

## SECTION XIII.

## MANUFACTURING INDUSTRIES.

## § 1. General.

1. **Industrial Progress.**—The statistics of manufactures in the Commonwealth shew that many industries have now been permanently established on a secure basis, and also indicate a consistent progress both in regard to the extension of existing industries and the establishment of new ones. As will be seen in the following pages of this section, this progress has been particularly in evidence since the abolition of inter-colonial tariffs, which took place upon the creation of the Commonwealth of Australia in 1901.

(i.) *The Gold Discoveries, 1851.* Prior to the gold discoveries (1851) there was little development in the manufacturing industries of Australia. Reference to that period will be found in previous issues of the Year Book (see No. 6, page 524).

(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 nascent industrial activity. The Colonies 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 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, will serve to indicate generally the progress which has been made:—

## NUMBER OF FACTORIES AND EMPLOYEES IN EACH STATE, 1861 to 1912.

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
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	3,249	2,110†	1,335†	662	420*	11,143‡
1911	5,039	5,126	1,657	1,314	710	609	14,455
1912	5,162	5,263	1,790	1,341	711	611	14,878
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	66,529	26,172†	19,283†	12,198	7,466*	197,783‡
1911	108,624	111,948	37,156	27,885	15,799	10,298	311,710
1912	115,561	116,108	40,948	28,500	16,382	9,957	327,456

\* For 1902. † Not on same basis as other States. ‡ Not on same basis for some of States as in 1911.

NOTE.—In this and all subsequent tables, except where specially mentioned, "Number of Employees" includes working proprietors.

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 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 past four years are, however, in more complete co-ordination than formerly, and it is now possible to give particulars for the several States in greater detail and on a more 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 shews 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.

<p><b>CLASS I.—TREATING RAW MATERIALS, ETC.</b> Boiling-down, Tallow Refining, etc. Tanneries Woolscouring &amp; Fellmongering Chaff-cutting, etc.</p>	<p>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.</p>	<p><b>CLASS XII.—SHIP AND BOAT BUILDING AND REPAIRING.</b> Docks and Slips Sailmaking Ship and Boat Building and Repairing</p>
<p><b>CLASS II.—OILS AND FAT, ETC.</b> Oil and Grease Soap and Candles</p>	<p><b>CLASS VII.—CLOTHING AND TEXTILE FABRICS.</b></p>	<p><b>CLASS XIII.—FURNITURE, BEDDING, ETC.</b> Bedding, Flock, &amp; Upholstery Billiard Tables Furniture and Cabinet Making Picture Frames Window Blinds</p>
<p><b>CLASS III.—STONE, CLAY, GLASS, ETC.</b> Bricks and Tiles Glass (including Bottles) Glass (Ornamental) Lime, Plaster, Cement and Asphalt Marble, Slate, etc. Modelling, etc. Pottery and Earthenware</p>	<p>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</p>	<p><b>CLASS XIV.—DRUGS AND CHEMICALS, ETC.</b> Chemicals, Drugs, and Medicines Fertilisers Paints, Varnishes, and By-products</p>
<p><b>CLASS IV.—WORKING IN WOOD.</b> Boxes and Cases Cooperage Joinery Saw Mills Wood-turning, etc.</p>	<p><b>CLASS VIII.—BOOKS, PAPER, PRINTING, ETC.</b></p>	<p><b>CLASS XV.—SURGICAL AND OTHER SCIENTIFIC INSTRUMENTS.</b> Surgical, Optical, and other Scientific Instruments</p>
<p><b>CLASS V.—METAL WORKS, MACHINERY, ETC.</b> Agricultural Implements Brass and Copper Cutlery Engineering Galvanised Iron-working Ironworks and Foundries Lead Mills Railway Carriages Railway and Tramway Workshops Smelting Stoves and Ovens Tinsmithing Wireworking Other Metal Works</p>	<p>Electrotyping &amp; Stereotyping Paper-making, Paper Boxes, Bags, etc. Photo-engraving Printing and Binding</p>	<p><b>CLASS XVI.—TIMEPIECES, JEWELLERY, &amp; PLATED WARE.</b> Electro-plating Manufacturing Jewellery, etc.</p>
<p><b>CLASS VI.—FOOD AND DRINK, ETC.</b></p>	<p><b>CLASS IX.—MUSICAL INSTRUMENTS, ETC.</b></p>	<p><b>CLASS XVII.—HEAT, LIGHT, AND POWER.</b></p>
<p>Bacon Curing Butter Factories Butterine and Margarine Cheese Factories Condensed Milk Meat and Fish Preserving Biscuits Confectionery</p>	<p>Musical Instruments and Sewing Machines</p>	<p>Coke Works Electric Apparatus Electric Light and Power Gas Works and Kerosene Lamps and Fittings, etc. Hydraulic Power</p>
	<p><b>CLASS X.—ARMS &amp; EXPLOSIVES</b></p>	<p><b>CLASS XVIII.—LEATHERWARE (N.E.I.)</b></p>
	<p>Arms Explosives</p>	<p>Leather Belting, Fancy Leather, Portmanteaux &amp; Bags</p>
	<p><b>CLASS XI.—VEHICLES, SADDLERY, HARNESS, ETC.</b></p>	<p><b>CLASS XIX.—MINOR WARES.</b></p>
	<p>Coach and Wagon Building Cycles Perambulators Saddlery, Harness, etc. Spokes, etc.</p>	<p>Basket and Wickerware, Matting, etc. Brooms and Brushware Rubber Goods Toys Umbrellas Other Industries</p>

## § 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 Queensland, for example, prior to 1906, the statistics included all establishments where two or more hands were employed, except Government railway workshops, which were not included till 1907. The difference in other respects is not material.

In the following table, shewing the total number of manufactories in the Commonwealth during the years 1903 and 1908 to 1912, it should be noted that not only are the results affected by differences of classification prior to 1907, 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. (See § 3, 5.)

### MANUFACTORIES OF THE COMMONWEALTH, 1903, and 1908 to 1912.

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
1908 ...	4,453	4,608	1,371	1,237	627	557	12,853
1909 ...	4,581	4,755	1,420	1,265	632	576	13,229
1910 ...	4,821	4,873	1,563	1,278	680	635	13,850
1911 ...	5,039	5,126	1,657	1,314	710	609	14,455
1912 ...	5,162	5,263	1,790	1,341	711	611	14,878

\* Not on same basis as other States. † 1904 results, those for 1903 not available.

(i.) *Classification of Factories in Commonwealth, 1908 to 1912.* The following table shews the total number of factories in the Commonwealth at the end of each year from 1908 to 1912, classified on the basis indicated in § 1, 3 hereof:—

### CLASSIFICATION OF FACTORIES IN THE COMMONWEALTH, 1908 to 1912.

Class of Industry.	1908.	1909.	1910.	1911.	1912.
	No.	No.	No.	No.	No.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	812	855	855	857	871
II. Treating oils and fats, animal, vegetable, etc. ...	97	94	100	105	102
III. Processes in stone, clay, glass, etc. ...	627	645	703	719	709
IV. Working in wood ...	1,322	1,411	1,474	1,625	1,752
V. Metal works, machinery, etc. ...	1,548	1,588	1,620	1,697	1,779
VI. Connected with food and drink, etc. ...	2,253	2,258	2,286	2,310	2,331
VII. Clothing and textile fabrics, etc. ...	2,681	2,774	2,982	3,093	3,115
VIII. Books, paper, printing and engraving ...	993	1,011	1,062	1,144	1,158
IX. Musical instruments, etc. ...	17	18	20	19	21
X. Arms and explosives ...	8	9	13	14	16
XI. Vehicles and fittings, saddlery and harness, etc. ...	1,105	1,117	1,195	1,208	1,249
XII. Ship and boat building and repairing ...	76	84	85	87	97
XIII. Furniture, bedding, and upholstery ...	483	512	560	613	670
XIV. Drugs, chemicals, and by-products ...	153	164	176	189	202
XV. Surgical and other scientific instruments ...	28	30	35	41	44
XVI. Jewellery, timepieces, and platedware ...	153	150	155	169	177
XVII. Heat, light, and power ...	307	314	326	351	372
XVIII. Leatherware, n.e.i. ...	54	55	60	62	66
XIX. Minor wares, n.e.i. ...	136	140	143	152	147
<b>Total ...</b>	<b>12,853</b>	<b>13,229</b>	<b>13,850</b>	<b>14,455</b>	<b>14,878</b>

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 1908 to 1912 was 2025, or an average of 506 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, as pointed out previously, amalgamations may in some instances account for a reduction in the numbers.

(ii.) *Classification of Factories in each State, 1912.* The following table shews the number of factories in each State of the Commonwealth at the end of the year 1912, classified according to the nature of the industry. (See classification given in § 1, 3 hereof):—

## CLASSIFICATION OF FACTORIES IN EACH STATE, 1912.

Class of Industry.	N.S.W.	Vic.	Q'land.	S. Aus.	W. Aus.	Tas.	Cw'lbh.
	No.	No.	No.	No.	No.	No.	No.
I. Treating raw material, product of agricul. and pastoral pursuits, etc.	287	335	50	129	31	39	871
II. Treating oils and fats, animal, vegetable, etc.	45	24	15	11	4	3	102
III. Processes in stone, clay, glass, etc.	207	222	38	90	42	20	709
IV. Working in wood	689	413	329	98	72	151	1,752
V. Metal works, machinery, etc.	536	714	231	179	72	47	1,779
VI. Connected with food and drink, etc.	765	652	414	251	138	111	2,331
VII. Clothing and textile fabrics, etc.	997	1,398	256	230	138	96	3,115
VIII. Books, paper, printing & engraving	426	427	147	74	59	25	1,158
IX. Musical instruments, etc.	14	5	...	2	...	...	21
X. Arms and explosives	6	9	...	1	...	...	16
XI. Vehicles and fittings, saddlery and harness, etc.	393	434	158	151	57	56	1,249
XII. Ship and boat building & repairing	47	13	13	11	5	8	97
XIII. Furniture, bedding, and upholstery	220	255	81	55	34	25	670
XIV. Drugs, chemicals, and by-products	87	88	3	12	11	1	202
XV. Surgical and other scientific instruments	13	18	6	2	5	...	44
XVI. Jewellery, timepieces, & plated ware	53	85	11	15	5	8	177
XVII. Heat, light, and power	203	90	24	14	26	15	372
XVIII. Leatherware, n.e.l.	24	32	4	3	3	...	66
XIX. Minor wares, n.e.l.	60	49	10	13	9	6	147
Total ... ..	5,162	5,263	1,790	1,341	711	611	14,878

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 factories find it convenient to derive their motive power.

The following table shews the number of factories in which machinery was 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 1912 :—

## UTILISATION OF MECHANICAL POWER IN FACTORIES IN EACH STATE, 1912.

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.
				H.P.	H.P.	H.P.	H.P.	H.P.
New South Wales	No. 3,775	No. 1,387	No. 5,162	130,479	16,028	1,181	26,652	174,340
Victoria ...	3,551	1,712	5,263	59,262	13,745	1,778	14,505	89,290
Queensland ...	1,301	489	1,790	36,706	5,733	1,079	4,396	47,914
South Australia ...	953	388	1,341	21,119	5,217	1,885	4,624	32,845
Western Australia	533	178	711	24,594	2,886	668	4,134	32,252
Tasmania ...	445	166	611	12,068	296	236	2,486	15,088
Commonwealth	10,558	4,320	14,878	284,228	43,905	6,829	56,797	391,759

A comparison of the above table with that immediately preceding will explain the preponderance of horse-power employed in the New South Wales factories, this State possessing by far the largest number of industries demanding a considerable amount of power; Victoria, on the other hand, has the largest number of establishments, such as those connected with clothing and textile fabrics, wherein much less mechanical power is utilised.

The number of establishments in the Commonwealth using machinery worked by steam, gas, oil, or electricity was 10,558, being 70.96 per cent.; 4320 establishments, representing 29.04 per cent., used no mechanical power. The total average horse-power in use was 391,759, of which engines in which the motive power was steam formed 72.55 per cent.; gas, 11.21 per cent.; oil, 1.74 per cent.; and electricity, 14.50 per cent. During 1912 there were 586 more establishments using power than in 1911, the increase in horse-power employed being 48,209, or over fourteen per cent.

### § 3. Numbers 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, 1908 to 1912.* The following table shews, for each year from 1908 to 1912 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 :—

#### AVERAGE NUMBER OF PERSONS EMPLOYED IN MANUFACTURING INDUSTRIES, 1908 to 1912.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
AVERAGE NUMBER.							
1908	89,098	93,808	29,200	24,236	12,425	8,727	257,494
1909	91,702	97,355	29,504	25,709	12,826	9,565	266,661
1910	99,711	102,176	33,944*	27,010	14,107	9,980	286,928
1911	108,624	111,948	37,156*	27,885	15,799	10,298	311,710
1912	115,561	116,108	40,948*	28,500	16,382	9,957	327,456
PERCENTAGE ON COMMONWEALTH TOTAL.							
1908	34.60	36.42	11.34	9.42	4.83	3.39	100.00
1909	34.39	36.51	11.06	9.64	4.81	3.59	100.00
1910	34.76	35.61	11.83*	9.41	4.91	3.48	100.00
1911	34.85	35.91	11.92*	8.95	5.07	3.30	100.00
1912	35.29	35.46	12.51*	8.70	5.00	3.04	100.00
PER 10,000 OF MEAN POPULATION.							
1908	566	756	527	635	482	465	614
1909	574	772	518	656	487	503	624
1910	611	797	574*	673	521	522	657
1911	654	848	605*	679	551	541	694
1912	665	856	648*	676	543	519	705

\* Including a number of drapery and tailoring shops making to order of customer; this class of establishment was omitted in Queensland in years previous to 1910.

(ii.) *Rates of Increase, 1908 to 1912.* From the preceding table it may be seen that there has been a general increase in the average number of persons employed in manufacturing industries during the period referred to. The following table shews the percentage of increase during each year on the average number for the preceding year:—

**PERCENTAGE OF INCREASE IN AVERAGE NUMBER EMPLOYED, 1908 to 1912.**

Years.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
1907-8 ...	3.04	2.75	4.46	6.90	— 1.44	6.31	3.49
1908-9 ...	2.92	3.78	1.04	6.08	3.23	9.60	3.56
1909-10 ...	8.77	4.95	15.05*	5.06	9.99	4.34	7.61
1910-11 ...	8.94	9.56	9.46*	3.32	11.99	3.19	8.65
1911-12 ...	6.35	3.72	10.20	2.12	3.69	— 3.81	5.03

Note. (—) signifies a decrease. \* See note (\*) to preceding table.

**2. Classification of Numbers Employed in Factories in the Commonwealth, 1908 to 1912.**—The following table gives a classification of the average numbers of persons employed in factories of different descriptions in the Commonwealth during the years 1908 to 1912 inclusive:—

**AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES IN THE COMMONWEALTH, 1908 to 1912.**

Class of Industry.	1908.	1909.	1910.	1911.	1912.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	9,042	9,549	9,655	9,805	9,624
II. Treating oils and fats, animal, vegetable, etc. ...	1,735	1,812	1,872	2,019	2,091
III. Processes in stone, clay, glass, etc. ...	9,420	9,605	10,737	12,033	12,909
IV. Working in wood ...	21,310	22,487	24,520	27,948	30,660
V. Metal works, machinery, etc. ...	48,505	49,753	54,238	60,538	66,472
VI. Connected with food and drink, etc. ...	40,652	41,006	42,921	45,623	46,812
VII. Clothing and textile fabrics, etc. ...	70,075	73,567	78,383	83,845	84,651
VIII. Books, paper, printing and engraving ...	21,448	21,943	23,064	24,232	25,077
IX. Musical instruments, etc. ...	444	433	553	607	628
X. Arms and explosives ...	339	377	431	508	639
XI. Vehicles and fittings, saddlery and harness, etc. ...	10,784	11,366	12,434	13,294	13,400
XII. Ship and boat building and repairing ...	2,278	2,220	2,508	2,920	3,621
XIII. Furniture, bedding and upholstery ...	7,117	7,633	8,434	9,480	10,405
XIV. Drugs, chemicals and by-products ...	3,086	3,391	3,837	4,165	4,351
XV. Surgical and other scientific instruments ...	176	173	190	233	238
XVI. Jewellery, timepieces, and platedware ...	1,771	1,800	1,896	2,142	2,302
XVII. Heat, light, and power ...	5,754	5,986	6,735	7,651	8,550
XVIII. Leatherware, n.e.i. ...	893	924	1,037	1,226	1,231
XIX. Minor wares, n.e.i. ...	2,665	2,631	2,783	3,321	3,295
<b>Total ...</b>	<b>257,494</b>	<b>266,661</b>	<b>286,928</b>	<b>311,710</b>	<b>327,456</b>

The total increase in the average number of hands employed from 1908 to 1912 was 69,962, or an annual average of 17,490. The increase was general throughout all the various classes of industry. The greatest development took place in Classes V. and VII., the increases being 17,967 and 14,586 respectively.

**3. Classification of Numbers Employed in each State, according to Class of Industry, 1912.**—The following table shews a similar classification of employees in manufacturing industries in each State for the year 1912:—

**AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES IN EACH STATE, 1912.**

Class of Industry.	N.S.W.	Vic.	Q'land.	S. Aus.	W. Aus.	Tas.	C'wth.
I. Treating raw material, product of agricul. and pastoral pursuits, etc.	3,872	3,379	723	1,075	247	328	9,624
II. Treating oils and fats, animal, vegetable, etc.	895	663	166	264	69	34	2,091
III. Processes in stone, clay, glass, etc.	5,932	4,207	619	1,354	574	223	12,909
IV. Working in wood	8,973	7,191	5,707	1,858	4,891	2,040	30,660
V. Metal works, machinery, etc.	25,550	20,136	7,399	8,096	3,210	2,091	66,472
VI. Connected with food and drink, etc.	14,249	14,335	11,553	3,564	1,612	1,499	46,812
VII. Clothing and textile fabrics, etc.	27,089	39,770	8,054	5,441	2,623	1,684	84,661
VIII. Books, paper, printing & engraving	9,441	8,901	2,918	1,924	1,174	719	25,077
IX. Musical instruments, etc.	416	189	...	23	...	...	628
X. Arms and explosives	188	707	...	4	...	...	899
XI. Vehicles and fittings, saddlery, and harness, etc.	4,415	4,748	1,458	1,668	622	489	13,400
XII. Ship and boat building & repairing	3,169	240	117	192	26	77	3,821
XIII. Furniture, bedding, and upholstery	3,974	3,263	1,170	1,144	469	385	10,405
XIV. Drugs, chemicals, and by-products	1,547	1,804	65	697	266	2	4,381
XV. Surgical and other scientific instruments	97	90	28	7	16	...	238
XVI. Jewellery, timepieces, & platedware	863	1,037	114	178	70	40	2,302
XVII. Heat, light, and power	3,387	3,052	633	803	371	304	8,550
XVIII. Leatherware, n.e.i.	495	605	76	2 <sup>p</sup>	27	...	1,231
XIX. Minor wares, n.e.i.	1,009	1,801	148	180	115	42	3,295
<b>Total</b>	<b>115,561</b>	<b>116,108</b>	<b>40,948</b>	<b>28,500</b>	<b>16,382</b>	<b>9,957</b>	<b>327,456</b>

The largest number employed in any particular class in the Commonwealth was in Class VII., in which there were 84,661 employees, or 25.85 per cent. of the whole number. The class affording employment to the smallest number of hands was Class XV., in which there were 238 hands, or 0.07 per cent. of the total number of employees. Classes VI., VII., and VIII. comprise those industries in which female labour is largely employed. (See § 4, 5 hereof.)

