	271,605	93,807	44,000	2,100	972,824
Total amount of wages paid during year £	117,139	60,711	88,922	26,054	12,570	2,222	307,618
Value of raw materials worked up £	2,655,631	449,764	757,464	223,578	1,441	*	4,087,878†
Total value of output ... ..	2,981,156	591,865	850,313	265,775	23,025	*	4,712,134†
Value added in process of manufacture...	325,525	142,101	92,849	42,197	21,584	*	624,256†

\* Not available. † Exclusive of Tasmania.

The following table gives particulars, so far as available, of various classes of meat preserved during the year 1908:—

**MEAT PRESERVING WORKS—PARTICULARS OF ANIMALS TREATED, 1908.**

Particulars.	N.S.W.	Vic.‡	Q'land.	S. Aust.†	W. Aust.†	Tas.†	Cwlth.¶
Sheep treated .... No.	620,013	773,396	252,647	...	...	...	1,646,056
Cattle " .... No.	4,078	16,508*	61,320*	...	...	...	81,906
Pigs " .... No.	458	2,296	14,587	...	...	...	17,341

\* Quarters, exclusive of calves. † Not available. ‡ Freezing works only. ¶ Exclusive of South Australia, Western Australia, and Tasmania.

In Victoria 4,057,896 rabbits, 29,796 hares, and 22,826 head of poultry were treated in freezing works. Corresponding particulars for other States are not available. Exclusive of Victoria and Tasmania, for which States particulars are not available, the returns shew that 50,021 tons of ice, valued at £99,977, were manufactured in the Commonwealth in 1908.

**12. Biscuit Manufactories.**—The following table gives particulars regarding establishments at which the manufacture of biscuits, cakes, etc., was carried on in each State during the year 1908:—

**BISCUIT MANUFACTORIES, 1908.**

Items.	N.S.W.	Vic.	Q'land.	S.A.*	W.A.	Tas.	Cwlth.†
Number of factories ... ..	7	4	9	...	3	7	30
" employes ... ..	1,187	1,078	295	...	111	142	2,813
Actual horse-power of engines employed	395	131	73	...	64	66	729
Approx. value of land and buildings £	89,460	51,850	20,010	...	8,903	23,150	193,373
" " plant and machinery £	84,611	44,533	16,159	...	10,424	8,200	163,927
Total amount of wages paid during year £	63,003	54,236	21,690	...	9,334	8,667	156,930
Value of raw materials worked up £	304,179	237,802	36,943	...	32,346	+	611,270§
Total value of output ... ..	412,954	379,713	84,044	...	46,372	+	923,083§
Value added in process of manufacture £	108,775	141,911	45,044	...	14,026	+	312,756§

\* As there are only two factories in this State particulars are not given separately.

† Exclusive of South Australia. ‡ Not available. § Exclusive also of Tasmania.



(i.) *Quantity and Value of Production, 1908.* The following table gives particulars regarding the quantity and value of biscuits, cakes, etc., made and the quantity of flour used in factories in each State during the year 1908:—

**PRODUCTION OF BISCUIT FACTORIES, 1908.**

Particulars.	N.S.W.	Victoria.*	Q'land.	S. Aust.†	W. Aust.*	Tas.*	Cwlth.†
Biscuits, cakes, etc.—							
Quantity lbs. (,000 omitted) ...	22,924	...	6,279	...	...	...	29,203
Value ... £	412,923	...	84,987	...	...	...	497,910
Flour used ... Tons	7,672	...	2,435	...	...	...	10,107

\* Not available. † New South Wales and Queensland only. ‡ See note \* to preceding table.

**13. Jam and Fruit Preserving, Pickles, Sauces, and Vinegar Manufactories.**—The jam and fruit-preserving industry has increased in importance of late years with the extension of orcharding and fruit-growing. As an exporting industry it is comparatively young, but is of increasing value, and is stated to be capable of considerable expansion. The subjoined table gives particulars of factories at which these industries were carried on in each State during the year 1908. Separate returns for the individual industries are not available for most of the States:—

**JAM AND FRUIT PRESERVING, PICKLES, SAUCES, AND VINEGAR MANUFACTORIES, 1908.**

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Cwlth.
Number of factories ...	37	26	9	26	5	13	116
" employes ...	1,048	1,360	177	498	58	735	3,876
Actual horse-power of engines employed	215	277	55	109	21	259	936
Approx. value of land and buildings £	66,998	95,707	9,019	18,755	3,310	24,453	218,242
" plant and machinery £	27,548	41,755	6,648	10,718	1,223	11,613	99,505
Total amount of wages paid during year £	51,114	79,619	8,283	16,538	3,683	30,178	189,415
Value of raw materials worked up £	279,825	356,753	23,802	87,956	9,511	*	757,847†
Total value of output ...	£ 434,617	550,912	52,416	137,381	15,202	*	1,190,528†
Value added in process of manufacture £	154,792	194,159	28,614	49,425	5,691	*	432,681†

\* Not available. † Exclusive of Tasmania.