**4. Classification of Numbers Employed in each State according to Nature of Employment, 1912.**—In the following table the average numbers of persons employed in each State during the year 1912 are classified according to the nature of their employment:—

**AVERAGE NUMBER OF PERSONS EMPLOYED IN EACH STATE, CLASSIFIED ACCORDING TO NATURE OF EMPLOYMENT, 1912.**

State.	Average Number of Persons Employed.						Total.
	Working Proprietors.	Managers and Overseers	Accountants and Clerks.	Engine-drivers and Firemen.	Workers, Skilled & Unskilled in Factory, Mill or Workshop	Carters, Messengers and Others.	
New South Wales ...	4,572	3,569	4,284	2,674	97,871	2,591	115,561
Victoria ...	5,325	3,091	3,676	1,712	98,283	4,021	116,108
Queensland ...	1,544	1,310	1,524	1,489	32,753	2,328	40,948
South Australia ...	1,331	843	1,058	550	23,964	754	28,500
Western Australia ...	511	562	626	477	12,583	1,623	16,382
Tasmania ...	496	415	390	442	7,747	467	9,957
<b>Commonwealth</b> ...	<b>13,779</b>	<b>9,790</b>	<b>11,558</b>	<b>7,344</b>	<b>273,201</b>	<b>11,784</b>	<b>327,456</b>

\* Including outworkers.



## 5. Classification of Factories according to Number of Hands Employed, 1912.—

(i.) The number of factories in each State classified according to the number of hands employed, and the total number of hands employed therein, are shewn in the following table:—

**CLASSIFICATION OF FACTORIES IN EACH STATE ACCORDING TO NUMBER  
OF HANDS EMPLOYED, 1912.**

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 ...	831	800	197	154	113	108	2,203
4 ...	478	588	166	145	60	65	1,502
5 to 10 ...	1,793	1,844	648	520	246	244	5,295
11 to 20 ...	930	939	341	235	129	86	2,660
21 to 50 ...	681	674	274	186	94	74	1,983
51 to 100 ...	252	223	89	59	46	21	690
Over 100 ...	197	195	75	42	23	13	545
Total ...	5,162	5,263	1,790	1,341	711	611	14,878

AVERAGE NUMBER OF HANDS EMPLOYED.

Under 4 ...	1,943	1,912	473	387	247	242	5,204
4 ...	1,912	2,352	664	580	240	260	6,008
5 to 10 ...	12,468	12,831	4,600	3,610	1,694	1,720	36,923
11 to 20 ...	13,661	13,805	5,043	3,455	1,933	1,199	39,096
21 to 50 ...	21,185	21,298	8,668	6,024	2,990	2,276	62,441
51 to 100 ...	18,008	15,368	6,575	4,211	3,089	1,434	48,685
Over 100 ...	46,384	48,542	14,925	10,233	6,189	2,826	129,099
Total ...	115,561	116,108	40,948	28,500	16,382	9,957	327,456

(ii.) Reference to the following table will shew the tendency of the ratio of the number of hands employed in the larger establishments to still further increase and that of the smaller factories to diminish. In 1908 the ratio of hands in factories employing under 21 hands was 29.72 per cent. of total employees in factories, and in those where over 100 hands were engaged 36.33 per cent., whereas in 1912 the percentages were 26.63 and 39.43 respectively. The number of factories with 20 hands or under in 1908 was 80.46 per cent., this number decreasing to 78.37 in 1912, whereas the larger factories employing over 100 hands shewed an increase from 3.20 to 3.66 per cent. The percentage of hands in factories employing from 21 to 100 hands was virtually the same during each of the two years. The average number employed in all establishments in 1908 was 20.03, and in 1912, 22.01.

**CLASSIFICATION OF FACTORIES IN THE COMMONWEALTH ACCORDING TO  
NUMBER OF HANDS EMPLOYED DURING THE YEARS 1908 to 1912.**

Year.	Establishments Employing on the Average—							
	20 hands and under.		21 to 100 hands.		101 hands and upwards.		Total.	
	Es- tablish- ments.	Hands.	Es- tablish- ments.	Hands.	Es- tablish- ments.	Hands.	Es- tablish- ments.	Hands.
1908—								
Number ... ..	10,341	76,546	2,101	87,411	411	93,537	12,853	257,494
Average per establishment ...	70.40	...	...	41.60	...	227.58	...	20.03
Percentage to total ...	80.46	29.72	16.34	33.95	3.20	36.33	100.00	100.00
1909—								
Number ... ..	10,601	78,238	2,186	89,997	442	98,376	13,229	266,661
Average per establishment ...	73.88	...	...	41.17	...	222.57	...	20.16
Percentage to total ...	80.14	29.36	16.52	33.75	3.34	36.89	100.00	100.00
1910—								
Number ... ..	10,985	81,561	2,381	98,243	484	107,124	13,850	286,928
Average per establishment ...	74.42	...	...	41.26	...	221.33	...	20.72
Percentage to total ...	79.31	28.43	17.20	34.24	3.49	37.33	100.00	100.00
1911—								
Number ... ..	11,362	85,562	2,567	106,624	526	119,524	14,455	311,710
Average per establishment ...	75.53	...	...	41.54	...	227.23	...	21.56
Percentage to total ...	78.60	27.45	17.76	34.21	3.64	38.34	100.00	100.00
1912—								
Number ... ..	11,660	87,231	2,673	111,126	545	129,099	14,878	327,456
Average per establishment ...	74.48	...	...	41.57	...	236.88	...	22.01
Percentage to total ...	78.37	26.63	17.97	33.94	3.66	39.43	100.00	100.00

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 the employees’ own homes. Individuals working for themselves are not included. The following table gives particulars of the average number of outworkers connected with factories in each State during each year from 1908 to 1912 inclusive :—

**NUMBER OF OUTWORKERS\* CONNECTED WITH FACTORIES, 1908 to 1912.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
1908 ...	596	1,457	171	74	11	11	2,320
1909 ...	630	1,695	144	65	13	...	2,547
1910 ...	720	1,584	224	68	20	76	2,692
1911 ...	784	1,906	158	88	15	96	3,047
1912 ...	895	1,959	140	71	14	86	3,165

\* In all tables relating to number of hands employed in factories outworkers are included.

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, overtime being allowed only with the permission of the Departments, and then to a limited extent. 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 Employees according to Sex, 1908 to 1912.**—In New South Wales the ratio of the number of females employed in factories to the number of males during 1886 was about one to seven; in 1891 one to six; in 1903 it became about one to four; and is now rather lower than one to three. In Victoria the ratio of females to males 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 slightly under one to two. In the remaining States the ratios during 1912 were—Queensland and South Australia—a little under one female employed to every four males, Western Australia one to five, and in Tasmania one to six. The proportion for the whole of the Commonwealth was just over one to three. The employment of women is, however, largely confined to a few trades.

The great prosperity in clothing and textile industries is one of the main causes of increase in female employment. Certain trades are specifically known as women's trades, such as clothing and textile trades, preparation of food, book-binding, and lighter work connected with the drug trade, as for example wrapping. In common with commercial establishments, a considerable number of women are also employed as clerks and typists in factories.

(i.) *Average Number of Males and Females Employed, 1908 to 1912.* The following table shews the average number of male and female employees in factories in each State from 1908 to 1912:—

#### AVERAGE NUMBER OF MALES AND FEMALES EMPLOYED IN MANUFACTURING INDUSTRIES, 1908 to 1912.

State.	1908.	1909.	1910.	1911.	1912.
MALES.					
New South Wales ...	67,616	69,184	75,384	82,083	88,178
Victoria ...	60,873	62,822	66,309	73,573	77,565
Queensland ...	24,639	24,877	*27,165	*29,832	*33,254
South Australia ...	19,640	20,753	21,864	22,629	23,083
Western Australia ...	10,453	10,703	11,654	13,212	13,805
Tasmania ...	7,334	8,132	8,277	8,737	8,391
Commonwealth ...	190,555	196,471	210,653	230,066	244,276

AVERAGE NUMBER OF MALES AND FEMALES EMPLOYED IN  
MANUFACTURING INDUSTRIES, 1908 to 1912—Continued.

State.	1908.	1909.	1910.	1911.	1912.
<b>FEMALES.</b>					
New South Wales ... ..	21,482	22,518	24,327	26,541	27,383
Victoria ... ..	32,935	34,533	35,867	38,375	33,543
Queensland ... ..	4,561	4,627	*6,779	*7,324	7,694
South Australia ... ..	4,596	4,956	5,146	5,256	5,417
Western Australia ... ..	1,972	2,123	2,453	2,587	2,577
Tasmania ... ..	1,393	1,433	1,703	1,561	1,566
Commonwealth ... ..	66,939	70,190	76,275	81,644	83,180

\* See Note (\*) to § 3, 1 (i).

It will be seen that during the years specified there has been for the whole Commonwealth a total increase in the number of male employees of 53,721, or an annual average of 13,430, and in the number of female employees a total increase of 16,241, or an annual average of 4060.

(ii.) *Average Number of Males and Females Employed per 10,000 of Mean Population, 1908 to 1912.* The following table shews the average number of male and female employees per 10,000 of the mean male and female population respectively in each State from 1908 to 1912 :—

**AVERAGE NUMBER OF MALE AND FEMALE FACTORY EMPLOYEES PER 10,000  
OF MEAN MALE AND FEMALE POPULATION RESPECTIVELY, 1908 to 1912.**

State.	1908.	1909.	1910.	1911.	1912.
<b>MALES.</b>					
New South Wales ... ..	816	826	883	947	967
Victoria ... ..	1000	1012	1045	1118	1,145
Queensland ... ..	818	801	*843	*892	970
South Australia ... ..	1015	1040	1071	1084	1,077
Western Australia ... ..	707	712	754	805	802
Tasmania ... ..	765	835	848	900	854
Commonwealth ... ..	876	887	929	986	1,009
<b>FEMALES.</b>					
New South Wales ... ..	288	296	312	334	332
Victoria ... ..	521	539	554	579	567
Queensland ... ..	181	178	*252	*262	266
South Australia ... ..	244	257	261	260	261
Western Australia ... ..	179	188	210	211	199
Tasmania ... ..	152	154	182	167	168
Commonwealth ... ..	332	341	363	379	374

\* See note (\*) to § 3, 1 (i).

3. **Rate of Increase for each Sex.**—The percentages of annual increase during the years 1908 to 1912 in the average number of males and females employed in manufacturing industries in the several States and the Commonwealth are shewn below:—

**PERCENTAGES OF ANNUAL INCREASE IN NUMBERS OF MALE AND FEMALE EMPLOYEES, 1908 to 1912.**

State.	1907-8.	1908-9.	1909-10.	1910-11.	1911-12.
<b>MALES.</b>					
	%	%	%	%	%
New South Wales ...	2.52	2.32	9.01	8.89	7.37
Victoria ...	1.98	3.20	5.55	10.95	5.43
Queensland ...	6.24	0.97	*9.20	*9.82	11.47
South Australia ...	6.61	5.67	5.35	3.60	1.91
Western Australia ...	-2.04	2.39	8.89	13.37	4.49
Tasmania ...	5.19	10.88	1.78	5.56	-3.96
Commonwealth ...	3.06	3.10	7.24	9.23	6.15
<b>FEMALES.</b>					
New South Wales ...	4.72	4.82	8.04	9.10	3.17
Victoria ...	5.52	4.85	3.86	6.99	0.44
Queensland ...	-4.24	1.45	*46.51	*8.04	4.99
South Australia ...	7.43	7.83	3.83	2.14	3.06
Western Australia ...	0.92	7.66	15.54	5.46	-0.39
Tasmania ...	12.61	2.87	18.84	-8.34	0.32
Commonwealth ...	4.66	4.86	8.67	7.04	1.88

Note.—The minus (—) sign indicates decrease. \* See note (\*) to § 3. 1 (i).

The above tables shew that in each State for the first three years of the quinquennial period under discussion, with a few exceptions, there has been relatively a larger increase in the number of female than in the number of male employees. This position, however, was reversed in 1911 and 1912, when the percentage of increase of male employees exceeded that of female in every State, with the exception of New South Wales in 1911 and South Australia in 1912. This matter is referred to further in the following paragraph.

4. **Ratio of Female Employment in Factories.**—The 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 employees for each State for each year from 1908 to 1912 inclusive:—

**NUMBER OF FEMALES PER 100 MALES IN AUSTRALIAN FACTORIES, 1908 to 1912.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
1908	31.77	54.10	18.51	23.36	18.86	18.99	35.12
1909	32.55	54.97	18.60	23.88	19.74	17.62	35.73
1910	32.26	54.09	*24.95	23.54	21.05	20.58	36.20
1911	32.32	52.16	*24.55	23.20	19.58	17.87	35.48
1912	31.05	49.69	*23.14	23.47	18.67	18.66	34.05

\* See note (\*) to § 3. 1 (i).

This table shews that the proportion of the sexes has not materially changed during the past five years, the ratio of females to every hundred males employed increasing only from 35.12 in 1908 to 35.48 in 1911. The 1912 figures shew the reduced ratio of 34.05. The tables given in the succeeding paragraph shew that these comparatively high ratios have been due not 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, 1912.**—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., VIII., and VIII., 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 1912 in each State, and also shews the percentages of the average number so employed on the total average number of females employed in all classes of factories:—

**AVERAGE NUMBER OF FEMALES EMPLOYED IN PARTICULAR INDUSTRIES,  
AND PERCENTAGES ON AVERAGE TOTAL EMPLOYED, 1912.**

Class.	N.S.W.	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	Cwth.
AVERAGE NUMBER.							
VI. Food, drink, etc. ...	3,476	3,434	599	519	170	260	8,458
VII. Clothing and textile fabrics ...	19,273	30,024	6,097	4,088	2,057	1,123	62,662
VIII. Books, paper, printing, etc. ...	2,390	2,303	659	528	223	89	6,197
All other classes ...	2,244	2,782	339	282	122	94	5,863
Total ...	27,383	38,543	7,694	5,417	2,577	1,566	83,180

**PERCENTAGES ON TOTAL AVERAGE FEMALE EMPLOYEES.**

VI. Food, drink, etc. ...	12.70	8.91	7.79	9.58	6.60	16.60	10.17
VII. Clothing and textile fabrics ...	70.38	77.90	79.24	75.47	79.82	71.71	75.33
VIII. Books, paper, printing, etc. ...	8.73	5.97	8.57	9.74	8.95	5.69	7.45
All other classes ...	8.19	7.22	4.40	5.21	4.73	6.00	7.05
Total ...	100.00	100.00	100.00	100.00	100.00	100.00	100.00

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 females in the several industries in that class, and the ratio they bore to males so employed, are shewn in the following table:—

## FEMALE EMPLOYMENT IN EACH INDUSTRY IN CLASS VII., DURING 1912.

Industry.	New South Wales.			Victoria.			Other States.		
	Males.	Femls.	Femls. Per 100 Males.	Males.	Femls.	Femls. Per 100 Males.	Males.	Femls.	Femls. Per 100 Males.
Woollen & tweed mills	416	721	173	754	918	122	239	331	138
Boots and shoes	2,779	1,612	58	4,317	2,457	57	1,442	784	51
Slop clothing	3,257	8,509	261	2,503	8,088	323	2,238	6,473	289
Clothing (tailoring)									
Dressmaking & millinery	98	4,952	5,053	256	9,529	3,722	28	3,613	12,904
Dyeworks and cleaning	40	31	77	64	89	139	25	16	64
Furriers	34	36	106	58	133	229	3	7	233
Hats and caps	546	1,051	192	715	1,088	152	92	163	176
Waterproof and oilskin	32	88	275	67	254	379	...	...	...
Shirts, ties, and scarfs	167	2,000	1,198	393	6,954	1,769	109	1,872	1,717
Rope and cordage	263	8	3	499	332	67	153	82	54
Tents and tarpaulins	184	265	144	109	62	57	108	74	69
Other	...	...	...	11	120	1,091	...	...	...
Total Class VII.	7,816	19,273	247	9,746	30,024	308	4,437	13,365	301

## § 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 in factories. The minimum age in all the States is 14, with the exception of South Australia, where it is 13 years, and Victoria, where the minimum for females is 15 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, 1908 to 1912.**—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 years 1908 to 1912. During the period under review, there was a decrease in the average number employed in New South Wales and Victoria of 16 in the former, and 1722 in the latter State, the other States all shewed an increase, amounting in all to 515 persons.

## AVERAGE NUMBER OF CHILDREN EMPLOYED IN FACTORIES, 1908 to 1912.

State.	1908.	1909.	1910.	1911.	1912.
MALES.					
New South Wales	2,475	2,433	2,452	2,474	2,225
Victoria	3,049	2,817	2,753	2,623	2,652
Queensland	1,034	1,001	*1,031	*1,176	1,114
South Australia	1,179	1,094	1,082	999	1,078
Western Australia	289	289	340	368	356
Tasmania	239	258	282	280	322
Commonwealth	8,265	7,892	7,940	7,920	7,747

AVERAGE NUMBER OF CHILDREN EMPLOYED IN FACTORIES,  
1908 TO 1912.

State.	1908.	1909.	1910.	1911.	1912.
<b>FEMALES.</b>					
New South Wales ... ..	1,859	1,973	2,025	2,267	2,093
Victoria ... ..	3,065	2,496	2,174	1,937	1,740
Queensland ... ..	583	556	*733	*818	764
South Australia ... ..	568	577	702	555	704
Western Australia ... ..	251	242	266	293	334
Tasmania ... ..	135	128	96	131	121
Commonwealth ... ..	6,461	5,972	5,996	6,001	5,756
<b>TOTAL.</b>					
New South Wales ... ..	4,334	4,406	4,477	4,741	4,318
Victoria ... ..	6,114	5,313	4,927	4,560	4,392
Queensland ... ..	1,617	1,557	*1,764	*1,994	1,878
South Australia ... ..	1,747	1,671	1,784	1,554	1,782
Western Australia ... ..	540	531	606	661	690
Tasmania ... ..	374	386	378	411	443
Commonwealth ... ..	14,726	13,864	13,936	13,921	13,503

\* See Note (\*) to § 3. 1 (f).