(i.) *Quantity and Value of Production, 1908.* The following table shews the quantity and value of jams, pickles, and sauces manufactured in each State during the year 1908:—

**QUANTITY AND VALUE OF JAMS, PICKLES, AND SAUCES MANUFACTURED, 1908.**

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
<b>QUANTITY. (,000 OMITTED.)</b>							
Jam ... lbs.	24,751	25,366	3,967	4,938	276	14,635	74,133
Pickles ... pints	1,851	1,187	212	318	121	...	3,689
Sauce ... pints	1,486	3,015	144	1,110	367	...	6,122
<b>VALUE.</b>							
Jam ... £	347,369	350,000	41,722	60,067	3,343	190,400	1,002,901
Pickles ... £	33,132	22,070	3,524	8,500	3,171	...	70,327
Sauce ... £	25,522	52,000	2,433	19,635	8,934	...	108,524

**14. Confectionery.**—The following table shews the position of the confectionery industry in 1908, and it will be seen how it has expanded in ten years when it is stated that in 1896 there were in New South Wales 17 establishments, with 475 employes; and in Victoria 13 establishments, employing 512 persons and using plant and machinery valued at £16,570. In Tasmania there are no factories of this class.

## CONFECTIONERY FACTORIES, 1908.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Cwth.
Number of factories ... ..	32	26	10	5	4	...	77
"    employés ... ..	1,198	1,344	335	245	99	...	3,221
Actual horse-power of engines employed	237	241	52	71	45	...	646
Approx. value of land and buildings £	155,322	51,869	16,167	26,003	11,060	...	260,421
"    plant and machinery £	52,486	42,576	14,072	16,990	7,000	...	133,124
Total amount of wages paid during year £	70,763	71,188	15,456	14,376	6,255	...	178,038
Value of raw materials worked up £	282,747	287,570	26,825	42,851	21,525	...	661,518
Total value of output ... ..	432,524	438,739	87,919	81,117	31,137	...	1,071,436
Value added in process of manufacture £	149,777	151,169	61,094	38,266	9,612	...	409,918

15. **Flour Mills.**—The following table describes the position of the flour-milling industry in the year 1908:—

## FLOUR MILLS, 1908.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Cwth.
Number of factories ... ..	68	63	15	53	19	17	235
"    employés ... ..	792	776	190	532	179	122	2,591
Actual horse-power of engines employed	5,153	4,199	729	2,627	687	602	13,997
Approx. value of land and buildings £	396,935	224,740	65,345	119,144	58,274	44,200	908,638
"    plant and machinery £	284,954	251,671	76,481	142,858	58,158	36,955	854,077
Total am't of wages paid during year £	82,051	78,906	17,690	57,839	18,770	11,015	266,271
Value of raw materials worked up £	1,896,024	1,987,579	246,994	1,032,931	317,310	*	5,480,838†
Total value of output ... ..	2,209,892	2,275,024	306,214	1,215,535	371,934	*	6,378,599†
Value added in process of manufacture £	313,868	287,445	59,220	182,604	54,624	*	897,761†

\* Not available. † Exclusive of Tasmania.

(i.) *Production of Flour Mills, 1904 to 1908.* The production of flour by the mills in each State of the Commonwealth in the years 1904 to 1908 was as follows:—

## FLOUR MILLS—PRODUCTION 1904 to 1908.\*

Year.	N.S.W.	Victoria.	Q'nsland.	Sth. Aust.	West. Aust.	Tasmania.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1904	210,137	202,314	34,211	†	20,185	19,822	486,669†
1905	205,805	209,058	37,505	†	26,420	18,325	497,113†
1906	225,995	219,166	24,219	†	26,977	17,692	514,049†
1907	237,442	235,185	28,532	105,395	28,353	17,056	651,963
1908	180,843	192,687	22,266	107,742	31,424	17,426	552,388

\* Tons of 2000 lbs. † Exclusive of South Australia. ‡ Not available.

The total production of flour for the Commonwealth for 1908, viz., 552,388 tons, was valued at £5,206,980; in addition 234,292 tons of bran and pollard, valued at £1,357,176, were made. The total quantity of wheat ground in 1908 was 26,965,195 tons.