**3. Percentage of Children to Total Persons Employed.**—The foregoing table shows a general increase in several of the States in the number of children employed in factories during the past quinquennial period. These increases, however, when examined in conjunction with the total number of persons employed, shew that in every State, with the exception of Tasmania, a fairly regular decrease in the percentage of child labour is in evidence. This decrease is particularly noticeable in Victoria, the percentage falling from 6.52 in 1908 to 3.78 in 1912.

**PERCENTAGE OF CHILDREN IN FACTORIES TO TOTAL NUMBER OF EMPLOYEES,  
1908 to 1912.**

State.	1908.	1909.	1910.	1911.	1912.
	%	%	%	%	%
New South Wales ... ..	4.86	4.80	4.49	4.36	3.74
Victoria ... ..	6.52	5.46	4.82	4.07	3.78
Queensland ... ..	5.54	5.28	5.20	5.37	4.59
South Australia ... ..	7.21	6.50	6.60	5.57	6.25
Western Australia ... ..	4.35	4.14	4.30	4.18	4.21
Tasmania ... ..	4.29	4.04	3.79	3.99	4.45
Commonwealth ... ..	5.72	5.20	4.86	4.47	4.12

**4. Industries Employing Child Labour, 1912.**—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 shews the average number of children of each sex employed in the several industries indicated in each State during the year 1912 :—



## NUMBER OF CHILDREN ENGAGED IN VARIOUS INDUSTRIES, 1912.

Class.	Industry.	N.S.W.		Victoria.		Q'land.		S. Aust.		W.A.		Tas.		C'w'lt'h.	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
III.	Bricks, tiles, pottery and earthenware	61	1	35	...	8	...	21	...	9	1	7	...	141	3
IV.	Joinery, boxes, cases, etc.	106	1	84	...	25	...	49	1	14	...	4	...	282	2
V.	Engin'ring, ironworks, and foundries	221	3	300	...	56	...	76	...	62	...	17	...	732	3
"	Galvanised iron-work- ing and tinsmithing	74	1	90	22	73	1	72	10	...	...	4	...	313	34
"	Railway carriages, rail- way & tramway work- shops	57	...	73	...	44	...	102	...	15	...	...	...	291	...
VI.	Biscuits, cakes, etc.	161	113	66	30	18	4	3	15	8	20	...	...	283	158
"	Confectionery	40	64	25	29	22	27	18	23	6	12	...	...	111	155
"	Jams, pickles, sauces, etc.	23	17	49	35	11	...	46	34	4	1	44	18	177	105
"	Aerated waters, cor- dial, etc.	55	3	56	...	55	6	12	1	7	...	3	...	188	10
"	Tobacco, cigars, etc.	48	50	30	10	3	3	2	4	2	4	...	...	85	71
VII.	Boots and shoes	100	160	163	135	39	44	24	43	8	9	8	7	342	398
"	Clothing (tailoring and slop)	79	508	82	269	74	277	26	195	13	74	8	14	282	1,337
"	Dressmaking and mil- linery	1	392	7	498	...	120	...	114	1	138	...	49	91	311
"	Hats and caps	36	106	36	31	4	20	5	9	...	...	...	...	81	166
"	Shirts, ties, scarfs, etc.	6	183	8	331	7	130	1	96	2	40	...	4	24	784
"	Woollen, tweed, and cotton mills	14	37	90	83	...	...	7	29	...	...	14	7	125	155
VIII.	Electrotyping, printing and binding	350	177	453	102	197	92	94	21	57	30	47	11	1,198	439
"	Paper making, paper boxes, etc.	30	79	11	28	1	12	29	85	1	4	...	...	72	208
XI.	Coach & wagon build- ing, etc.	76	1	124	...	42	...	51	...	7	...	15	...	315	1
XIII.	Billiard tables, cabinet making and furniture	69	1	63	...	67	4	52	...	18	...	22	...	291	5

5. **Apprenticeship.**—It is obvious that the age of apprenticeship in each State must be limited by the conditions governing the employment of child labour in factories. The early Apprentices' Acts in some of the States are apparently in conflict on this point with the Factories Acts. 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 and specify the term of apprenticeship. 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 in Section XXVII. of this book. *Industrial Unionism and Industrial Legislation.*

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

1. **Introduction.**—The importance of the manufacturing industries of the Common-wealth is indicated by the fact that the total value of the output for 1912 was £148,775,407, of which amount the sum of £38,275,620 represents the value of the raw materials used. The difference between these two amounts, viz., £60,499,787, 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 during 1912 was £31,287,492.

2. Amount of Salaries and Wages Paid, 1912.—The total amount of salaries and wages paid during the year 1912 in various classes of factories in the Commonwealth (excluding all sums drawn by working proprietors) is shewn in the following table.

It has been found impracticable to shew satisfactorily in this book the rates of wages paid to employees 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, 1912.\***

Class of Industry.	N.S.W.	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wlth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	313,753	304,442	70,460	92,163	17,869	17,023	815,710
II. Treating oils and fats, animal, vegetable, etc. ...	74,352	67,824	15,218	24,652	7,888	2,957	192,891
III. Processes in stone, clay, glass, etc. ...	695,304	455,431	59,566	147,161	77,166	18,689	1,453,317
IV. Working in wood ...	896,507	733,264	536,372	206,491	793,678	170,547	3,336,859
V. Metal works, machinery, etc.	3,302,604	2,292,755	846,860	1,034,313	449,915	254,342	8,150,789
VI. Connected with food and drink, etc. ...	1,368,332	1,348,300	1,079,975	352,111	207,961	113,316	4,470,495
VII. Clothing and textile fabrics, etc. ...	1,806,424	2,239,292	450,519	317,423	194,982	90,567	5,149,207
VIII. Books, paper, printing and engraving ...	993,444	880,357	303,940	180,653	163,630	81,994	2,604,018
IX. Musical instruments, etc. ...	49,432	22,135	...	1,934	...	...	73,501
X. Arms and explosives ...	24,021	60,074	...	356	...	...	84,451
XI. Vehicles and fittings, saddlery and harness, etc. ...	425,391	417,902	100,558	153,306	70,968	35,793	1,204,418
XII. Ship and boat building and repairing... ..	427,045	30,499	12,960	22,259	2,639	6,431	501,833
XIII. Furniture, bedding and upholstery ...	404,703	310,300	105,261	124,217	57,323	25,281	1,027,085
XIV. Drugs, chemicals, and by-products ...	140,122	162,971	4,739	60,679	35,169	...	403,680
XV. Surgical and other scientific instruments ...	8,964	8,128	2,270	834	1,640	...	21,836
XVI. Jewellery, timepieces, and platedware ...	91,579	104,274	11,296	21,828	8,882	2,705	240,564
XVII. Heat, light, and power ...	449,254	405,919	86,050	112,132	68,005	33,601	1,154,961
XVIII. Leatherware, n.e.i. ...	45,486	45,143	4,941	2,154	2,632	...	100,356
XIX. Minor wares, n.e.i. ...	74,835	163,234	8,080	14,487	8,797	2,088	271,521
Total ... ..	11,592,052	10,102,244	3,699,065	2,869,653	2,169,144	855,334	31,287,492

\* 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 £8,180,789, or 26.15 per cent. on the total amount; the minimum amount was in Class XV., £21,836, or 0.07 per cent. on the total amount. The State in which the largest amount was paid was New South Wales. The following statement shews the total amount of salaries and wages paid, and the average amount paid per employee in each State, during each of the years 1908 to 1912; the figures are exclusive of the amounts drawn from the business by working proprietors:—

**AMOUNT OF SALARIES AND WAGES PAID AND AVERAGE AMOUNT PER ANNUM PAID PER EMPLOYEE, 1908 to 1912.**

Year.	Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wlth.
		£	£	£	£	£	£	£
1908	Total amount paid ...	7,218,556	6,380,296	2,102,015	1,924,974	1,474,934	693,592	19,884,367
	Average per employee ...	84.72	71.59	78.28	83.55	123.56	84.43	80.99
1909	Total amount paid ...	7,665,125	6,897,851	2,324,005	2,028,691	1,506,360	779,624	21,111,656
	Average per employee ...	87.27	73.57	82.09	83.08	122.08	86.44	82.97
1910	Total amount paid ...	8,687,007	7,600,932	2,830,704	2,323,398	1,683,657	740,463	23,866,161
	Average per employee ...	90.78	78.18	86.79	90.44	123.93	78.81	87.04
1911	Total amount paid ...	10,047,656	8,911,019	3,113,835	2,645,386	1,982,883	827,592	27,528,371
	Average per employee ...	96.35	83.48	87.15	99.64	129.80	84.47	92.26
1912	Total amount paid ...	11,592,052	10,102,244	3,699,065	2,869,653	2,169,144	855,334	31,287,492
	Average per employee ...	104.44	91.19	93.88	105.62	136.67	90.41	99.74

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, with the exception of Tasmania, 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 principally due to the high ratio of male to female employees in that State.

It will be noted that there has been a persistent increase in the average wage paid per employee in each of the States during the period under review, despite the tendency of the number of females employed in certain industries to increase at a higher ratio than males. Taking the Commonwealth as a whole, during the period 1908-12 there has been an increase of 57.35 per cent. on the total amount of wages paid and 23.15 per cent. on the average paid per employee.

The following tables shew the approximate amount paid in salaries and wages to males and females in each class of industry in each State during 1912, and total amounts paid to each sex in New South Wales and Victorian factories during the last four years, in South Australia and Tasmania during 1911 and 1912, and for Queensland and Western Australia during 1912:—

**AMOUNT\* OF SALARIES AND WAGES PAID TO MALE AND FEMALE HANDS EMPLOYED IN EACH CLASS OF INDUSTRY IN THE SEVERAL STATES OF THE COMMONWEALTH DURING 1912.**

Class of Industry.	N.S.W.	Vic.	Q'land.	S. Aust.	W. A.	Tas.	C'wealth.
<b>MALES.</b>							
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	310,568	303,173	70,374	92,262	17,557	17,023	810,957
II. Treating oils and fats, animal, vegetable, etc. ...	65,960	65,686	14,850	24,120	7,888	2,774	181,278
III. Processes in stone, clay, glass, etc. ...	692,634	453,065	59,365	146,917	76,959	18,689	1,447,619
IV. Working in wood ...	892,507	730,895	533,549	205,512	793,678	169,905	3,326,046
V. Metal works, machinery, etc. ...	3,291,922	2,281,532	844,923	1,031,622	448,967	253,823	8,152,769
VI. Connected with food and drink, etc. ...	1,210,164	1,186,116	1,068,509	334,153	199,665	104,130	4,092,737
VII. Clothing and textile fabrics, etc. ...	869,592	976,458	198,281	144,848	75,613	49,200	2,313,992
VIII. Books, paper, printing and engraving ...	887,284	776,990	279,190	161,097	152,517	79,086	2,336,164
IX. Musical instruments, etc. ...	47,440	21,616	...	1,934	...	...	70,990
X. Arms and explosives ...	23,556	30,987	...	356	...	...	54,899
XI. Vehicles and fittings, saddlery and harness, etc. ...	419,750	412,949	99,836	152,547	70,274	34,913	1,190,269
XII. Ship and boat building and repairing ...	426,955	30,499	12,960	22,259	2,639	6,431	501,743
XIII. Furniture, bedding and upholstery ...	384,573	295,661	101,238	123,383	55,856	24,213	984,924
XIV. Drugs, chemicals and by-products ...	114,352	147,385	3,604	58,229	34,139	...	357,779
XV. Surgical and other scientific instruments ...	7,722	7,641	2,192	834	1,517	...	19,906
XVI. Jewellery, timepieces and platedware ...	65,897	99,745	10,215	21,268	8,762	2,705	228,592
XVII. Heat, light and power ...	446,574	392,332	86,050	110,944	68,005	33,409	1,137,314
XVIII. Leatherware, n.e.i. ...	41,208	36,083	3,883	1,897	2,358	...	85,429
XIX. Minor wares, n.e.i. ...	65,075	139,810	7,172	13,560	7,924	1,797	235,368
Total ...	10,283,733	8,368,613	3,386,191	2,647,842	2,024,318	798,098	27,528,795

\* Exclusive of amount drawn by working proprietors.

AMOUNT OF SALARIES AND WAGES PAID TO MALE AND FEMALE HANDS EMPLOYED IN EACH CLASS OF INDUSTRY. Etc.—Continued.

Class of Industry.	N.S.W.	Vic.	Q'land.	S. Aust.	W. A.	Tas.	C'wealth.
FEMALES.							
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural & pastoral pursuits, etc.	3,185	1,269	86	213	...	...	4,753
II. Treating oils and fats, animal, vegetable, etc.	8,392	2,138	368	532	...	183	11,613
III. Processes in stone, clay, glass, etc.	2,670	2,376	201	244	907	...	5,698
IV. Working in wood	4,000	2,369	2,823	979	...	642	10,813
V. Metal works, machinery, etc.	10,632	11,223	1,937	2,691	948	519	28,600
VI. Connected with food and drink, etc.	158,668	162,184	21,466	17,958	8,296	9,186	377,756
VII. Clothing and textile fabrics, etc.	936,832	1,312,834	252,238	173,575	119,369	41,367	2,835,215
VIII. Books, paper, printing and engraving	106,160	103,367	24,750	19,556	11,113	2,908	267,854
IX. Musical instruments, etc.	1,992	519	...	...	...	...	2,511
X. Arms and explosives	465	29,087	...	...	...	...	29,552
XI. Vehicles and fittings, saddlery & harness, etc.	5,641	4,953	722	1,259	694	880	14,149
XII. Ship and boat building and repairing	90	...	...	...	...	...	90
XIII. Furniture, bedding, and upholstery	20,130	14,639	4,023	834	1,467	1,068	42,161
XIV. Drugs, chemicals, and by-products	25,770	15,586	1,135	2,380	1,030	...	45,901
XV. Surgical and other scientific instruments	1,242	487	78	...	123	...	1,930
XVI. Jewellery, timepieces and platedware	5,682	4,529	1,081	560	120	...	11,972
XVII. Heat, light, and power	2,680	13,587	...	1,188	...	192	17,647
XVIII. Leatherware, n.i.e.	4,278	9,060	1,058	257	274	...	14,937
XIX. Minor wares, n.e.i.	9,760	23,424	908	897	873	291	36,153
Total	1,308,319	1,713,631	312,874	222,123	144,514	57,236	3,758,697

\* Exclusive of amount drawn by working proprietors.

AMOUNT\* OF SALARIES AND WAGES PAID TO MALES AND FEMALES IN FACTORIES IN CERTAIN STATES, 1909, 1910, 1911 and 1912.

Particulars.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'with.
MALES.							
1909. Amount paid ... £	6,823,732	5,607,703	...	...	...	...	...
Per cent. on total	89.02	82.37	...	...	...	...	...
Average per employee ... £	103.96	95.61	...	...	...	...	...
1910. Amount paid ... £	7,724,310	6,273,921	...	...	...	...	...
Per cent. on total	89.92	82.54	...	...	...	...	...
Average per employee ... £	107.84	101.20	...	...	...	...	...
1911. Amount paid ... £	8,917,577	7,357,735	...	2,430,263	...	773,900	...
Per cent. on total	83.76	82.57	...	91.87	...	93.51	...
Average per employee ... £	114.22	106.62	...	119.66	...	93.67	...
1912. Amount paid ... £	10,283,733	8,388,613	3,386,191	2,647,842	2,024,318	793,098	27,528,705
Per cent. on total	89.71	83.04	91.54	92.25	93.34	93.31	87.99
Average per employee ... £	122.50	115.18	106.57	121.41	152.02	100.85	118.86
FEMALES.							
1909. Amount paid ... £	841,393	1,200,148	...	...	...	...	...
Per cent. on total	10.98	17.63	...	...	...	...	...
Average per employee ... £	37.91	35.41	...	...	...	...	...
1910. Amount paid ... £	962,697	1,327,011	...	...	...	...	...
Per cent. on total	11.08	17.46	...	...	...	...	...
Average per employee ... £	40.08	37.67	...	...	...	...	...
1911. Amount paid ... £	1,130,079	1,553,284	...	215,123	...	53,692	...
Per cent. on total	11.24	17.43	...	8.13	...	6.49	...
Average per employee ... £	43.10	41.16	...	41.44	...	34.98	...
1912. Amount paid ... £	1,308,319	1,713,631	312,874	222,123	144,514	57,236	3,758,697
Per cent. on total	11.29	16.96	8.46	7.75	6.66	6.69	12.10
Average per employee ... £	48.39	45.15	41.00	41.43	56.56	37.00	45.79

\* Exclusive of amounts drawn by working proprietors.

A further analysis of salaries and wages paid during 1912 is given in the following table, the amounts paid to managers, overseers, etc., being differentiated from those paid to other employees. As previously mentioned, amounts drawn by working proprietors are excluded in all cases.