16. **Sugar Mills.**—The following table shews the position of the cane-crushing branch of the sugar-making industry in 1908. This industry is carried on in Queensland and New South Wales, the only States of the Commonwealth in which the sugar-cane is grown. Reference to the other States is therefore omitted from the table:—

## SUGAR MILLS, 1908.

Items.	N.S.W.	Queensland.	Total.
Number of factories ... ..	4	51	55
" employés ... ..	543	3,964	4,507
Actual horse-power of engines employed ...	2,578	9,030	11,608
Approximate value of land and buildings £	12,177	255,431	267,608
" " plant and machinery £	506,542	1,570,802	2,077,344
Total amount of wages paid during year £	34,369	263,263	297,632
Value of raw materials worked up ... £	102,732	933,730	1,036,462
Total value of output ... ..	190,191	1,510,472	1,700,663
Value added in course of manufacture £	87,459	576,742	664,201

The first crushing of sugar for commercial use is said to have taken place in New South Wales about 1850 on the plantation of Mr. Thomas Scott; the planting-out of cane was not, however, taken up by settlers, notwithstanding Mr. Scott's earnest advocacy of the industry, until 1862, when a small growth resulted in the establishment of a mill in Queensland; the appliances were rude, but the result satisfactory. In April, 1864, a mill with a modern crushing and boiling plant was opened at Cleveland (Q.) by Hon. Lionel Hope, but his success was only partial, and he closed down his works till 1867. In 1866 the Pampania Company opened a small factory in Queensland, and in the following year two other mills started work. Two factories were erected in the Maryborough district, and in 1868 others were working in the Mackay, Bowen and other districts. The industry was by the end of 1870 firmly established.

An unfortunate feature of the industry is that large quantities of molasses have been and still are allowed to run to waste. Part of the molasses produced is used in distillation, part is turned into food cake for cattle, and part is used for manuring land, but the greatest part produced is put to no use whatever.

The product of the sugar mill is raw sugar and molasses, the former being sent to the refineries in different parts of Australia for further treatment. The following tables shew the progress of this industry from the dates at which information is first obtainable :—

## SUGAR MILLS, NEW SOUTH WALES, 1870 to 1908.

Items.	1870.	1877.	1886.	1891.	1896.	1901.	1907.	1908.
Number of factories ... ..	27	50	64	33	23	12	5	4
" employés ... ..	...	1,065	2,259	1,621	1,475	695	610	543
Sugar produced ... Tons	677	7,537	13,750	16,033	28,557	19,519	29,172	14,996
Molasses produced gals.	...	345,543	507,000	1,074,080	2,520,580	1,300,909	1,211,000	922,549

During the year 1908, 144,760 tons of cane were crushed in sugar mills in New South Wales. The reduction in the number of New South Wales mills is due chiefly to a tendency, noticeable also in many other branches of industry, to concentrate the cane-crushing in mills fitted with modern machinery, and the consequent closing of the small home mill. On the north coast of New South Wales some land formerly devoted to sugar-growing has been turned into pastures in connection with the dairying industry.

## SUGAR MILLS, QUEENSLAND, 1868 to 1908.

Items.	1868.	1876.	1886.	1891.	1896.	1901.	1907.	1908.
Number of factories ... ..	10	70	118	68	63	52	52	51
" employés ... ..	...	...	...	...	3,796	...	4,155	3,964
" acres crushed ... ..	...	7,245	40,756	36,821	66,640	78,160	1,665,028 <sup>1</sup>	1,433,315 <sup>2</sup>
Sugar produced ... Tons	...	8,214	59,225	51,219	100,774	120,858	188,307	151,098
Molasses produced gals.	68,622	416,415	1,784,266	1,640,662 <sup>1</sup>	2,195,470	3,679,952	7,272,905	5,980,433

1. 1890. 2. Tons of cane crushed.

Information regarding the cultivation of sugar-cane and the bounties payable on cane grown by white labour may be found in the section of this book dealing with *Agricultural Production*. (See pages 398 to 402.)

**17. Sugar Refineries.**—The establishment of the sugar-refining industry considerably antedates the establishment of the sugar-milling industry, the raw material operated upon being originally brought chiefly from Mauritius and the East. In 1908 there were two sugar refineries in Queensland; and one in each of the States of New South Wales, Victoria and South Australia; and there were none in either of the other States. The returns for the individual States cannot be disclosed.

In the five refineries in the Commonwealth an average number of 1343 hands were employed during the year 1908. The approximate value of land and buildings was £257,305; of plant and machinery, £815,130; and the total amount of wages paid during the year was £142,781.