**DETAILS OF SALARIES AND WAGES PAID TO MANAGERS, OVERSEERS, ETC., AND OTHER EMPLOYEES IN FACTORIES DURING 1912.**

Class of Industry.	Salaries and Wages Paid to—						
	Managers, Overseers, Accountants, and Clerks. (a)		All Other Employees. (b)		All Employees.		
	Males.	Females.	Males.	Females.	Males.	Females.	Total.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	81,792	1,591	729,165	3,162	810,957	4,753	815,710
II. Treating oils and fats, animal, vegetable, etc.	40,063	2,564	141,215	9,049	181,278	11,613	192,891
III. Processes in stone, clay, glass, etc.	120,082	2,317	1,327,537	3,381	1,447,619	5,698	1,453,317
IV. Working in wood	291,167	7,185	3,034,879	3,628	3,326,046	10,813	3,336,859
V. Metal works, machinery, etc.	617,237	13,962	7,535,552	14,038	8,152,789	28,000	8,180,789
VI. Connected with food and drink, etc.	717,770	25,686	3,374,967	352,072	4,092,737	377,758	4,470,495
VII. Clothing and textile fabrics, etc.	320,493	112,412	1,993,499	2,722,803	2,313,992	2,835,215	5,149,207
VIII. Books, paper, printing and engraving	402,387	28,740	1,933,777	239,114	2,336,164	267,854	2,604,018
IX. Musical instruments, etc.	5,765	650	65,225	1,861	70,990	2,511	73,501
X. Arms and explosives	7,448	727	47,451	28,825	54,899	29,552	84,451
XI. Vehicles and fittings, saddlery and harness, etc.	90,857	5,698	1,099,412	8,451	1,190,269	14,149	1,204,418
XII. Ship and boat building and repairing	38,360	90	463,383	...	501,743	90	501,833
XIII. Furniture bedding, & upholstery	56,060	4,428	928,864	37,733	984,924	42,161	1,027,085
XIV. Drugs, chemicals, and by-products	71,416	5,691	286,363	40,210	357,779	45,901	403,680
XV. Surgical & other scientific instruments	3,147	268	16,759	1,662	19,906	1,930	21,836
XVI. Jewellery, timepieces, and platedware	17,090	2,503	211,502	9,469	228,592	11,972	240,564
XVII. Heat, light, and power	167,436	2,433	969,878	15,214	1,137,314	17,647	1,154,961
XVIII. Leatherware, n.e.i.	11,860	919	73,569	14,008	85,429	14,927	100,356
XIX. Minor wares, n.e.i.	27,896	2,220	207,472	33,933	235,368	36,153	271,521
Total	3,088,326	220,084	24,440,469	3,538,613	27,528,795	3,758,697	31,287,492
Average paid per employee	176.57 (c)	74.66 (c)	116.07 (c)	45.16 (c)	118.87 (d)	45.79 (d)	99.74 (d)

(a) Exclusive of amount paid to accountants and clerks in Queensland. (b) Including amount paid to accountants and clerks in Queensland. (c) Exclusive of Queensland. (d) Including Queensland.

3. **Value of Fuel and Light used in Factories, 1912.**—The amount expended in factories on fuel and light is of considerable importance; in 1912 it amounted to £3,047,384, being an increase on the previous year's figures of £294,434. The classes of industry in which fuel was most extensively used were Class V., Metal Works, Machinery, etc., £1,031,533; Class VI., Connected with Food, Drink, etc., £571,724; Class XVII., Heat, Light, Power, etc., £517,017, of which amount £430,902 was expended on generating

electric light and power; and Class III., £403,976, of which £317,734 was represented in brick and pottery works, etc., and glass factories. The following tables shew the value of fuel and light used in the different classes of industry in the several States of the Commonwealth during 1912, and of the total used for each of the last five years:—

**VALUE OF FUEL AND LIGHT USED IN FACTORIES IN COMMONWEALTH, 1912.**

Class of Industry.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'with.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	39,712	31,361	11,196	11,203	1,377	2,014	96,863
II. Treating oils and fats, animal, vegetable, etc. ...	14,652	11,529	1,968	7,298	640	330	36,417
III. Processes in stone, clay, glass, etc. ...	197,914	114,138	10,052	52,584	22,707	6,581	403,976
IV. Working in wood... ..	20,943	12,921	8,579	3,656	1,982	2,170	50,251
V. Metal wks., machinery, etc. ...	532,108	144,048	46,877	169,557	29,430	109,513	1,031,533
VI. Connected with food and drink, etc. ... ..	163,483	171,288	137,570	55,670	30,434	13,279	571,724
VII. Clothing and textile fabrics, etc. ... ..	32,153	60,577	5,915	7,842	3,666	1,797	112,250
VIII. Books, paper, printing, and engraving ... ..	28,332	35,571	11,287	7,370	5,247	1,222	89,029
IX. Musical instruments, etc. ...	376	113	...	24	...	...	513
X. Arms and explosives ... ..	1,682	1,908	...	5	...	...	3,595
XI. Vehicles and fittings, saddlery and harness, etc. ....	11,843	12,714	1,441	5,580	2,747	1,065	35,390
XII. Ship and boat building and repairing ... ..	10,269	973	240	559	15	118	12,174
XIII. Furniture, bedding, and upholstery ... ..	6,748	6,571	2,487	4,061	1,360	725	21,952
XIV. Drugs, chemicals, and by-products ... ..	16,445	12,097	403	7,165	3,840	90	40,040
XV. Surgical and other scientific instruments ... ..	186	420	80	22	42	...	750
XVI. Jewellery, timepieces, and plated ware ... ..	1,959	2,907	295	776	164	83	6,184
XVII. Heat, light, and power ...	277,541	50,804	23,353	29,670	87,193	48,451	517,017
XVIII. Leatherware, n.e.i. ... ..	823	1,294	132	25	73	...	2,347
XIX. Minor wares, n.e.i. ... ..	2,972	11,842	98	356	108	23	15,379
Total ... ..	1,360,141	683,376	261,978	363,403	191,025	187,461	3,047,384

**VALUE OF FUEL AND LIGHT USED IN FACTORIES IN COMMONWEALTH DURING THE YEARS 1908 to 1912.**

Year.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'wealth.
	£	£	£	£	£	£	£
1908 ... ..	876,565	538,571	196,908	309,483	141,349	*114,000	2,176,876
1909 ... ..	940,840	566,768	194,776	269,646	140,111	115,864	2,228,005
1910 ... ..	1,184,282	639,135	216,890	313,731	150,311	130,962	2,635,311
1911 ... ..	1,242,613	637,497	222,560	338,565	176,659	140,816	2,758,710
1912 ... ..	1,360,141	683,376	261,978	363,403	191,025	187,461	3,047,384

\* Figures estimated.

4. Value of Raw Materials used in Factories, 1912.—The total value of raw materials worked up (i.e., exclusive of fuel, lubricants, etc.) in factories in the Commonwealth during 1912 was £88,275,620, which represents 59.33 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 classes of industry in each State during the year 1912:—

## VALUE OF RAW MATERIALS WORKED UP IN FACTORIES IN COMMONWEALTH, 1912.

Class of Industry.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wlth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	3,880,346	2,463,407	1,387,212	719,590	161,970	166,433	8,778,958
II. Treating oils and fats, animal, vegetable, etc. ...	783,901	428,229	77,035	121,497	57,207	8,469	1,476,338
III. Processes in stone, clay, glass, etc. ...	340,550	211,925	10,224	43,992	17,670	6,488	630,849
IV. Working in wood ...	2,260,095	1,070,193	782,101	743,142	104,161	125,800	5,085,492
V. Metal wks., machinery, etc. ...	8,678,576	3,036,937	1,393,082	2,611,605	712,677	1,000,982	17,433,859
VI. Connected with food and drink, etc. ...	14,590,133	11,484,130	6,159,455	2,578,709	821,102	697,056	36,330,585
VII. Clothing and textile fabrics, etc. ...	2,842,762	4,421,265	789,128	521,225	278,805	125,095	8,978,280
VIII. Books, paper, printing, and engraving ...	898,053	903,714	148,429	188,210	98,698	49,341	2,286,445
IX. Musical instruments, etc. ...	68,908	16,160	...	1,545	...	...	86,613
X. Arms and explosives ...	13,192	131,511	...	800	...	...	145,503
XI. Vehicles and fittings, saddlery and harness, etc. ...	433,249	417,580	130,470	211,147	71,471	45,043	1,308,960
XII. Ship and boat building and repairing ...	189,018	15,080	8,416	11,812	3,351	7,134	234,811
XIII. Furniture, bedding, and upholstery ...	567,159	509,997	115,316	109,511	73,960	27,795	1,403,738
XIV. Drugs, chemicals, and by-products ...	544,730	631,310	14,774	235,840	126,291	885	1,553,830
XV. Surgical and other scientific instruments ...	7,296	6,843	2,179	150	915	...	17,383
XVI. Jewellery, timepieces, and plated ware ...	130,981	187,411	14,465	24,672	20,524	3,876	381,929
XVII. Heat, light, and power ...	564,232	326,609	26,711	54,999	23,863	19,880	1,016,294
XVIII. Leatherware, n.e.i. ...	140,601	182,434	9,080	3,929	3,230	...	339,274
XIX. Minor wares, n.e.i. ...	188,659	557,567	10,877	16,735	10,300	2,341	786,479
Total ...	37,122,441	27,002,302	11,078,954	8,199,110	2,586,195	2,286,618	88,275,620

The class in which the maximum value of raw materials was used was Class VI., "Connected with Food and Drink, etc.," the value being £36,330,585. The next important class in order of value was Class V., "Metal Works, Machinery, etc.," in which raw materials to the value of £17,433,859 were used. The class in which the minimum value appears is Class XV., "Surgical and other Scientific Instruments," the value being only £17,383. The year 1910 was the first for which reliable and complete returns were collected in every State relating to the value of raw materials worked up in factories; the following table, however, gives particulars for the five years ended 1912, so far as information is available:—

## VALUE OF RAW MATERIALS WORKED UP IN FACTORIES IN COMMONWEALTH DURING THE YEARS 1908 to 1912.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	£	£	£	£	£	£	£
1908 ...	25,507,414	18,662,070	6,946,550	6,689,376	1,592,216	*1,560,000	60,957,626
1909 ...	27,314,486	19,706,530	7,658,195	6,004,459	1,529,211	*1,816,000	64,028,881
1910 ...	31,379,604	21,941,255	9,476,819	6,695,255	1,809,959	1,456,369	72,759,261
1911 ...	33,670,951	25,029,525	8,788,335	7,503,979	2,059,346	1,952,240	79,004,376
1912 ...	37,122,441	27,002,302	11,078,954	8,199,110	2,586,195	2,286,618	88,275,620

\* Estimated on basis of partial returns and subsequent years' figures.

5. Total Value of Output of Manufacturing Industries, 1912.—The value of the output of new goods manufactured and repairs effected in factories of various classes in each State during the year 1912 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 6 hereof) is the real value of production from manufactories:—

TOTAL VALUE OF OUTPUT OF COMMONWEALTH, 1912.

Class of Industry.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'w'lth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural & pastoral pursuits, etc.	4,643,811	3,082,047	1,621,730	897,590	202,559	205,811	10,653,548
II. Treating oils and fats, animal, vegetable, etc. ...	1,099,693	632,707	125,855	193,312	78,709	13,852	2,144,128
III. Processes in stone, clay, glass, etc. ...	1,807,287	1,063,019	122,712	307,797	162,383	44,515	3,507,713
IV. Working in wood ...	3,701,239	2,198,273	1,798,849	1,079,804	1,134,144	368,976	10,281,284
V. Metal works, machinery, etc. ...	15,372,532	6,396,723	2,603,864	4,337,468	1,265,802	1,469,926	31,446,315
VI. Connected with food and drink, etc. ...	18,787,001	15,100,540	9,238,896	3,525,374	1,412,000	969,403	49,093,214
VII. Clothing and textile fabrics, etc. ...	5,698,087	8,047,239	1,496,705	1,013,688	542,636	270,390	17,068,745
VIII. Books, paper, printing, and engraving ...	2,545,941	2,625,367	764,202	469,505	406,387	175,811	6,987,213
IX. Musical instruments, etc.	154,504	43,759	...	4,800	...	...	203,063
X. Arms and explosives ...	17,085	215,516	...	1,361	...	...	233,962
XI. Vehicles and fittings, saddlery and harness, etc.	1,079,984	1,040,452	342,629	475,972	172,045	97,361	3,208,443
XII. Ship and boat building and repairing ...	700,023	59,667	27,703	40,711	7,242	15,571	850,917
XIII. Furniture, bedding, and upholstery ...	1,171,320	988,464	269,312	279,845	161,884	73,038	2,933,863
XIV. Drugs, chemicals, and by-products ...	1,008,795	1,069,246	25,370	387,232	185,730	1,224	2,677,606
XV. Surgical and other scientific instruments ...	25,424	21,375	8,013	2,010	2,845	...	59,667
XVI. Jewellery, timepieces, and platedware ...	286,317	382,168	28,414	58,463	34,125	10,634	800,121
XVII. Heat, light, and power ...	2,526,546	1,319,674	287,996	315,253	302,303	150,203	4,901,975
XVIII. Leatherware, n.e.i. ...	225,893	275,118	15,143	7,332	7,837	...	531,323
XIX. Minor wares, n.e.i. ...	311,846	849,420	21,502	40,701	23,637	5,201	1,252,307
Total ...	61,163,328	45,410,773	18,798,904	13,438,218	6,092,268	3,871,916	148,775,407

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 £61,163,328, or 41.11 per cent. on the total for the Commonwealth. The next State in order of value is Victoria, which produced 30.52 per cent.; the value of the output of Queensland was 12.64 per cent.; of South Australia 9.03 per cent.; of Western Australia 4.10 per cent.; and of Tasmania 2.60 per cent. The four most important classes in order of value of output (Classes VI., V., VII. and I.) are the same as in order of value of raw materials used. The following statement shews the value of output of factories in each State during the five years ended 1912:—

TOTAL VALUE OF OUTPUT OF FACTORIES IN COMMONWEALTH DURING THE YEARS 1908 to 1912.

Year.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'wealth.
	£	£	£	£	£	£	£
1908 ...	40,163,826	30,787,760	11,182,009	10,471,671	4,056,365	*2,368,000	99,529,631
1909 ...	42,960,689	32,898,235	12,823,695	9,928,105	4,008,604	*3,339,000	105,958,328
1910 ...	49,615,643	36,660,854	15,792,109	11,184,695	4,533,611	3,073,246	120,860,158
1911 ...	54,346,011	41,747,863	15,675,662	12,416,981	5,311,086	3,525,087	133,022,090
1912 ...	61,163,328	45,410,773	18,798,904	13,438,218	6,092,268	3,871,916	148,775,407

PER HEAD OF MEAN POPULATION.

1908 ...	25.53	24.82	20.60	27.44	15.73	15.30	23.73
1909 ...	26.88	26.09	23.16	25.33	15.23	17.53	24.79
1910 ...	30.38	28.59	26.69	27.88	16.73	16.09	27.66
1911 ...	32.70	31.62	25.52	30.19	18.52	18.52	29.62
1912 ...	35.22	33.48	29.77	31.87	20.21	20.20	32.03

\* See note (\*) to last table § 6.



6. Value of Production of Manufacturing Industries, 1912.—The difference between the figures given in paragraph 5 and the corresponding figures in paragraph 4 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 of manufacturing industries. The following table shews the value added in this manner in each State during the year 1912 for the various classes of factories:—

**VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN  
COMMONWEALTH, 1912.**

Class of Industry.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	763,465	618,640	234,518	178,000	40,589	39,378	1,874,590
II. Treating oils and fats, animal, vegetable, etc. ...	315,792	204,478	48,820	71,815	21,502	5,353	667,790
III. Processes in stone, clay, glass, etc. ...	1,466,737	851,094	112,488	263,805	144,713	38,027	2,876,864
IV. Working in wood ...	1,441,144	1,128,079	1,016,748	336,662	1,029,983	243,176	5,195,792
V. Metal works, machinery, etc. ...	6,693,956	3,359,786	1,210,782	1,725,863	553,125	468,944	14,012,456
VI. Connected with food and drink, etc. ...	4,196,868	3,616,410	3,079,441	946,665	590,898	272,347	12,702,629
VII. Clothing and textile fabrics, etc. ...	2,855,325	3,625,974	707,577	492,463	263,831	145,295	8,090,465
VIII. Books, paper, printing, and engraving ...	1,647,888	1,721,653	615,773	281,295	307,689	126,470	4,700,768
IX. Musical instruments, etc. ...	85,596	27,599	...	3,255	...	...	116,450
X. Arms and explosives ...	3,893	84,005	...	561	...	...	88,459
XI. Vehicles and fittings, saddlery and harness, etc. ...	646,735	622,872	212,159	264,825	100,574	52,318	1,899,483
XII. Ship and boat building and repairing ...	511,005	44,587	19,287	28,899	3,891	8,437	616,106
XIII. Furniture, bedding, and upholstery ...	604,161	478,467	153,996	170,334	77,924	45,243	1,530,125
XIV. Drugs, chemicals, and by-products ...	464,065	437,936	10,605	151,392	59,439	339	1,123,776
XV. Surgical and other scientific instruments ...	18,128	14,532	5,834	1,860	1,930	...	42,284
XVI. Jewellery, timepieces, and plated ware ...	155,336	194,757	13,949	33,791	13,601	6,758	418,192
XVII. Heat, light, and power ...	1,962,314	993,065	261,285	260,254	278,440	130,323	3,885,681
XVIII. Leatherware, n.e.i. ...	85,292	92,684	6,063	3,403	4,607	...	192,049
XIX. Minor wares, n.e.i. ...	123,187	291,853	10,623	23,966	13,337	2,860	465,828
Total ...	24,040,887	18,408,471	7,719,950	5,239,108	3,506,073	1,585,298	60,493,787

It may be seen that the amount of the value added in each State is in the same order as in the case of value of output. The value added to raw material by process of manufacture and amount per head of mean population is shown in the following statement for the years 1908 to 1912:—

**VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN COMMONWEALTH,  
1908 to 1912.**

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tas.	C'wealth..
VALUE.							
	£	£	£	£	£	£	£
1908 ...	14,656,412	12,125,690	4,235,459	3,782,295	2,464,149	*1,308,000	38,572,00*
1909 ...	15,646,203	13,191,705	5,165,500	3,923,646	2,479,393	*1,523,000	41,929,447
1910 ...	18,236,039	14,719,599	6,315,290	4,489,440	2,723,652	1,616,877	48,100,897
1911 ...	20,675,060	16,718,338	6,887,327	4,912,402	3,251,740	1,572,847	54,017,714
1912 ...	24,040,887	18,408,471	7,719,950	5,239,108	3,506,073	1,585,298	60,499,787
PER HEAD OF MEAN POPULATION.							
1908 ...	9.32	9.77	7.80	10.01	9.56	6.98	9.20
1909 ...	9.79	10.46	9.33	10.01	9.42	8.01	9.81
1910 ...	11.17	11.48	10.68	11.19	10.05	8.47	11.01
1911 ...	12.44	12.66	11.21	11.95	11.34	8.26	12.03
1912 ...	13.84	13.57	12.22	12.43	11.63	8.27	13.03

\* See note (\*) to last table § 6, 4.

It may thus be seen that in 1912 the positions of the States, in regard to total value of output of factories per head of mean population, coincide in regard to value added per head, with the exception of Queensland and South Australia, whose positions are reversed.