As regards production, the amount of crude sugar used was 168,926 tons, and of refined sugar produced 162,340 tons, valued at £2,175,837, both these amounts being exclusive of the two refineries in Queensland, for which returns are not available.

**18. Breweries.**—Established at an early date in Australia, the main feature of the history of the brewing industry has been the change from the small local brewery in every township of moderate size to the large centralised city brewery. A recent amalgamation in Melbourne resulted in the closing of several large breweries. A workmen's co-operative brewery has been opened in Sydney and a co-operative brewery has been opened in Melbourne by a number of "free" hotelkeepers.

The following table gives particulars of breweries in each State during the year 1908:—

#### BREWERIES, 1908.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Cwlth.
Number of factories ...	37	35	12	16	28	6	134
" employes ...	885	1,135	415	313	479	145	3,372
Actual horse-power of engines employed ...	734	2,259	181	210	724	128	4,236
Approx. value of land and buildings ...	£ 324,554	429,195	101,309	103,109	183,660	403,802	1,545,629
Approx. value of plant and machinery ...	£ 266,975	268,009	76,023	65,087	115,766	44,080	835,940
Total amount of wages paid during year ...	£ 109,510	132,566	47,941	36,446	79,326	17,899	423,688
Value of raw materials worked up ...	£ 428,643	374,378	120,393	68,577	106,544	*	† 1,098,535
Total value of output ...	£ 933,815	832,459	331,681	261,507	396,127	*	† 2,755,589
Value added by process of manufacture ...	£ 505,172	458,081	211,288	192,930	289,583	*	† 1,657,054

\* Not available.

† Exclusive of Tasmania.

(i.) *Production and Materials Used, 1908.* The following table shews the quantity and value of ale and stout brewed and the quantity of raw materials used in each State during the year 1908:—

#### PRODUCTION AND MATERIALS USED IN BREWERIES, 1908.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
ALE AND STOUT BREWED.							
Quantity gallons (,000 omitted)	15,077	17,583	4,921	3,693	4,312	2,026	47,612
Value ... £	704,054	830,000	331,681	257,596	374,196	118,182	2,615,709
RAW MATERIALS USED. (,000 OMITTED.)							
Malt ... bush.	560	556	168	103	133	82	1,602
Hops ... lbs.	678	685	250	150	220	122	2,105
Sugar ... cwt.	77	109	42	18	26	8	280

19. **Distilleries.**—The subjoined table gives particulars of distilleries in each State during the year 1908. There are only two distilleries in New South Wales; particulars are therefore not disclosed. There are no distilleries in either of the States of Western Australia or Tasmania :—

**DISTILLERIES, 1908.**

Particulars.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	Cwlth. †
Number of factories ... ..	...	8	3	19	...	...	30
employés ... ..	...	91	23	75	...	...	189
Actual horse-power of engines employed ... ..	...	176	25	149	...	...	350
Approximate value of land and buildings £ ... ..	...	80,305	5,500	22,015	...	...	107,720
Approx. value of plant and machinery £ ... ..	...	61,240	6,100	20,688	...	...	88,028
Total amount of wages paid during year £ ... ..	...	10,312	3,115	4,820	...	...	18,247
Value of raw materials worked up £ ... ..	...	25,834	3,938	45,164	...	...	74,936
Total value of output £ ... ..	...	47,309	12,062	81,714	...	...	141,085
Value added in process of manufacture £ ... ..	...	21,475	8,124	36,550	...	...	66,149

\* There are only two distilleries in New South Wales, particulars are therefore not disclosed.

† Exclusive of New South Wales.

(i.) *Production of Spirits and Materials Used, 1908.* The total quantity of brandy distilled in 1908 was 211,125 proof gallons, and of other spirits was 1,589,849 proof gallons. The materials used comprised 274,618 cwt. of molasses and 2,333,872 gallons of wine. Particulars for the separate States are not available for publication.

20. **Tobacco, Cigars and Cigarettes.**—During the year 1908 there were thirty-three establishments in which the manufacture of tobacco, cigars, and cigarettes was carried on. In Queensland there were only two such establishments, and particulars are therefore not disclosed. In Tasmania there were no factories engaged in this industry.