As the total value of the output for the Commonwealth was estimated at £148,775,407, there remained, after payment of £88,275,620, the value of the raw materials used, of £31,287,492 for salaries and wages, and of £3,047,384 for fuel, the sum of £26,164,911 to provide for all other expenditure and profits. The following table gives corresponding particulars for each State, expressed absolutely and as percentages of the total value of the output:—

**VALUE OF OUTPUT AND COST OF PRODUCTION IN COMMONWEALTH FACTORIES, 1912.**

State.	Raw Materials Used.	Fuel and Light.	Salaries and Wages.	All other Expenditure Interest, and Profits.	Total Value of Output.
VALUE AND COST, ETC.					
	£	£	£	£	£
New South Wales ...	37,122,441	1,360,141	11,592,052	11,088,694	61,163,328
Victoria ...	27,002,302	683,376	10,102,244	7,622,851	45,410,773
Queensland ...	11,078,954	261,978	3,699,065	3,758,907	18,798,904
South Australia ...	8,199,110	353,403	2,369,653	2,006,052	13,438,218
Western Australia ...	2,586,195	191,025	2,169,144	1,145,904	6,092,268
Tasmania ...	2,286,618	187,461	855,334	542,503	3,871,916
Commonwealth ...	88,275,620	3,047,384	31,287,492	26,164,911	148,775,407

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

	%	%	%	%	%
New South Wales ...	60.69	2.22	18.95	18.14	100.00
Victoria ...	59.46	1.50	22.25	16.79	100.00
Queensland ...	58.93	1.39	19.68	20.00	100.00
South Australia ...	61.01	2.70	21.35	14.94	100.00
Western Australia ...	42.45	3.14	35.60	18.81	100.00
Tasmania ...	59.06	4.84	22.09	14.01	100.00
Commonwealth ...	59.33	2.05	21.03	17.59	100.00

**§ 7. Land, Buildings, Plant and Machinery.**

1. **General.**—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 land and buildings and of plant and machinery 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 1906 to 1912 by £22,245,562, *i.e.*, from £46,824,489 to £69,270,051, or at the rate of £3,740,927 per annum.

The following statement shews for the year 1912 the values of land and buildings and of plant and machinery used in connection with manufacturing industries in each State:—

**VALUE OF LAND, BUILDINGS, PLANT AND MACHINERY IN CONNECTION WITH MANUFACTURING INDUSTRIES, 1912.**

Value of—	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wlth.
	£	£	£	£	£	£	£
Land and buildings ...	14,765,810	10,362,661	3,524,991	3,150,834	1,910,372	1,094,488	34,809,156
Plant and machinery ...	13,795,195	9,095,134	5,442,471	2,725,540	2,241,536	1,161,019	34,460,895
Total ...	28,561,005	19,457,795	8,967,462	5,876,374	4,151,908	2,255,507	69,270,051

It may be seen from the above table that the total capital invested in land, buildings, plant, and machinery in manufacturing industries in the Commonwealth during the year 1912 was approximately £69,270,051 (or £14 12s. 8d. per head of population); of that sum £34,809,156 was invested in land and buildings occupied as manufactories, the remaining £34,460,895 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, 1908 to 1912.* 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 1908 to 1912 inclusive:—

**VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN COMMONWEALTH, 1908 to 1912.**

Class of Industry.	1908.	1909.	1910.	1911.	1912.
	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	847,113	870,588	921,785	978,978	1,004,221
II. Treating oils & fats, animal, vegetable, etc. ...	359,624	370,681	394,079	445,499	449,453
III. Processes in stone, clay, glass, etc. ...	937,753	956,733	1,073,612	1,228,889	1,382,062
IV. Working in wood ...	1,195,581	1,285,267	1,492,673	1,668,045	1,923,963
V. Metal works, machinery, etc. ...	4,378,755	4,415,525	4,554,698	5,000,274	5,437,718
VI. Connected with food and drink, etc. ...	7,161,845	7,191,976	7,399,625	8,167,496	8,259,066
VII. Clothing and textile fabrics, etc. ...	3,377,905	3,809,148	4,191,488	4,601,924	4,928,474
VIII. Books, paper, printing, and engraving ...	2,483,693	2,642,029	2,779,754	2,984,466	3,150,049
IX. Musical instruments, etc. ...	31,054	33,314	75,632	82,168	85,731
X. Arms and explosives ...	34,586	33,016	38,763	41,462	112,300
XI. Vehicles & fittings, saddlery & harness, etc. ...	1,172,556	1,186,750	1,325,152	1,453,077	1,654,488
XII. Ship and boat building and repairing ...	988,141	1,033,513	1,052,868	1,163,299	1,261,647
XIII. Furniture, bedding, and upholstery ...	659,604	690,588	757,485	893,408	1,043,680
XIV. Drugs, chemicals, and by-products ...	531,765	543,507	687,162	760,441	823,429
XV. Surgical and other scientific instruments ...	33,054	56,378	56,149	61,703	59,308
XVI. Jewellery, timepieces, and platedware ...	226,352	232,483	271,834	300,717	344,306
XVII. Heat, light, and power ...	1,928,734	2,026,611	2,112,220	2,320,348	2,511,317
XVIII. Leatherware, n.e.i. ...	91,036	83,578	100,006	111,506	120,646
XIX. Minor wares, n.e.i. ...	218,540	210,325	220,984	250,550	257,298
Total ...	26,657,991	27,672,010	29,506,054	32,494,250	34,809,156

It may be seen from the above table that the total net increase during the four years was £8,144,480, or an annual average of £2,036,120. The largest increases were in Classes VII., VI., and V., and amounted to £1,550,569, £1,097,221, and £1,058,963 respectively.

(ii.) *Value in each State, 1912.* The following table gives similar information for each State up to the 31st December, 1912:—

## VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN EACH STATE, 1912.

Class of Industry.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'w'lth.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	£ 394,917	£ 400,418	£ 58,731	£ 107,001	£ 26,980	£ 16,174	£ 1,004,221
II. Treating oils and fats, animal, vegetable, etc. ...	235,903	102,950	25,554	66,881	13,850	4,315	449,453
III. Processes in stone, clay, glass, etc. ...	760,788	397,011	50,889	107,253	43,861	222,260	1,382,062
IV. Working in wood ...	937,395	357,166	192,027	150,606	201,570	85,199	1,923,963
V. Metal works, machinery, etc. ...	2,460,350	1,299,909	566,198	532,551	486,553	92,157	5,437,716
VI. Connected with food and drink, etc. ...	2,644,498	2,459,897	1,404,610	745,183	430,184	574,694	8,259,066
VII. Clothing and textile fabrics, etc. ...	2,184,444	1,744,148	324,542	403,923	161,345	110,072	4,926,474
VIII. Books, paper, printing and engraving ...	1,280,913	897,453	429,712	297,914	198,095	45,962	3,150,049
IX. Musical instruments, etc. ...	59,276	23,355	...	3,100	...	...	85,731
X. Arms and explosives ...	67,485	41,315	...	3,500	...	...	112,300
XI. Vehicles and fittings, saddlery and harness, etc. ...	668,522	459,551	144,579	244,211	84,710	52,915	1,654,488
XII. Ship and boat building and repairing ...	712,842	475,120	9,155	59,810	2,120	2,600	1,261,647
XIII. Furniture, bedding and upholstery ...	447,420	330,634	97,514	90,208	46,689	31,215	1,043,680
XIV. Drugs, chemicals, and by-products ...	279,635	312,015	10,500	138,654	81,625	1,000	823,429
XV. Surgical and other scientific instruments ...	27,568	15,540	11,910	2,400	1,890	...	59,308
XVI. Jewellery, timepieces, and platedware ...	151,274	120,356	17,806	39,620	6,500	8,750	344,306
XVII. Heat, light, and power ...	1,289,812	778,445	162,208	132,997	103,830	44,025	2,511,317
XVIII. Leatherware, n.e.i. ...	50,213	51,723	9,000	4,160	5,550	...	120,646
XIX. Minor wares, n.e.i. ...	112,555	95,655	10,056	20,862	15,020	3,150	257,298
Total ...	14,765,810	10,362,661	3,524,991	3,150,834	1,910,372	1,094,488	34,809,156

The maximum value for the Commonwealth of land and buildings in any particular class was in Class VI., amounting to £8,259,066, or 23.73 per cent. on the total value. The next classes in importance were Classes V., VII., VIII., and XVII., in which the values were £5,437,718, £4,928,474, £3,150,049, and £2,511,317 respectively. The sum of the values for the five classes mentioned amounted to £24,286,624, or 69.77 per cent. on the total value for all classes.

(iii.) *Total Value in each State, 1908 to 1912.* The following table shows the total value of land and buildings occupied as manufactories in each State at the end of each year from 1908 to 1912 inclusive:—

**TOTAL VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN EACH STATE, 1908 to 1912.**

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
1908...	£ 10,390,260	£ 8,589,027	£ 2,763,085	£ 2,304,965	£ 1,565,756	£ 1,044,898	£ 26,657,991
1909...	11,014,362	8,642,544	2,888,923	2,425,970	1,522,692	1,177,719	27,672,010
1910...	12,108,776	9,012,263	3,045,974	2,641,973	1,674,953	1,022,115	29,506,054
1911...	13,474,455	9,921,520	3,277,776	2,950,170	1,819,342	1,050,987	32,494,250
1912...	14,765,810	10,362,661	3,524,991	3,150,834	1,910,372	1,094,488	34,809,156

It may be seen that since 1908 there has been a general, though in two States an irregular increase; the temporary fall in Western Australia was probably due to the

general reduction in values of real estate in that State during the past few years. The fall in Tasmania for 1910 was due to the closing down of a large pyrites works.

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 1908 to 1912 inclusive:—

**VALUE OF PLANT AND MACHINERY USED IN FACTORIES IN COMMONWEALTH,  
1908 to 1912.**

Class of Industry.	1908.	1909.	1910.	1911.	1912.
	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	671,015	754,556	829,255	877,820	926,966
II. Treating oils & fats, animal, vegetable, etc.	349,897	349,479	360,660	435,315	417,231
III. Processes in stone, clay, glass, etc.	833,809	901,193	1,109,199	1,299,774	1,491,383
IV. Working in wood...	1,583,496	1,623,497	1,852,296	2,207,703	2,455,436
V. Metal works, machinery, etc.	4,633,656	4,941,632	5,255,575	5,722,956	6,308,356
VI. Connected with food and drink, etc.	7,744,682	7,772,770	8,212,440	8,570,565	9,029,735
VII. Clothing and textile fabrics, etc.	1,158,698	1,280,102	1,403,135	1,538,062	1,620,437
VIII. Books, paper, printing, and engraving	2,091,168	2,207,930	2,362,268	2,481,399	2,628,039
IX. Musical instruments, etc.	9,124	11,263	16,443	17,924	20,960
X. Arms and explosives	46,113	45,940	47,012	56,255	158,623
XI. Vehicles & fittings, saddlery & harness, etc.	204,138	220,746	249,973	283,470	329,933
XII. Ship and boat building, and repairing	432,803	434,905	443,429	478,012	597,783
XIII. Furniture, bedding, and upholstery	117,481	126,000	150,774	177,924	207,211
XIV. Drugs, chemicals, and by-products	398,028	435,019	517,781	602,276	629,402
XV. Surgical and other scientific instruments	8,144	9,215	9,929	11,158	11,615
XVI. Jewellery, timepieces, and platedware	46,160	43,980	49,490	61,765	61,791
XVII. Heat, light, and power	5,481,759	5,561,333	5,961,816	6,611,770	7,392,958
XVIII. Leatherware, n.e.i.	18,989	19,555	24,651	25,565	27,695
XIX. Minor wares, n.e.i.	95,503	116,097	120,669	138,896	145,141
<b>Total ...</b>	<b>25,927,763</b>	<b>26,855,212</b>	<b>28,976,735</b>	<b>31,599,209</b>	<b>34,460,895</b>

It may be seen that during the period in question there has been a steady and substantial net increase amounting in all to £8,533,132, or an annual average of £2,133,283. The increase has occurred in all classes of industry, the largest increase being in Class XVII., "Heat, Light, and Power," amounting to £1,911,199, while the two next largest were in Class V., "Metal Works, Machinery, etc.," amounting to £1,674,700, and and Class VI., "Connected with Food and Drink, etc.," with an increase of £1,285,053.

(i.) *Total Value in each State, 1908 to 1912.* The classified figures in the preceding table for the whole Commonwealth are shewn below for each State. It will be seen that the progress in value referred to is general throughout the States. New South Wales shews by far the largest increase, viz., £4,076,353; while Victoria comes next with £2,137,528.

**VALUE OF PLANT AND MACHINERY IN FACTORIES, 1908 to 1912.**

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1908	9,718,842	6,957,606	4,470,145	2,064,097	1,744,652	972,421	25,927,763
1909	10,330,724	7,140,304	4,457,314	2,135,203	1,728,207	1,063,460	26,855,212
1910	11,578,620	7,601,085	4,631,519	2,225,718	1,893,602	1,046,191	28,976,735
1911	12,510,600	8,336,373	4,947,259	2,506,000	2,082,777	1,216,200	31,599,209
1912	13,795,195	9,095,134	5,442,471	2,725,540	2,241,536	1,161,019	34,460,895

(ii.) *Classified Value in each State, 1912.* The following table shews the value of plant and machinery used in factories in each State during the year 1912, classified according to the nature of the industry in which used:—

## VALUE OF PLANT AND MACHINERY USED IN FACTORIES IN EACH STATE, 1912.

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. ....	374,577	292,812	128,866	70,567	21,525	38,619	926,966
II. Treating oils and fats, animal, vegetable, etc. ....	212,958	128,600	39,729	25,044	9,675	1,225	417,231
III. Processes in stone, clay, glass, etc. ....	902,759	356,914	70,978	103,493	43,665	13,574	1,491,383
IV. Working in wood ...	799,652	440,216	478,353	73,407	504,317	159,491	2,455,436
V. Metal wks., machinery, etc.	3,098,426	1,287,628	698,588	498,185	360,829	364,700	6,308,356
VI. Connected with food and drink, etc. ....	2,962,061	1,993,895	2,989,082	550,316	390,511	143,870	9,029,735
VII. Clothing and textile fabrics, etc. ....	500,297	813,123	132,500	86,196	36,386	51,935	1,620,437
VIII. Books, paper, printing, and engraving ...	1,045,208	865,312	265,444	212,604	171,231	68,240	2,628,039
IX. Musical instruments, etc. ...	13,779	6,451	...	730	...	...	20,960
X. Arms and explosives ...	90,747	67,706	...	400	...	...	158,823
XI. Vehicles and fittings, saddlery and harness, etc. ....	111,620	103,847	36,306	46,323	20,677	11,160	329,933
XII. Ship and boat building and repairing ...	496,131	71,524	11,418	13,760	545	4,405	597,783
XIII. Furniture, bedding, and upholstery ...	61,749	63,051	29,041	33,838	13,195	6,337	207,211
XIV. Drugs, chemicals, and by-products ...	218,198	179,605	4,600	125,079	101,416	500	629,402
XV. Surgical and other scientific instruments ...	4,522	3,701	1,567	950	875	...	11,615
XVI. Jewellery, timepieces, and platedware ...	25,737	24,949	3,572	4,885	1,223	1,425	61,791
XVII. Heat, light, and power ...	2,802,203	2,305,774	549,932	877,041	562,819	295,189	7,392,958
XVIII. Leatherware, n.e.i. ...	11,440	13,812	1,354	339	750	...	27,695
XIX. Minor wares, n.e.i. ...	63,161	76,210	1,141	2,383	1,897	349	145,141
Total ...	13,795,195	9,095,134	5,442,471	2,725,540	2,241,536	1,161,019	34,460,895

The greatest value for any particular class of industry is for Class VI., "Connected with Food and Drink, etc.," and amounts to £9,029,735, or 26.20 per cent. on the total for all classes. The next in order of importance is Class XVII., "Heat, Light, and Power," which amounts to £7,392,958, or 21.45 per cent. on the total; followed by Class V., "Metal Works, Machinery, etc.," amounting to £6,308,356, or 18.31 per cent. on the total value. The total for the three classes just specified amounts to £22,731,049, or 65.96 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 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 one or two establishments of a particular class in any State, returns relative to output 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 skins has been undertaken with satisfactory results. The position of the industry in the several States in 1912 was as follows:—

## TANNERIES, 1912.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'with.
Number of factories ... ..	77	55	22	13	3	4	174
" employees ... ..	983	1,548	211	199	57	73	3,071
Actual horse-power of engines employed ... ..	1,059	1,471	348	232	83	81	3,274
Approx. value of lands and buildings £	124,725	174,735	18,660	24,994	14,640	9,144	366,898
Approx. value of plant and machinery £	53,179	118,649	18,480	11,601	8,950	9,636	250,495
Total amount of wages paid during year £	98,134	168,567	22,177	24,038	6,380	8,764	328,060
Value of fuel used ... ..	£ 6,466	10,935	1,136	1,613	472	719	21,341
Value of raw material worked up ... ..	£ 799,695	1,059,941	159,408	118,476	35,634	43,551	2,216,705
Total value of output ... ..	£ 992,474	1,371,741	208,062	158,023	44,956	58,751	2,834,007
Value added in process of manufacture £	192,779	311,800	48,654	39,547	9,322	15,200	617,302

(i.) *Progress of Tanning, etc. Industries, 1908 to 1912.* The development of the tanning, fellmongering, and wool-scouring industries during the period 1908 to 1912 is shewn in the following table, from which it will be seen that though the numbers of factories and employees are almost stationary, the value of plant and machinery shews a satisfactory increase, amounting to no less than 43.74 per cent. during the period under consideration.

## DEVELOPMENT OF TANNING, FELLMONGERING, Etc., INDUSTRIES, 1908 to 1912.

State.	Number of Factories.					Number of Employees.					Approximate Value of Plant and Machinery.				
	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.
N. S. Wales ... ..	146	147	140	135	136	2,396	2,544	2,640	2,642	2,550	£ 167,071	£ 188,820	£ 245,082	£ 242,441	£ 263,403
Victoria ... ..	92	93	89	88	90	2,001	1,999	1,956	2,123	1,996	133,376	142,422	141,702	165,964	176,947
Queensland ... ..	39	36	40	37	44	685	667	769	659	676	91,492	88,337	96,811	109,193	121,559
S. Australia ... ..	14	15	17	17	17	341	288	286	274	263	11,991	14,161	13,986	14,677	13,970
West. Australia ... ..	3	4	4	4	3	69	69	67	68	57	5,640	5,508	6,070	8,850	8,950
Tasmania ... ..	9	8	8	7	4	78	68	66	71	73	7,476	7,600	7,150	8,331	9,636
Commonwealth	303	303	298	288	294	5,570	5,635	5,784	5,837	5,615	417,046	446,855	510,801	549,456	599,465

(ii.) *Production of Tanneries, 1912.* The quantity of raw materials used and the quantity and value of leather produced in tanneries in each State during the year 1912 are shewn in the following table:—

## RAW MATERIALS USED AND LEATHER PRODUCED IN TANNERIES, 1912.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
RAW MATERIALS USED.							
Hides&skins No. (,000 omitted)	625	986	187	99	25	28	1,931
Pelts treated No. ... ..	4,309	636	187	20	...	29	5,181
Bark ... .. Tons	10,470	11,363	2,445	1,455	520	486	26,739
LEATHER AND BASILS PRODUCED.							
LEATHER—							
Quantity lbs. (,000 omitted)	13,449	16,469	*173	2,218	823	913	†
Value ... .. £	806,513	1,317,000	193,535	155,515	44,956	45,990	2,563,509
BASILS—							
Quantity lbs. (,000 omitted)	4,030	645	†177	20	...	18	†
Value ... .. £	149,174	23,850	7,465	1,640	...	825	182,954

\* No. of sides of sole and belting. There were also 21,055 hides of calf leather produced.  
 † Number. ‡ Not available.