**TOBACCO, CIGAR, AND CIGARETTE FACTORIES, 1908.**

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Cwlth. †
Number of factories ... ..	12	13	...	3	3	...	31
employés ... ..	1,309	2,542	...	175	32	...	4,058
Actual horse-power of engines employed ... ..	357	391	...	24	1	...	773
Approx. value of land and buildings £ ... ..	191,688	165,736	...	10,484	2,600	...	370,508
" plant and machinery £ ... ..	119,012	100,880	...	12,084	297	...	232,273
Total amount of wages paid during year £ ... ..	97,653	145,982	...	17,023	2,190	...	262,848
Value of raw materials worked up £ ... ..	633,615	716,906	...	54,623	2,820	...	1,407,964
Total value of output ... ..	944,864	1,029,474	...	81,389	6,991	...	2,062,718
Value added in process of manufacture £ ... ..	311,249	312,568	...	26,766	4,171	...	654,754

\* As there are only two factories in this State, particulars are not disclosed. † Exclusive of Queensland.

(i.) *Development of Industry.* This industry was early established in Australia, and the figures given in the subjoined table shew its progress during recent years. In 1896 there were in New South Wales eight establishments employing 641 persons, of whom 471 were males and 170 females. The plant and machinery employed were valued at £55,700. In Victoria, in this same year, there were twelve establishments employing 650 persons, of whom 424 were males and 226 were females. The value of the plant and machinery employed was £42,410. The Australian market is now largely supplied with local manufactures.

**DEVELOPMENT OF TOBACCO, CIGAR, AND CIGARETTE FACTORIES, 1905 to 1908.**

State.	Number of Factories.				Number of Persons Employed.				Approximate Value of Plant and Machinery.			
	1905.	1906.	1907.	1908.	1905.	1906.	1907.	1908.	1905.	1906.	1907.	1908.
N.S. Wales ... ..	13	13	11	12	952	1,016	1,103	1,309	£ 104,466	£ 104,051	£ 111,296	£ 119,012
Victoria ... ..	10	12	13	13	1,638	1,846	2,019	2,542	72,772	78,522	88,341	100,880
Queensland ... ..	1	2	2	2	61	63	...	...	4,000	4,684	...	...
South Australia ... ..	3	2	3	3	171	135	174	175	...	...	12,716	12,084
West Australia ... ..	2	3	3	3	16	30	23	32	80	235	265	297
Tasmania ... ..	...	...	...	...	...	...	...	...	...	...	...	...
Commonwealth	29	32	32	33	2,838	3,090	3,319	4,058	181,318	187,492	212,618	232,273

\* See note \* to preceding table.

(ii.) *Quantity and Value of Production and Tobacco Leaf Used, 1908.* The following table shews the quantity and value of the production of tobacco factories in each State, and the quantities of imported and Australian-grown leaf used during the year 1908 :—

### PRODUCTION OF TOBACCO FACTORIES AND QUANTITY OF LEAF USED, 1908.

Particulars.	N.S.W.	Victoria.	Q'land.*	S. Aust.	W. Aust.	Tas.	Cwlt.h†
QUANTITY (,000 OMITTED).							
Manufact'd tobacco lbs.	3,916	5,331	...	435	4	...	9,686
Cigars ... lbs.	58	200	...	10	7	...	275
... No.	5,059	18,028	...	925	544	...	24,556
Cigarettes ... lbs.	1,119	402	...	...	1	...	1,522
... No.	494,519	176,499	...	...	219	...	671,237
TOBACCO LEAF USED (,000 OMITTED).							
Australian leaf... lbs.	1,040	264	...	177	3	...	1,484
Imported leaf ... lbs.	3,550	5,539	...	250	14	...	9,353

\* See note \* to preceding table. † Exclusive of Queensland.

21. **Woollen and Tweed Mills.**—The manufacture of woollens and tweeds was established in Australia at a comparatively early period in its industrial history, the first record in Victoria dating back to 1867. The following table, which gives particulars of the mills in each State during the year 1908, shews that the industry is now well established :—

### WOOLLEN AND TWEED MILLS, 1908.

Items.	N.S.W.	Vic.	Q'ld.*	S.A.*	W.A.	Tas.	Cwlt.h.
Number of factories ...	5	9	...	...	...	4	21
... employés ...	455	1,757	...	...	...	263	2,717
Actual horse-power of engines employed ...	338	2,348	...	...	...	145	2,977
Approx. value of land and buildings £	43,549	117,828	...	...	...	28,900	204,096
... plant and machinery £	43,933	263,100	...	...	...	33,250	370,847
Total amount of wages paid during year £	22,102	96,844	...	...	...	11,266	142,773
Value of raw materials worked up £	40,178	214,323	...	...	...	†	277,219†
Total value of output ... £	79,843	388,218	...	...	...	†	517,636†
Value added in process of manufacture £	39,675	173,895	...	...	...	†	240,417†

\* As there is only one woollen mill in Queensland and as there are only two in South Australia, particulars are not disclosed, but are added in with the total for the Commonwealth. † Not available. ‡ Exclusive of Tasmania.