**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 1912:—

## SOAP AND CANDLE FACTORIES, 1912.

Items.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	Cwllth.
Number of factories ...	34	17	15	5	4	2	77
" employees ...	689	598	166	226	69	28	1,776
Actual horse-power of engines employed ...	550	391	133	131	66	3	1,274
Approximate value of land and buildings	£ 173,577	89,025	25,554	54,301	13,850	4,265	360,572
" plant and machinery	£ 160,472	117,034	39,729	20,580	9,675	875	348,365
Total amount of wages paid during year	£ 52,880	61,398	15,218	22,660	7,988	2,507	162,551
Value of fuel used ...	£ 11,151	9,934	1,968	6,873	*	*	30,896
Value of raw material worked up ...	£ 394,216	375,213	77,035	118,780	*	*	1,030,770
Total value of output ...	£ 648,311	562,013	125,855	187,408	*	*	1,614,898
Value added in process of manufacture	£ 254,035	186,800	48,820	68,628	*	*	584,128

\* To avoid disclosing output, etc., of any one establishment, details for these States are not given.

(i.) *Development of Soap and Candle Factories, 1908 to 1912.* The following table gives particulars for the last five years regarding the number of factories and employees and the value of plant and machinery in these industries in each State:—

## DEVELOPMENT OF SOAP AND CANDLE FACTORIES, 1908 to 1912.

State.	Number of Factories.					Average Number of Employees.					Approximate Value of Plant and Machinery.				
	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.
N.S.W.	29	26	33	37	34	553	571	624	658	689	£ 135,786	£ 127,437	£ 132,004	£ 150,453	£ 160,472
Vic. ...	17	17	16	16	17	535	563	540	538	598	109,768	111,252	113,418	113,664	117,034
Q'land ...	16	18	17	18	15	159	174	168	175	166	35,794	40,102	39,202	40,209	39,729
S. Aus. ...	6	7	6	6	5	164	185	192	221	226	12,484	14,224	13,128	14,262	20,580
W. Aus. ...	3	3	4	2	4	50	50	46	46	69	4,910	3,200	6,725	6,600	9,675
Tas. ...	2	2	2	2	2	35	39	32	30	28	4,000	3,800	1,216	1,085	875
C'wlth...	73	73	78	81	77	1,496	1,582	1,606	1,668	1,776	302,742	300,015	305,693	326,273	348,365

(ii.) *Production of Soap and Candles, 1908 to 1912.* The subjoined statement shews that, taking the Commonwealth as a whole, there has been a considerable and consistent increase in the output of soap during the past four years. The quantity of candles produced during 1911 and 1912, shews a falling off as compared with the two previous years, but a slight increase over the output of 1908.

## PRODUCTION OF SOAP AND CANDLES, 1908 to 1912.

State.	Soap.					Candles.				
	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.
N.S.W. ...	cwt. 217,321	cwt. 206,678	cwt. 245,538	cwt. 269,019	cwt. 281,546	lbs. 5,566,776	lbs. 6,922,488	lbs. 6,689,875	lbs. 5,388,848	lbs. 5,581,858
Vic. ...	162,757	176,162	187,433	189,048	215,629	4,222,960	5,091,520	5,014,016	4,654,384	4,497,584
Q'land ...	67,755	73,446	74,338	71,936	76,689	1,028,160	957,312	965,040	1,188,880	1,160,880
S. Aus. ...	61,614	66,043	66,800	70,080	71,127	1,806,725	1,678,900	1,788,224	1,771,175	1,858,100
W. Aus. ...	29,767	35,419	34,707	*	38,331	1,259,214	1,309,066	1,225,356	*	*
Tas. ...	10,500	9,900	8,642	*	5,400	448,000	537,600	495,040	*	*
C'wlth...	549,714	567,648	617,458	639,458	688,722	14,331,835	18,096,886	16,197,551	14,573,662	14,647,939

\* Figures not available for publication.



(iii.) *Raw Materials Used, 1912.* The following statement shews the quantity of certain raw materials used in soap and candle factories in each State during the year 1912 :—

**RAW MATERIALS USED IN SOAP AND CANDLE FACTORIES, 1912.**

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'w'lth.
Tallow ... .. cwt.	128,285	146,679	33,679	48,156	*	*	411,701
Alkali ... .. "	61,384	40,055	24,970	7,409	*	*	135,643
Cocconut oil ... .. gal.	323,692	138,965	376	24,836	*	*	469,329

\* Figures not available for publication.

In addition to the above, there were 247 cwt. of copra used in the States of Western Australia and Tasmania.

4. *Saw Mills, etc.*—The most important industry in Class IV. is that of saw-milling. As separate particulars of forest saw mills are not available for some of the States, both forest and other saw mills as well as joinery, moulding and box factories have been combined in the following table.

**SAW MILLS, FOREST AND OTHER, 1912.**

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lth.
Number of factories ... ..	638	357	312	88	68	146	1,609
" employees ... ..	8,436	6,691	5,586	1,760	4,861	2,024	29,358
Actual horse-power of engines employed	15,704	8,561	7,780	1,469	4,151	2,801	40,266
Approx. value of land and buildings	£ 849,910	303,768	179,307	142,091	198,380	80,885	1,754,241
" plant and machinery	£ 741,374	417,951	474,203	70,336	503,367	158,231	2,365,462
Total amount of wages paid during year	£ 840,514	686,672	527,048	196,136	791,735	169,520	3,211,625
Value of fuel used ... ..	£ 17,885	10,709	7,989	3,411	1,847	2,072	43,913
Value of raw material worked up	£ 2,171,829	1,011,467	763,458	727,834	101,348	124,676	4,900,612
Total value of output ... ..	£ 3,513,134	2,061,974	1,764,598	1,050,571	1,126,435	366,098	9,882,810
Value added in process of manufacture	£ 1,341,305	1,050,507	1,001,140	322,737	1,025,087	241,422	4,982,198

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.

The following table gives particulars of the agricultural implement works of Australia for the year 1912 :—

**AGRICULTURAL IMPLEMENT WORKS, 1912.**

Items.	N.S.W.	Victoria	Q'land.	S.Aust.	W.A.	Tas.	C'w'lth.
Number of factories ... ..	22	67	4	57	7	2	159
" employees ... ..	613	2,665	113	1,229	99	14	4,733
Actual horse-power of engines employed	190	1,014	48	1,071	86	10	2,419
Approx. value of land and buildings	£ 77,849	163,525	4,884	72,397	11,940	750	331,348
" plant and machinery	£ 24,822	161,294	5,782	79,307	10,093	625	281,923
Total amount of wages paid during year	£ 68,477	309,789	10,051	124,705	13,759	625	527,406
Value of fuel used ... ..	£ 2,025	19,388	*	7,932	881	*	30,961
Value of raw material worked up	£ 249,161	329,397	*	112,678	46,480	*	751,596
Total value of output ... ..	£ 347,421	799,217	*	297,105	65,340	*	1,538,821
Value added in process of manufacture	£ 98,260	469,820	*	184,427	18,860	*	786,825

\* To avoid disclosing output, etc., of any one establishment, details for these States are not given.

*Development of Agricultural Implement Works.* The following table shews the progress of this industry during the years 1908 to 1912 to have been very satisfactory. During the four years the number of establishments increased 13½ per cent., the number of employees 51 per cent., and the value of plant and machinery 107 per cent. :—

## AGRICULTURAL IMPLEMENT WORKS, 1908 to 1912.

State.	Number of Factories.					Number of Employees.					Approximate Value of Plant and Machinery.				
	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.
N.S.W.	20	21	21	20	22	434	481	600	615	613	£ 16,008	£ 18,063	£ 18,575	£ 18,360	£ 24,892
Vic.	52	52	50	59	67	1,441	1,892	2,255	2,717	2,665	69,335	84,067	105,429	140,133	161,294
Q'land.	2	4	4	3	4	108	284	364	89	113	8,244	12,121	14,283	3,672	5,782
S. Aus.	54	59	60	63	57	1,092	1,346	1,544	1,616	1,229	38,157	49,405	62,315	73,294	79,307
W. Aus.	3	5	6	7	7	25	49	73	97	99	4,259	5,277	6,663	8,951	10,093
Tas.	9	7	9	3	2	34	29	32	22	14	235	845	920	615	625
C'wth.	140	148	150	155	159	3,134	4,081	4,868	5,156	4,733	136,238	169,778	208,185	245,025	281,923

6. **Engineering, Ironworks, and Foundries.**—The classification in these industries is not very satisfactory. Generally, engineering shops, ironworks, and foundries are included, as also are factories for making nails, safes, patterns, meters, and springs. Railway workshops, agricultural implement factories, cyanide, smelting, pyrites, and metallurgical works, galvanised iron, stoves and ovens, and wire working establishments are not included. The combination of industries is rendered necessary by the limited classification still adopted by some of the States.

## ENGINEERING, IRONWORKS, AND FOUNDRIES, 1912.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lt'h.
Number of factories ... ..	283	359	90	58	54	24	877
"    employees ... ..	9,411	9,171	2,983	1,911	1,175	500	25,151
Actual horse-power of engines employed	8,093	6,489	1,628	1,348	842	344	18,744
Approx. value of land and buildings	£ 862,423	534,102	166,633	93,080	99,301	37,630	1,792,169
"    plant and machinery	£ 831,769	687,870	183,651	110,048	91,754	48,386	1,953,478
Total amount of wages paid during year	£ 1,063,480	1,040,038	319,392	222,063	150,073	46,134	2,846,190
Value of fuel used ... ..	£ 57,898	87,390	16,855	17,077	12,974	3,535	195,729
Value of raw materials worked up	£ 1,490,602	1,246,137	354,172	227,035	186,041	32,192	3,536,179
Total value of output ... ..	£ 3,142,322	2,822,972	923,665	539,310	405,682	96,109	7,930,060
Value added in process of manufacture	£ 1,651,720	1,576,835	569,493	312,275	219,641	63,917	4,393,881

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, 1912.

Items.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'w'lt'h.
Number of factories ... ..	26	15	9	8	8	7	73
"    employees ... ..	8,552	4,631	2,099	2,197	1,897	266	19,662
Actual h.p. of engines employed	4,345	1,223	1,467	511	1,954	131	9,637
Approx. value of land and buildings	£ 839,679	316,936	234,846	256,690	373,062	7,060	2,128,273
Approx. value of plant and mach'ny	£ 637,718	232,610	187,996	169,019	257,957	78,410	1,563,710
Total amt. of wages paid during year	£ 1,173,512	626,258	285,109	297,590	282,241	38,001	2,702,711
Value of fuel used ... ..	£ 26,322	19,904	7,279	5,473	15,478	1,020	75,476
Value of raw material worked up	£ 2,142,526	1,653,116	495,800	552,375	786,713	64,691	5,695,921
Total value of output ... ..	£ 795,371	876,576	207,780	195,354	477,382	22,274	2,574,737
Value added in process of manuf'ct're	£ 1,347,155	776,540	285,020	357,021	309,331	42,417	3,120,484

In addition to the above, a railway workshop was in operation in the Northern Territory during 1912. The work is almost exclusively repairs to stock, etc., no new

goods being manufactured. For the sake of convenience this establishment is not included in any of the tables in this publication. Nine hands were employed during the year, wages and salaries £1460. The cost of materials used was £872, and of fuel £76, and the value of output was £3317, and of land and buildings £14,684.

8. **Smelting Works, etc.**—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, therefore, somewhat unsatisfactory. The returns do not include particulars of plants used on mines.

#### SMELTING, CYANIDE, PYRITES, Etc., WORKS, 1912.

Items.	N. S. W.	Vic.	Q'land.	S. A.	W. A.	Tas.	C'w'lth.
Number of factories ... ..	35	86	13	6	...	4	144
" employees ... ..	3,708	687	891	1,605	...	1,150	8,041
Actual horse-power of engines employed	14,081	405	1,650	3,832	...	3,910	23,917
Approx. value of land and buildings	£ 265,269	12,462	20,226	19,748	...	38,877	356,582
" plant and machinery	£ 1,401,428	55,877	262,731	68,420	...	233,799	2,022,255
Total am't of wages paid during year	£ 667,380	56,178	116,285	267,189	...	158,926	1,265,958
Value of fuel used ... ..	£ 434,889	5,896	19,097	135,920	...	104,601	699,715
Value of raw material worked up	£ 5,392,155	99,050	599,706	1,783,588	...	932,797	8,806,296
Total value of output ... ..	£ 8,400,025	218,956	717,931	2,481,701	...	1,278,457	13,097,070
Value added in process of manufacture	£ 3,007,870	119,906	118,225	699,113	...	345,660	4,290,774

\* See third paragraph below.

In New South Wales and Queensland the above figures represent smelting works; those for Victoria include seventy-eight cyanide works, two metallurgical, four pyrites, and two smelting works; South Australia four cyanide and two smelting; and Tasmania three smelting and one cyanide works.

The largest output for the year under review was in New South Wales, viz., £8,400,025, or 64.14 per cent. on the total output for the Commonwealth. South Australia came next with £2,481,701, or 18.95 per cent.; this amount is made up of £2,474,863 smelting and £6838 cyanide. Of the total for Tasmania the output of smelting was £1,187,815, the balance £90,642 representing that obtained from cyanide works. The output in Victoria was £109,151, £12,422, £66,470, and £30,913 from cyanide, metallurgical, pyrites, and smelting works in the order named.

In Western Australia all the plants are worked on the mines and are therefore not included.

9. **Bacon-curing Factories.**—The following table gives particulars of factories engaged in bacon-curing in each State during the year 1912 :—

#### BACON-CURING FACTORIES, 1912.

Items.	N. S. W.	Vic.	Q'land.	S. A.	W. A.	Tas.	C'w'lth.
Number of factories ... ..	21	29	7	12	3	6	78
" employees ... ..	196	434	258	71	18	33	1,040
Actual horse-power of engines employed	332	512	287	58	46	50	1,285
Approx. value of land and buildings	£ 73,783	74,812	51,582	11,293	6,188	6,294	222,951
" plant and machinery	£ 27,175	42,398	29,107	4,625	1,070	2,750	107,125
Total amount of salaries and wages paid	£ 28,738	45,794	29,220	7,245	3,270	3,072	117,339
Value of fuel used ... ..	£ 3,958	4,965	3,527	713	320	619	14,102
Value of raw material worked up	£ 382,780	533,483	236,000	78,772	99,550	24,816	1,355,401
Total value of output ... ..	£ 456,486	634,366	380,434	93,671	109,110	33,880	1,707,947
Value added in process of manufacture	£ 73,706	100,883	144,434	14,899	9,560	9,064	352,546

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

*Quantity and Value of Production, 1912.* 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 1912 :—

PRODUCTION OF BACON-CURING FACTORIES, 1912.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.*	Tasmania.	C'wealth.
QUANTITY (,000 omitted).							
Bacon & ham lbs.	13,766	16,044	11,411	2,673	...	799	44,692
Lard ... lbs.	599	795	822	93	...	77	2,386
VALUE.							
Bacon & ham £	401,736	598,365	344,434	88,651	...	26,140	1,459,327
Lard ... £	15,889	21,000	21,500	2,333	...	1,328	62,050
Other products £	18,741	15,000	14,500	2,687	...	6,412	57,340
PIGS KILLED.							
Number ...	159,927	179,717	146,465	30,515	...	10,296	526,920

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

10. **Butter, Cheese, and Condensed Milk Factories.**—The subjoined table gives particulars of butter, cheese, and condensed milk factories in each State during the year 1912. The returns are exclusive of butterine and margarine factories.

BUTTER, CHEESE, AND CONDENSED MILK FACTORIES, 1912.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wlth.
Number of factories ...	176	197	81	48	3	25	530
" employees ...	1,046	1,418	722	207	9	116	3,518
Actual horse-power of engines employed ...	2,367	2,824	1,297	366	27	212	7,093
Approximate value of land and buildings £	201,926	305,215	92,590	39,716	2,467	17,759	659,673
" plant & machinery £	254,333	330,143	153,541	27,701	3,300	19,504	783,922
Total amount of wages paid ...	129,449	152,922	77,201	15,504	1,297	9,420	385,793
Value of fuel used ...	27,297	26,551	11,994	2,960	126	1,187	70,155
Value of raw material worked up ...	3,698,945	3,257,213	1,286,000	276,545	8,144	149,498	8,676,346
Total value of output ...	3,953,926	3,636,174	1,660,679	316,647	9,530	180,829	9,760,205
Value added in process of manufacture £	256,980	378,961	374,679	40,102	1,806	31,331	1,083,859

(i.) *Development of Factories, 1908 to 1912.* The following table shows the progress of the factories in this industry during the past five years:—

DEVELOPMENT OF BUTTER, Etc., FACTORIES, 1908 to 1912.

State.	Number of Factories.					Number of Persons Employed.					Approximate Value of Plant and Machinery.				
	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.
N.S.W.	183	181	181	180	176	979	1,014	1,046	1,081	1,046	247,678	229,940	231,679	243,580	254,333
Vict. ...	215	211	203	199	197	1,294	1,190	1,261	1,547	1,418	282,012	281,630	280,103	321,496	330,143
Q'land	82	80	82	83	81	1,238	760	814	752	722	145,531	138,049	147,396	158,772	163,541
S. Aust.	54	53	53	46	48	212	216	232	208	207	27,539	29,353	28,620	27,272	27,701
W. Aus.	2	3	3	3	3	6	40	8	10	9	2,300	4,117	4,070	3,725	3,300
Tas. ...	24	22	26	29	25	95	93	118	132	116	11,618	11,040	16,371	20,947	19,904
C'wlth.	560	550	548	540	530	3,824	3,283	3,479	3,730	3,518	716,678	694,129	708,239	775,792	788,922

(ii.) *Quantity and Value of Production, 1912.* The following table shows the quantity and value of butter, cheese, and condensed milk produced, and the quantity of milk used in butter, cheese, and condensed milk factories in each State during 1912:—

**PRODUCTION OF BUTTER, CHEESE, AND CONDENSED MILK FACTORIES, 1912.**

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'w'lt'h.
QUANTITY (,000 OMITTED).							
Butter ... .. lbs.	72,433	62,227	28,185	4,809	121	3,278	171,053
Cheese ... .. "	3,463	2,172	3,833	1,955	...	523	11,946
Condensed and concentrated milk ... lbs.	3,637	18,456	7,923	...	...	...	30,016
VALUE (,000 OMITTED).							
Butter ... .. £	3,695	3,200	1,378	258	6	166	8,703
Cheese ... .. £	110	65	116	58	...	15	364
Condensed and concentrated milk ... £	50	362	167	...	...	...	579
o. MILK USED (,000 OMITTED).							
Butter factories ... gals.	170,009	142,014	62,821	9,919	284	7,640	392,687
Cheese " ... "	3,656	2,190	4,031	1,962	...	531	12,370
Condensed milk factories ... "	1,056	5,876	2,137	...	...	...	9,069

The butter, cheese and condensed milk industries are dealt with more fully in Section IX., *Farmyard and Dairy Production*.