(i.) *Progress of Industry, 1905 to 1908.* The progress of the woollen and tweed cloths manufacturing industry during the last four years is shewn in the following table for each State in which mills were in operation :—

### DEVELOPMENT OF WOOLLEN MILLS IN AUSTRALIA, 1905 to 1908.

State.	Number of Factories.				Number of Persons Employed.				Approximate Value of Plant and Machinery.			
	1905.	1906.	1907.	1908.	1905.	1906.	1907.	1908.	1905.	1906.	1907.	1908.
N.S.W. ...	3	5	5	5	262	338	335	455	£ 31,540	£ 36,400	£ 39,433	£ 43,933
Victoria ...	11	9	9	9	1,315	1,434	1,589	1,757	234,532	236,988	259,740	263,100
Q'land.*	...	...	...	...	...	...	...	...	...	...	...	...
S. Aust.*	...	...	...	...	...	...	...	...	...	...	...	...
W. Aust. ...	...	...	...	...	...	...	...	...	...	...	...	...
Tasmania	4	4	4	4	236	274	257	263	29,940	42,200	45,413	33,250
C'wealth	21	21	21	21	2,055	2,318	2,509	2,717	...	...	377,800	370,847

\* See note \* to preceding table.

(ii.) *Quantity and Value of Production, 1908.* The production of the woollen mills of Australia consists chiefly of tweed cloths, flannels, and blankets, all of which have acquired a reputation for purity and durability. Detailed particulars for the several States are not generally available for publication. The total length of tweed and cloth manufactured was about 1,500,000 yards, valued at about £165,000. In New South Wales 524,885 yards of tweed and cloth, in Victoria 922,176 yards, and in Tasmania 29,306 yards were manufactured. The production of flannel in the Commonwealth in 1908 amounted to 4,791,234 yards, valued at £221,989, and of blankets, shawls, and rugs to 619,110, valued at £129,011. Particulars for the individual States are not generally available.

No cotton spinning or weaving or linen weaving is carried on in Australia. Cotton ginning has been carried on at periods far apart in the northern States, and a mill was lately reopened at Ipswich in Queensland.

22. **Boots and Shoes.**—Among the specialised secondary industries of Australia the boot and shoe industry stands pre-eminent in respect of the number of factories engaged in it, the employment afforded by it, and the range of its output. The following table shews particulars of this industry for each State during the year 1908 :—

#### BOOT AND SHOE FACTORIES, 1908.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Cwith
Number of factories ... ..	105	139	27	24	10	23	328
"    employés ... ..	4,650	6,348	1,094	1,077	185	252	13,606
Actual horse-power of engines employed	786	716	160	173	23	31	1,889
Approx. value of land and buildings £	191,223	161,778	28,333	62,695	8,635	11,650	464,314
"    plant and machinery £	134,575	123,204	26,652	30,748	5,967	3,185	324,331
Total amount of wages paid during yr. £	303,232	371,081	69,367	73,517	15,930	15,085	848,212
Value of raw materials worked up £	602,927	780,760	115,176	147,875	30,997	*	1,677,735†
Total value of output ... ..	1,080,179	1,307,329	237,223	242,812	54,288	*	2,921,831†
Value added in process of manufacture £	477,252	526,569	122,047	94,937	23,291	*	1,244,096†

\* Not available.   † Exclusive of Tasmania.

(i.) *Progress of Industry, 1905 to 1908.* The progress of the industry in the last four years is shewn in the following table :—

#### DEVELOPMENT OF BOOT AND SHOE FACTORIES, 1905 to 1908.

State.	No. of Factories.				No. of Persons Employed.				Approximate Value of Plant and Machinery.			
	1905.	1906.	1907.	1908.	1905.	1906.	1907.	1908.	1905.	1906.	1907.	1908.
									£	£	£	£
N.S.W. ...	98	102	102	105	4,465	4,767	4,786	4,650	122,429	122,580	131,884	134,575
Victoria ...	136	134	139	139	5,873	5,703	6,303	6,348	98,136	99,042	122,347	123,204
Q'land. ...	39	29	32	27	1,047	1,015	1,134	1,094	17,726	20,592	22,078	26,652
S. Aust. ...	19	17	21	24	1,270	1,212	1,162	1,077	*	*	28,352	30,748
W. Aust. ...	14	12	12	10	257	236	249	185	9,200	6,626	7,232	5,967
Tasmania ...	15	15	23	23	332	323	281	252	6,915	6,713	4,859	3,185
C'wealth	321	309	329	328	13,244	13,256	13,915	13,606	254,406	255,553	316,752	324,331

\* Information not available.