**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 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 284 and 288 hereof respectively. Special terms have been made by the Commonwealth Government in its English mail contract for the provision by the contractors of ample 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 each item for all the States not being available.

**MEAT AND FISH-PRESERVING, ICE AND REFRIGERATING WORKS, 1912.**

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lt'h.
Number of factories ... ..	90	31	47	16	11	6	201
" employees ... ..	1,783	1,226	3,489	281	101	25	6,905
Actual horse-power of engines employed	4,370	4,044	5,867	755	736	140	15,912
Approx. value of land and buildings £	452,659	339,156	490,335	142,683	55,740	6,100	1,486,673
" " plant and machinery £	463,751	196,124	409,194	82,871	42,713	3,900	1,198,553
Total amount of wages paid during year £	191,540	125,047	373,950	34,744	10,473	1,999	737,753
Value of fuel used ... .. £	37,570	25,065	50,559	5,621	4,680	372	123,867
Value of raw material worked up	£3,090,247	946,128	2,461,533	106,772	1,561	2,478	6,608,719
Total value of output ... ..	£3,626,863	1,173,983	3,356,602	157,983	30,439	5,375	8,351,250
Value added in process of manufacture £	536,616	227,860	895,069	51,211	28,878	2,897	1,742,531

The following table gives particulars, so far as available, of various classes of meat preserved during the year 1912 :—

## MEAT-PRESERVING WORKS—PARTICULARS OF ANIMALS TREATED, 1912.

Particulars.		N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'w'lth.
Sheep treated ... No.		616,435	1,409,243	613,681	5,561	...	...	2,644,920
Cattle " ... No.		50,941	10,793	335,014	1,495	...	...	398,243
Pigs " ... No.		...	3,120	...	...	...	...	3,120

Large quantities of rabbits, hares, and poultry were treated in freezing works, for which, however, complete returns are not available. During 1912, 1,072,464 pairs of rabbits and hares were treated in Victoria, and 274,379 rabbits in South Australia. Exclusive of Victoria, for which State particulars are not available, the returns show that 70,803 tons of ice, valued at £147,512, were manufactured in the Commonwealth in 1912.

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 1912:—

## BISCUIT, Etc., MANUFACTORIES, 1912.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wlth.
Number of factories ... ..	7	5	15	3	3	6	39
employees ... ..	1,466	1,394	374	112	140	155	3,641
Actual horse-power of engines employed	954	271	132	59	105	62	1,583
Approx. value of land and buildings	£ 102,375	£ 66,150	£ 32,579	£ 17,750	£ 10,752	£ 24,000	£ 253,606
plant and machinery	£ 102,089	£ 57,450	£ 21,382	£ 9,969	£ 13,968	£ 12,084	£ 216,942
Total amount of wages paid during year	£ 78,990	£ 95,770	£ 34,891	£ 9,809	£ 12,475	£ 10,638	£ 242,573
Value of fuel used ... ..	£ 7,973	£ 9,225	£ 1,706	£ 1,675	£ 1,245	£ 1,390	£ 23,214
Value of raw material worked up	£ 373,809	£ 366,796	£ 90,246	£ 24,932	£ 37,362	£ 38,406	£ 931,551
Total value of output ... ..	£ 558,836	£ 599,178	£ 179,807	£ 54,766	£ 64,097	£ 61,804	£ 1,518,488
Value added in process of manufacture	£ 185,027	£ 232,382	£ 89,561	£ 29,534	£ 26,735	£ 23,398	£ 586,937

13. **Jam and Fruit Preserving, Pickles, Sauces, and Vinegar Manufactories.**—The jam and fruit preserving industry has increased in importance of late years, consequent on the extension of 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 1912. Separate returns for the individual industries are not available for most of the States.

## JAM AND FRUIT PRESERVING, PICKLES, SAUCES, AND VINEGAR MANUFACTORIES, 1912.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wlth.
Number of factories ... ..	37	31	11	28	6	20	133
employees ... ..	1,904	1,737	191	530	81	756	4,499
Actual horse-power of engines employed	247	304	81	107	48	509	1,296
Approx. value of land and buildings	£ 95,330	£ 119,311	£ 11,390	£ 31,045	£ 6,602	£ 53,365	£ 317,043
plant and machinery	£ 44,266	£ 50,761	£ 5,479	£ 12,315	£ 1,487	£ 22,260	£ 136,468
Total amount of wages paid during year	£ 75,309	£ 110,740	£ 10,330	£ 26,283	£ 5,848	£ 46,578	£ 275,138
Value of fuel used ... ..	£ 4,048	£ 7,782	£ 597	£ 2,524	£ 311	£ 3,576	£ 18,838
Value of raw material worked up	£ 377,574	£ 526,493	£ 38,772	£ 125,382	£ 13,720	£ 194,239	£ 1,276,180
Total value of output ... ..	£ 541,413	£ 798,386	£ 62,983	£ 197,388	£ 23,668	£ 260,207	£ 1,884,045
Value added in process of manufacture	£ 163,639	£ 271,893	£ 24,211	£ 72,006	£ 9,948	£ 65,968	£ 607,865

*Quantity and Value of Production, 1912.* The following table shews the quantity and value of jams, pickles, and sauces manufactured in each State during the year 1912:—

## QUANTITY AND VALUE OF JAMS, PICKLES, AND SAUCE MANUFACTURED, 1912.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
QUANTITY (.000 OMITTED).							
Jam ... .. lbs.	28,422	28,949	*4,861	7,169	460	16,030	85,891
Pickles ... .. pints	2,581	1,482	102	328	193	24	4,710
Sauce ... .. pints	2,493	5,886	323	1,389	503	86	10,680
VALUE.							
Jam ... .. £	383,125	507,886	*57,531	96,691	7,505	171,812	1,224,550
Pickles ... .. £	50,421	37,692	2,116	6,319	4,842	456	101,846
Sauce ... .. £	50,233	154,422	5,889	26,901	9,067	1,656	248,168

\* Including fruit, preserved and pulped, 4,100,090 lbs., £44,461.

14. **Confectionery.**—The following table shows the position of the confectionery industry in 1912, and its growth will be apparent when it is stated that at the close of 1900 there were in New South Wales 16 establishments, with 706 employees, and in Victoria 16 establishments, employing 731 persons, using plant and machinery valued at £2815 in the former and £19,070 in the latter State.

## CONFECTIONERY FACTORIES, 1912.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lth.
Number of factories ... ..	44	28	10	7	4	3	96
" employees ... ..	1,415	1,437	392	271	122	19	3,656
Actual horse-power of engines employed	464	476	66	149	103	12	1,270
Approx. value of land and buildings	£ 169,841	71,640	20,750	36,746	21,780	3,100	323,857
" plant and machinery	£ 81,471	60,169	16,678	27,619	13,600	605	200,142
Total amount of wages paid during year	£ 101,911	100,150	28,308	19,703	11,975	1,321	263,368
Value of fuel used ... ..	£ 5,800	6,983	944	2,419	1,312	139	17,597
Value of raw material worked up	£ 455,933	365,483	40,731	57,163	27,945	2,225	949,480
Total value of output ... ..	£ 752,993	539,148	110,801	102,986	42,629	4,850	1,553,407
Value added in process of manufacture	£ 297,060	173,665	70,070	45,823	14,684	2,625	603,927

15. **Flour Mills.**—The following table shows the position of the flour-milling industry in the year 1912 :—

## FLOUR MILLS, 1912.

Items.	N.S.W.	Vic.	Q'land.	S.A.*	W.A.*	Tas.*	C'w'lth.
Number of factories ... ..	69	61	11	51	17	18	227
" employees ... ..	964	845	184	569	215	125	2,902
Actual horse-power of engines employed	4,505	4,602	910	3,006	1,228	596	14,847
Approx. value of land and buildings	£ 376,611	222,704	55,878	118,251	81,561	46,270	901,275
" plant and machinery	£ 333,068	261,403	71,622	145,118	67,034	29,795	908,040
Total am't of wages paid during year	£ 124,132	95,266	23,842	68,046	28,185	12,829	352,300
Value of fuel used ... ..	£ 23,734	22,858	3,107	16,133	6,768	2,964	75,564
Value of raw material worked up	£ 2,317,478	2,179,608	282,336	954,133	420,537	210,748	6,364,840
Total value of output ... ..	£ 2,845,308	2,565,014	349,627	1,120,442	525,616	240,296	7,646,303
Value added in process of manufacture	£ 527,830	385,406	67,291	166,309	105,079	29,548	1,281,463

\* The manufacture of cornflour, oatmeal, etc., was worked in conjunction with these establishments.

(i.) *Production of Flour Mills, 1908 to 1912.* The production of flour by the mills in each State of the Commonwealth in the years 1908 to 1912 was as follows :—

## FLOUR MILLS—PRODUCTION, 1908 to 1912.

Year.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	West. Aust.	Tasmania.	C'wealth.
	Tons.*	Tons.*	Tons.*	Tons.*	Tons.*	Tons.*	Tons.*
1908	180,843	192,687	22,266	107,742	31,424	17,426	552,388
1909	214,426	215,547	29,451	97,967	24,878	21,419	603,688
1910	242,813	225,282	27,559	95,885	36,818	20,925	649,282
1911	253,556	247,434	27,960	100,374	40,642	21,335	691,301
1912	255,359	225,376	25,855	103,100	49,319	18,044	677,053

\* Tons of 2000 lbs.

The total production of flour for the Commonwealth for 1912, viz., 677,053 tons, was valued at £5,796,251; in addition 302,363 tons of bran and pollard, valued at £1,717,949, were made. The total quantity of wheat ground in 1912 was 32,711,285 bushels.

16. **Sugar Mills.**—The following table shews the position of the cane-crushing branch of the sugar-making industry in 1912. This industry is carried on in Queensland and New South Wales, the only States of the Commonwealth in which the sugar-cane is grown.

## SUGAR MILLS, 1912.

Items.	N. S. W.	Queensland.	Total.
Number of factories ... ..	3	47	50
„ employees ... ..	469	3,891	4,360
Actual horse-power of engines employed ...	2,425	10,552	12,977
Approximate value of land and buildings £	55,190	297,071	352,261
„ „ plant and machinery £	466,699	1,836,046	2,302,745
Total amount of wages paid during year £	42,490	319,494	361,984
Value of fuel used ... ..	£ 4,459	36,061	40,520
Value of raw material worked up ... ..	£ 105,327	747,557	852,884
Total value of output ... ..	£ 216,962	1,388,626	1,605,588
Value added in course of manufacture £	111,635	641,069	752,704

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. 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 greater part produced is put to no use whatever. The following tables shew the progress of this industry in each State from the dates at which information is first obtainable :—

## SUGAR MILLS, NEW SOUTH WALES, 1870 to 1912.

Items.	1870.	1877.	1886.	1891.	1896.	1901.	1909.	1910.	1911.	1912.
No. of factories	27	50	64	33	23	12	4	4	4	3
„ employees	...	1,065	2,259	1,621	1,475	695	529	506	469	469
Cane crushed in tons	...	...	...	...	...	...	131,083	160,311	167,799	141,374
Sugar produced tons	677	7,537	13,750	16,033	28,557	19,519	14,810	20,115	17,299	16,817
Molasses produced gals.	...	345,543	507,000	1,074,080	2,520,580	1,300,909	1,072,400	918,900	796,440	667,100

The reduction in the number of New South Wales mills is due chiefly to the tendency towards concentration of 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 1912.

Items.	1868.	1876.	1886.	1891.	1896.	1901.	1909.	1910.	1911.	1912.
No. of factories	10	70	118	68	63	52	46	49	49	47
„ employ-ees ...	...	*	*	*	3,796	*	3,848	4,036	4,295	3,891
„ acres crushed	...	7,245	40,756	36,821	66,640	78,160	1,163,569†	1,840,447†	1,534,451†	994,212†
Sugar pro-duced... tons	...	8,214	59,225	51,219	100,774	120,858	134,584	210,756	173,296	113,060
Molasses pro-duced gals.	68,622	416,415	1,784,266	1,640,662†	2,195,470	3,679,952	4,763,635	7,329,870	6,451,192	4,988,988

\* Not available. † 1890. ‡ 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 336 to 340.)



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 1912 there were two sugar refineries in each of the States of Victoria and Queensland, and one in each of the States of New South Wales and South Australia. The returns for the individual States cannot be disclosed.

In the six refineries in the Commonwealth, an average number of 1608 hands was employed during the year 1912. The approximate value of land and buildings was £418,755; of plant and machinery, £942,599; and the total amount of wages paid during the year was £191,246.

As regards production, the amount of crude sugar used was 236,254 tons, and of refined sugar produced 229,573 tons, valued at £3,834,497.

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 1912:—

#### BREWERIES, 1912.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'w'lth.
Number of factories ...	33	29	11	12	20	5	110
"    employees ...	1,020	1,008	494	353	504	153	3,532
Actual horse-power of engines employed ...	1,098	2,517	300	448	1,197	118	5,678
Approx. value of land and buildings ... £	307,073	384,207	132,020	118,468	188,921	395,950	1,526,629
Approx. value of plant and machinery ... £	333,716	325,658	102,850	82,073	193,549	40,878	1,078,724
Total amount of wages paid during year ... £	142,347	149,605	63,122	50,885	98,847	19,006	523,812
Value of fuel used ... £	21,663	24,619	6,887	7,994	13,504	2,239	76,906
Value of raw material worked up ... £	577,905	436,717	178,340	101,125	153,965	46,018	1,494,070
Total value of output ... £	1,289,438	980,927	460,568	322,119	467,012	127,766	3,647,850
Value added by process of manufacture ... £	711,533	544,210	282,228	220,994	313,047	81,768	2,153,780

*Production and Materials Used, 1912.* 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 1912:—

#### PRODUCTION AND MATERIALS USED IN BREWERIES, 1912.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
ALE AND STOUT BREWED.							
Quantity gallons	21,126,426	20,247,337	6,649,493	5,236,673	5,419,187	1,992,766	60,671,882
Value ... £	1,264,000	961,000	451,000	315,519	458,000	125,000	3,574,519
RAW MATERIALS USED.							
Malt ... bush.	773,194	566,779	224,852	130,510	167,425	77,383	1,940,143
Hops ... lbs.	891,535	659,323	335,009	179,591	244,893	118,372	2,428,723
Sugar ... cwt	100,959	119,667	53,340	27,790	29,175	9,362	340,293
RAW MATERIALS USED PER 1000 GALLONS OF ALE AND STOUT PRODUCED.							
Malt ... bush.	36.60	27.50	33.81	24.92	30.89	38.83	31.98
Hops ... lbs.	42.20	32.56	50.38	34.29	45.19	59.40	40.03
Sugar ... cwt.	4.78	5.91	8.02	5.31	5.38	4.70	5.61

19. **Distilleries.**—The subjoined table gives particulars of distilleries in each State during the year 1912. There are no distilleries in either of the States of Western Australia or Tasmania.

## DISTILLERIES, 1912.

Particulars.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	3	7	3	16	...	...	29
"    employees ... ..	20	41	33	69	...	...	163
Actual horse-power of engines employed ...	114	157	66	188	...	...	525
Approximate value of land and buildings £	17,330	84,290	13,849	25,067	...	...	140,536
Approx. value of plant and machinery £	47,369	62,790	18,261	20,743	...	...	149,163
Total amount of wages paid during year £	3,591	2,271	4,861	6,805	...	...	17,528
Value of fuel used ... ..	1,040	907	1,683	1,765	...	...	5,395
Value of raw materials worked up £	25,120	23,869	8,743	46,279	...	...	104,011
Total value of output ... ..	46,017	33,147	68,808	73,971	...	...	221,943
Value added in process of manufacture £	20,897	9,278	60,065	27,692	...	...	117,932

*Production of Spirits and Materials Used, 1912.* The total quantity of brandy distilled in 1912 was 151,952 proof gallons, and of other spirits was 2,169,668 proof gallons. The materials used comprised 460,929 cwt. of molasses and sugar, and 2,320,465 gallons of wine. Particulars for the separate States are not available for publication.

20. **Tobacco, Cigars and Cigarettes.**—During the year 1912 there were thirty-three establishments in which the manufacture of tobacco, cigars, and cigarettes was carried on. There were no factories engaged in this industry in Tasmania.