(ii.) *Value and Quantity of Production, 1908.* The number and value of boots and shoes, and slippers made at factories in each State during the year 1908, are shewn in the following table :—

## PRODUCTION OF BOOT AND SHOE FACTORIES, 1908.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Cwlth.
QUANTITY. (,000 OMITTED).							
Boots and shoes ... Pairs	3,709	4,164	737	965	180	119	9,874
Slippers ... Pairs	440	194	84	47	2	...	767
Uppers ... Pairs	39	25	100	10	5	3	182
VALUE.							
Boots and shoes ... £	1,015,753	1,270,000	204,286	231,174	49,997	36,400	2,807,610
Slippers ... £	39,997	30,000	7,541	5,034	393	...	82,965
Uppers ... £	8,119	6,000	25,396	2,002	1,600	600	43,717

**23. Hats and Caps.**—The manufacture of hats and caps is now well established in several of the States of the Commonwealth. In South Australia there is only one factory of this description, while there are not any either in Western Australia or in Tasmania. The position of the industry in 1908 is shewn in the following table :—

## HAT AND CAP FACTORIES, 1908.

Items.	N.S.W.	Vic.	Q'land.	S.A.*	W.A.	Tas.	Cwlth. †
Number of factories ...	26	34	4	...	...	...	64
" employes ...	1,221	1,520	129	...	...	...	2,870
Actual horse-power of engines employed	183	253	9	...	...	...	445
Approx. value of land and buildings £	65,012	65,263	14,360	...	...	...	144,635
" plant and machinery £	34,315	29,650	7,662	...	...	...	71,627
Total amount of wages paid during year £	50,543	59,653	6,361	...	...	...	150,557
Value of raw materials worked up £	92,232	126,769	10,465	...	...	...	229,526
Total value of output ... £	176,300	262,746	20,695	...	...	...	459,741
Value added in process of manufacture £	84,008	135,977	10,230	...	...	...	230,215

\* As there is only one factory in this State, particulars are not disclosed. † Exclusive of South Australia.

(i.) *Progress of Industry, 1905 to 1908.* As appears from the following table, which shews the progress of this industry in the States in which it was carried on during the years 1905 to 1908, there has been a considerable investment of capital in this industry in New South Wales and Victoria during recent years, and the industry is now in a flourishing condition in both these States:—

## DEVELOPMENT OF HAT AND CAP FACTORIES, 1905 to 1908.

State.	Number of Factories.				No. of Persons employed				Approximate Value of Plant and Machinery.			
	1905.	1906.	1907.	1908.	1905.	1906.	1907.	1908.	1905.	1906.	1907.	1908.
New South Wales	21	23	22	26	904	1,336	1,094	1,221	£ 29,650	£ 32,750	£ 35,653	£ 34,315
Victoria ...	32	32	33	34	1,208	1,319	1,404	1,520	21,933	24,588	28,452	29,650
Queensland ...	8	4	3	4	144	122	140	129	7,161	6,083	7,142	7,662
South Australia ...	*	*	*	1	56	50	...	...	*	*	*	*
Commonwealth	61	59	58	65	2,312	2,527	2,638	2,870	58,714	63,421	71,247	71,627

\* See note \* to preceding table.

(ii.) *Quantity and Value of Production, 1908.* Particulars regarding the quantity and value of the production of hat and cap factories in each State are incomplete. The total value of hats and caps made in Australia in 1908 was £473,539.



24. **Coach and Wagon Building Works.**—This industry (including wheelwrights, etc.) forms the principal branch of manufacture in Class XI. (see § 1, 3, above). The subjoined table gives particulars of factories in this branch of industry in each State during the year 1908. The returns include establishments for the manufacture of wheels, spokes, etc. :—

**COACH AND WAGON BUILDING WORKS, 1908.**

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Cwlth.
Number of factories ... ..	231	268	72	90	36	29	726
" employés ... ..	2,305	2,630	634	935	279	175	6,958
Actual horse-power of engines employed	275	268	84	189	60	16	892
Approx. value of land and buildings £	232,013	207,683	56,366	92,171	29,090	18,705	636,028
" plant and machinery £	49,038	46,897	15,023	19,365	9,510	2,050	141,883
Total amount of wages paid during year	161,134	163,848	47,465	63,983	29,993	12,027	484,450
Value of raw materials worked up £	174,424	175,759	39,903	67,339	29,717	*	487,142†
Total value of output ... ..	450,470	444,641	119,978	168,246	74,213	*	1,257,548†
Value added in process of manufacture £	276,046	268,882	80,075	100,907	44,496	*	770,406†

\* Not available. † Exclusive of Tasmania.

25. **Furniture and Cabinet Making and Billiard Table Making.**—These industries constitute the principal manufactures in Class XIII. (see § 1, 4, above). The following table gives particulars for 1908 :—

**FACTORIES FOR FURNITURE AND CABINET MAKING AND BILLIARD TABLE MAKING, 1908.**

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Cwlth.
Number of factories ... ..	104	129	46	23	16	11	329
" employés ... ..	2,105	1,493	780	676	223	85	5,362
Actual horse-power of engines employed	377	263	256	324	54	20	1,314
Approx. value of land and buildings £	167,777	159,944	60,914	42,230	24,146	9,700	464,711
" plant and machinery £	25,263	21,664	18,811	14,458	2,739	918	83,853
Total amount of wages paid during year	165,780	124,269	59,675	54,449	24,019	6,151	434,343
Value of raw materials used ... ..	181,677	164,486	53,025	48,706	28,257	*	476,151†
Total value of output ... ..	423,077	345,984	136,590	121,634	61,276	*	1,088,561†
Value added in process of manufacture £	241,400	181,498	83,565	72,928	33,019	*	612,410†

\* Not available. † Exclusive of Tasmania.

26. **Electric Light and Power Works.**—Particulars of the electric light and power works of the Commonwealth in the year 1908 are given in the subjoined table. In South Australia there is only one electric light and power station. Particulars for that State are therefore not disclosed :—

**ELECTRIC LIGHT AND POWER WORKS, 1908.**

Items.	N.S.W.	Vic.	Q'land.	S.A.*	W.A.	Tas.	Cwlth.†
Number of factories ... ..	97	12	6	...	16	6	137
" employés ... ..	748	441	91	...	232	162	1,674
Actual horse-power of engines employed	35,516	11,702	3,649	...	12,209	4,026	67,102
Approx. value of land and buildings £	364,764	157,437	15,870	...	62,124	7,375	608,190
" plant and machinery £	1,012,231	541,489	69,417	...	436,373	103,370	2,163,480
Total amount of wages paid during year	95,541	50,442	9,338	...	41,747	23,505	220,873
Value of raw materials and fuel used £	146,990	37,692	7,195	...	74,997	†	266,874§
Total value of output ... ..	615,442	191,317	37,197	...	230,143	†	1,074,059§
Value added in process of manufacture £	468,452	153,625	30,002	...	155,146	†	807,225§

\* As there is only one electric light and power station in South Australia, particulars are not closed. † Exclusive of South Australia. ‡ Not available. § Exclusive also of Tasmania.

**27. Gas and Coke Works.**—There are gas works in operation in nearly all the chief towns in the Commonwealth. The subjoined table gives particulars of gas and coke works in each State.

### GAS AND COKE WORKS, 1908.

Items.	N.S.W.	Vic.	Q'land	S.A.	W.A.	Tas.	Cwlth.
Number of factories ... ..	54	47	18	9	3	3	134
" employes ... ..	1,213	1,298	347	307	82	133	3,380
Actual horse-power of engines employed	2,091	639	128	82	30	378	3,348
Approx. value of land and buildings £	513,177	474,821	120,155	9,198	32,858	26,500	1,176,709
" plant and machinery £	753,571	1,233,651	376,221	365,431	58,542	229,456	3,016,872
Total amount of wages paid during year £	159,811	168,077	40,849	35,716	13,547	18,511	436,311
Value of raw materials and fuel used £	334,287	184,411	23,518	32,945	11,522	*	586,683†
Total value of output ... ..	896,332	618,501	153,741	118,156	32,398	*	1,819,128†
Value added in process of manufacture £	562,045	434,090	130,223	85,211	20,876	*	1,232,445†

\* Not available. † Exclusive of Tasmania.

The following table gives particulars regarding the quantity and value of the production of gas and coke works in each State during the year 1908 :—

### PRODUCTION OF GAS AND COKE WORKS, 1908.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Cwlth.
QUANTITY.							
Gas made ... 1000 cub. ft.	3,295,698	2,144,834	373,973	310,678	81,934	122,922	6,330,039
Coke ... .. Tons	421,572	126,533	32,893	8,567	4,334	7,624	601,543
VALUE.							
Gas ... .. £	540,086	540,000	127,379	93,076	23,826	46,596	1,370,863
Coke ... .. £	274,190	76,000	20,161	6,448	8,466	7,624	392,889
COAL USED.							
Coal ... .. Tons	763,279	206,408	60,340	32,331	7,397	13,353	1,083,108