## TOBACCO, CIGAR, AND CIGARETTE FACTORIES, 1912.

Items.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	11	16	3	3	2	...	35
"    employees ... ..	1,425	1,788	103	142	26	...	3,484
Actual horse-power of engines employed	596	270	24	22	5	...	917
Approx. value of land and buildings £	155,922	172,093	5,450	12,554	3,003	...	349,022
"    plant and machinery £	100,101	106,806	8,579	11,290	518	...	227,294
Total amount of wages paid during year £	143,558	191,162	7,606	14,252	1,503	...	358,081
Value of fuel used ... ..	976	2,504	217	560	10	...	4,267
Value of raw material worked up £	895,778	674,017	31,971	19,005	1,942	...	1,622,713
Total value of output ... ..	1,394,624	1,196,151	57,875	41,044	6,463	...	2,696,157
Value added in process of manufacture £	498,846	522,134	25,904	22,039	4,521	...	1,073,444

(i.) *Quantity of Goods Produced, and Tobacco Leaf Used, 1912.* The following table shews the quantity of goods produced in tobacco factories in each State, and the quantities of imported and Australian-grown leaf used during the year 1912:—

## PRODUCTION OF TOBACCO FACTORIES AND QUANTITY OF LEAF USED, 1912.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wth.
QUANTITY (,000 OMITTED).							
Manufact'ed tobacco lbs.	4,171	5,642	193	289	4	...	10,299
Cigars ... ..	80	288	...	15	6	...	389
{ No. 7,369	23,334	...	1,204	493	...	...	32,400
{ lbs. 2,378	227	...	...	1	...	...	2,606
Cigarettes ... ..	1,045,981	97,400	...	...	434	...	1,143,815
TOBACCO LEAF USED (,000 OMITTED).							
Australian leaf... lbs.	761	165	172	103	1	...	1,202
Imported leaf ... lbs.	5,306	5,137	4	165	13	...	10,625

(ii.) *Development of Industry.* This industry was among the first to be established in Australia. In 1861 New South Wales had eleven factories, producing 177,744 lbs. of manufactured tobacco; in the same year there was one factory in Victoria, but the quantity of tobacco manufactured is not available. The Australian market has for many years been largely supplied with local manufactures. The quantities imported into Australia during 1912 were—manufactured tobacco 2,610,816 lbs., cigars 408,607 lbs. and cigarettes 147,365 lbs., while the quantities manufactured in Australian factories were respectively 10,298,241 lbs., 388,906 lbs. and 2,605,840 lbs. The following tables show the development of the tobacco industry in the several States and the Commonwealth during recent years:—

**DEVELOPMENT OF TOBACCO, CIGAR, AND CIGARETTE FACTORIES, 1908 to 1912.**

State.	Number of Factories.					Number of Persons Employed.					Approximate Value of Plant and Machinery.				
	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.
N.S.W.	12	15	13	10	11	1,309	1,250	1,412	1,431	1,425	£	£	£	£	£
Vic. ...	13	14	14	15	16	2,542	2,449	2,248	2,012	1,768	119,012	119,676	125,703	92,138	100,101
Q'land	2	2	2	3	3	79	90	87	120	103	100,880	104,973	106,521	103,247	106,806
S. Aus.	3	3	3	3	3	175	180	154	146	142	2,300	4,350	5,318	7,573	8,579
W. Aus.	3	3	3	2	2	32	22	22	21	26	12,084	12,084	12,101	11,138	11,290
Tas.* ...	...	...	...	...	...	...	...	...	...	...	297	291	708	480	518
C'wth.	33	37	35	33	35	4,137	3,991	3,923	3,730	3,484	234,573	241,374	250,351	214,576	227,294

**PRODUCTION.**

State.	Tobacco made.					Cigars made.				
	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.
N.S.W.	lbs. 3,916,388	lbs. 3,694,918	lbs. 3,850,154	lbs. 3,996,471	lbs. 4,170,853	lbs. 57,716	lbs. 57,148	lbs. 73,194	lbs. 87,818	lbs. 80,537
Vic. ...	5,330,953	5,160,728	5,507,524	5,519,264	5,641,647	199,847	210,766	229,315	246,400	287,575
Q'land	152,331	187,069	195,752	204,921	192,779	...	...	...	1,784	...
S. Aus.	434,636	393,913	377,556	325,300	288,813	9,733	10,001	11,594	14,191	14,808
W. Aus.	3,807	3,549	2,100	2,440	4,149	7,527	7,415	5,800	5,934	5,986
Tas.* ...	...	...	...	...	...	...	...	...	...	...
C'wth.	9,838,115	9,440,167	9,933,067	10,048,396	10,298,241	274,823	285,330	319,903	356,127	388,906
State.	Cigarettes made.					Leaf used.				
	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.
N.S.W.	lbs. 1,119,269	lbs. 1,300,045	lbs. 1,548,872	lbs. 1,899,462	lbs. 2,377,554	lbs. 4,589,875	lbs. 4,417,173	lbs. 4,945,868	lbs. 5,363,161	lbs. 6,066,197
Vic. ...	402,548	323,086	310,711	263,297	227,164	5,802,567	4,934,548	5,390,921	5,125,386	5,302,487
Q'land	...	...	...	...	...	152,188	226,706	256,660	181,749	175,875
S. Aus.	...	...	...	...	...	427,588	363,564	346,259	312,038	267,838
W. Aus.	581	548	2,595	970	1,122	17,591	17,659	10,867	10,690	14,261
Tas.* ...	...	...	...	...	...	...	...	...	...	...
C'wth.	1,522,396	1,623,679	1,862,176	2,163,729	2,605,840	10,989,809	9,959,650	10,950,775	10,993,024	11,826,658

\* There are no tobacco factories in Tasmania.

21. *Woolen and Tweed Mills.*—The manufacture of woollens and tweeds was established in Australia at an early period in its history, the first record in New South

Wales dating back to 1801, and was under Government control, when a few blankets were made by the convicts; the first record in Victoria was in 1867. The following table, which gives particulars of the mills in each State during the year 1912, shews that the industry is now well established:—

## WOOLLEN AND TWEED MILLS, 1912.

Items.	N.S.W.	Vic.	Q'ld.	S.A.	W.A.	Tas.	C'with.
Number of factories ... ..	14	10	2	2	...	4	32
" employees ... ..	1,137	1,672	164	180	...	226	3,379
Actual horse-power of engines employed ...	937	2,341	137	180	...	97	3,692
Approx. value of land and buildings £	118,803	146,689	11,878	8,829	...	20,850	307,049
" plant and machinery £	137,030	275,732	26,278	20,037	...	38,750	497,827
Total amount of wages paid during year £	84,858	115,096	8,759	9,707	...	14,141	232,561
Value of fuel used ... ..	5,860	13,668	*	*	...	1,184	22,709
Value of raw material worked up £	172,909	245,220	*	*	...	18,833	468,728
Total value of output ... ..	£ 342,354	473,880	*	*	...	43,359	930,485
Value added in process of manufacture £	169,445	228,660	*	*	...	24,526	461,757

\* As there are only two factories in each of the States of Queensland and South Australia particulars of output, etc., are not disclosed: the amounts, however, are included in the totals for the Commonwealth.

(i.) *Progress of Industry, 1908 to 1912.* The progress of woollen and tweed manufactures during the last five years is shewn in the following table for each State in which mills were in operation:—

## DEVELOPMENT OF WOOLLEN MILLS IN AUSTRALIA, 1908 to 1912.

State.	Number of Factories.					Number of Persons Employed.					Approximate Value of Plant and Machinery.				
	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.
N.S.W.	5	7	8	13	14	455	628	748	951	1,137	£ 43,933	£ 82,117	£ 109,473	£ 122,927	£ 137,030
Vic.	9	9	9	10	10	1,757	1,717	1,657	1,875	1,672	263,100	265,008	247,791	267,932	275,732
Q'land.	1	*2	*2	*3	2	97	*165	*175	*173	164	19,364	*28,634	*30,144	*30,300	26,278
S. Aus.	2	2	2	2	2	145	177	172	169	180	11,200	10,763	10,763	18,750	20,037
W. Aus.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tas.	4	4	4	4	4	263	278	278	232	226	33,250	37,250	38,750	38,950	38,750
C'with.	21	24	25	32	32	2,717	2,965	3,030	3,200	3,379	370,847	423,772	436,921	478,859	497,827

\* Including one cotton ginning establishment.

(ii.) *Quantity and Value of Production, 1912.* 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 available for publication. The total length of tweed and cloth manufactured was over 2,250,000 yards, valued at, approximately, £350,000. In New South Wales 1,143,046 yards of tweed and cloth, in Victoria 1,013,444 yards, and in Tasmania 20,549 yards were manufactured. The production of flannel in the Commonwealth in 1912 amounted to over 5,000,000 yards, valued at £350,000, and of blankets, shawls, and rugs upwards of 850,000, valued at about £230,000, were manufactured.

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. For particulars of the quantity ginned on which bounties were paid, see page 351.

22. *Boots and Shoes.*—Among the manufactures of Australia the boot and shoe industry holds an important place both in respect to 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 1912:—

## BOOT AND SHOE FACTORIES, 1912.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lth.
Number of factories ... ..	103	151	31	24	10	13	332
" employees ... ..	4,391	6,774	1,017	727	179	253	13,341
Actual horse-power of engines employed	984	1,188	233	164	29	68	2,646
Approx. value of land and buildings £	238,019	208,499	46,438	73,693	13,490	18,520	598,659
" " plant and machinery £	149,233	170,002	37,143	24,881	7,420	9,335	398,014
Total amt. of wages paid during year £	389,040	570,025	81,731	67,184	18,528	17,957	1,144,465
Value of fuel used ... ..	£ 5,435	9,292	867	1,176	359	115	17,249
Value of raw material worked up	£ 722,596	1,132,045	139,627	124,141	36,247	30,094	2,184,750
Total value of output ... ..	£ 1,267,555	1,951,998	256,781	224,608	61,259	57,170	3,819,371
Value added in process of manufacture £	544,959	819,953	117,154	100,467	25,012	27,076	1,634,621

(i.) *Progress of Industry, 1908 to 1912.* The progress of the industry in the last five years is shewn in the following table :—

## DEVELOPMENT OF BOOT AND SHOE FACTORIES, 1908 to 1912.

State.	No. of Factories.					No. of Persons Employed.					Approximate Value of Plant and Machinery.				
	1906	1909	1910	1911	1912	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912
N.S.W.	105	102	106	106	103	4,650	4,460	4,475	4,411	4,391	£ 134,575	£ 141,822	£ 149,228	£ 156,643	£ 149,233
Victoria	139	136	144	154	151	6,348	6,894	6,832	7,001	6,774	123,204	129,411	136,195	159,538	170,002
Q'land.	27	25	30	29	31	1,094	1,135	1,120	1,073	1,017	26,652	25,712	34,651	33,031	37,143
S. Aust.	24	23	23	26	24	1,077	1,069	882	802	727	30,748	29,644	30,079	24,858	24,881
W. Aust.	10	11	10	11	10	185	204	203	213	179	5,967	6,735	6,100	7,510	7,420
Tas. ...	23	18	24	15	13	252	261	293	272	253	3,185	4,410	4,565	8,299	9,335
C'wealth	328	315	337	341	332	13,606	14,023	13,810	13,772	13,341	324,331	337,734	360,818	389,879	398,014

(ii.) *Value and Quantity of Production, 1912.* The number and value of boots and shoes and slippers made at factories in each State during the year 1912 are shewn in the following table :—

## PRODUCTION OF BOOT AND SHOE FACTORIES, 1912.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'w'lth.
QUANTITY (,000 OMITTED).							
Boots and shoes ... Pairs	3,926	4,967	706	641	190	161	10,591
Slippers ... Pairs	358	221	51	38	...	1	669
Uppers* ... Pairs	62	15	8	14	3	3	105
VALUE.							
Boots and shoes ...	£ 1,197,441	1,909,250	240,105	207,223	56,452	54,060	3,664,531
Slippers ...	£ 33,934	22,000	4,750	4,676	...	178	65,538
Uppers* ...	£ 14,878	3,750	2,466	2,102	832	670	24,698

\* Made for other than factory use.

23. **Hats and Caps.**—The manufacture of hats and caps is now well established in the Commonwealth. The position of the industry in the several States in 1912 is shewn in the following table :—

## HAT AND CAP FACTORIES, 1912.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	35	39	4	2	1	...	81
" employees ... ..	1,597	1,803	131	119	5	...	3,655
Actual horse-power of engines employed	626	416	17	50	...	...	1,108
Approx. value of land and buildings	£ 118,103	91,643	9,300	4,661	780	...	224,487
" plant and machinery	£ 61,873	53,007	8,084	4,762	100	...	127,826
Total amount of wages paid during year	£ 111,137	137,457	8,679	11,277	234	...	268,784
Value of fuel used...	£ 4,972	5,095	228	*	*	...	11,061
Value of raw material worked up	£ 149,334	189,267	13,189	*	*	...	364,792
Total value of output ... ..	£ 360,449	413,443	27,511	*	*	...	830,746
Value added in process of manufacture	£ 211,115	224,176	14,322	*	*	...	465,954

\* As there are only two factories in South Australia and one in Western Australia, details relating to output, etc., are not available for separate publication; the amounts, however, are included in the totals for the Commonwealth.

(i.) *Progress of Industry, 1908 to 1912.* As appears from the following table, which shows the progress of this industry in the States in which it was carried on during the years 1908 to 1912, there has been a considerable investment of capital in these establishments 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, 1908 to 1912.

State.	Number of Factories.					No. of Persons employed.					Approximate Value of Plant and Machinery.				
	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.
N.S.W.	26	30	29	32	35	1,231	1,349	1,398	1,566	1,597	£ 34,315	39,966	52,057	60,807	61,873
Vict.	34	35	42	43	39	1,520	1,688	1,890	2,017	1,803	29,650	35,427	43,447	51,849	53,007
Q'land	4	5	5	4	4	129	173	147	142	131	7,662	7,420	7,591	7,330	8,084
S. Aust.	1	2	2	2	2	57	144	166	126	119	3,721	5,182	5,064	4,687	4,762
W Aust.	...	1	1	1	1	...	7	5	5	5	...	50	30	100	100
C'wth.	65	73	79	82	81	2,927	3,361	3,606	3,856	3,655	75,348	88,045	108,189	124,773	127,826

(ii.) *Quantity and Value of Production, 1912.* Particulars regarding the quantity and value of the production of hat and cap factories in each State are not available for separate publication. The total value of hats and caps made in Australia in 1912 was £822,222.

24. *Coach and Wagon Building Works.*—This industry 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 1912. The returns include establishments for the manufacture of wheels, spokes, etc.

## COACH AND WAGON BUILDING WORKS, 1912.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	250	275	91	100	34	26	776
" employees ... ..	2,680	2,854	810	974	351	204	7,873
Actual horse-power of engines employed	768	509	246	437	142	49	2,151
Approx. value of land and buildings	£ 322,227	248,026	62,726	131,971	43,435	20,175	828,560
" plant and machinery	£ 69,732	53,470	28,018	28,161	13,315	4,764	195,460
Total amount of wages paid during year	£ 244,877	233,738	48,622	82,688	40,936	14,603	665,614
Value of fuel used ... ..	£ 9,108	8,169	1,124	3,420	2,319	645	24,785
Value of raw material worked up	£ 252,045	261,363	59,809	83,949	39,821	17,240	714,227
Total value of output ... ..	£ 631,838	623,843	172,327	235,641	98,712	39,363	1,802,524
Value added in process of manufacture	£ 379,793	362,480	113,018	151,992	56,691	22,123	1,068,297

25. **Furniture and Cabinet Making and Billiard Table Making.**—These industries constitute the principal manufactures in Class XIII. (see § 1, 3 above). The following table gives particulars for 1912:—

**FACTORIES FOR FURNITURE AND CABINET MAKING AND BILLIARD TABLE MAKING, 1912.**

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	156	177	68	37	25	17	480
" employees ... ..	2,898	2,048	1,083	996	411	312	7,748
Actual horse-power of engines employed	1,161	685	585	746	242	89	3,508
Approx. value of land and buildings	£ 304,405	236,085	80,842	67,300	36,556	24,880	750,068
" plant and machinery	£ 48,032	33,272	27,204	30,838	11,862	4,282	155,510
Total amount of wages paid during year	£ 306,126	205,967	98,573	109,459	51,678	20,353	792,456
Value of fuel used ... ..	£ 5,014	2,455	2,217	2,914	1,231	478	14,309
Value of raw material used ... ..	£ 283,688	265,528	102,992	79,242	62,351	19,492	813,293
Total value of output ... ..	£ 718,600	569,193	247,675	223,770	129,442	53,469	1,942,149
Value added in process of manufacture	£ 434,912	303,665	144,683	144,528	67,091	33,977	1,128,856

26. **Electric Light and Power Works.**—Particulars of the electric light and power works of the Commonwealth in the year 1912 are given in the subjoined table. In 1907 there were 128 establishments employing 1569 hands whose salaries and wages amounted to £202,490: in 1912 these had increased to 179 establishments, 2663 hands, salaries and wages £398,380, while the value of plant and machinery had increased during the five years from £2,576,431 to £3,500,139.

**ELECTRIC LIGHT AND POWER WORKS, 1912.**

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	113	24	7	3	20	12	179
" employees ... ..	1,073	666	158	329	257	180	2,663
Actual horse-power of engines employed	71,141	20,005	8,329	9,344	18,286	5,032	132,137
Approx. value of land and buildings	£ 494,797	211,699	28,999	110,010	77,720	12,375	935,600
" plant and machinery	£ 1,350,488	912,712	92,908	510,763	492,767	140,481	3,500,139
Total amount of wages paid during year	£ 161,644	89,435	22,521	53,505	49,516	21,659	398,380
Value of fuel used ... ..	£ 205,494	46,448	19,730	27,531	84,758	46,941	430,902
Total value of output ... ..	£ 1,077,441	309,156	83,804	119,134	255,074	96,812	1,941,421

\* Including manufacture of electric apparatus.

27. **Gas and Coke Works.**—There are gas works in operation in nearly all the chief towns in the Commonwealth. In New South Wales there are thirteen and in Queensland two coke factories which are worked as separate industries. The subjoined table gives particulars of gas and coke works in each State:—

**GAS AND COKE WORKS, 1912.**

Items.	N.S.W.	Vic.	Q'land	S.A.	W.A.	Tas.	C'wth.
Number of factories ... ..	*60	47	117	5	4	3	136
" employees ... ..	1,747	1,835	475	387	106	124	4,674
Actual horse-power of engines employed	2,850	898	139	210	40	29	4,166
Approx. value of land and buildings	£ 695,458	473,995	133,209	9,444	25,200	31,650	1,368,956
" plant and machinery	£ 1399,779	1,277,824	457,024	363,732	69,662	154,708	3,722,729
Total amount of wages paid during year	£ 236,792	275,755	63,429	52,400	17,490	11,942	657,808
Value of fuel used ... ..	£ 68,377	...	3,628	1,865	2,420	1,510	77,800
Value of raw material used ... ..	£ 458,480	260,209	26,711	46,818	14,466	14,280	820,964
Total value of output ... ..	£ 1276,082	873,134	204,192	178,530	45,429	53,391	2,630,572
Value added in process of manufacture	£ 817,602	612,925	177,481	131,532	30,963	39,111	1,809,614

\* Including 13 coke factories worked as separate industries. † Including 2 coke factories worked as separate industries.

The following table gives particulars regarding the quantity and value of the production of gas and coke works in each State during the year 1912 :—

**PRODUCTION OF GAS AND COKE WORKS, 1912.**

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'with
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QUANTITY.

Gas made ... 1000 cub. ft.	4,812,672	3,108,556	625,207	531,577	110,858	171,051	9,359,921
Coke ... .. tons	432,165	171,750	38,136	19,911	5,607	7,714	675,283

VALUE.

Gas ... .. £	757,677	773,000	171,030	135,267	31,671	44,864	1,913,509
Coke ... .. £	264,049	95,000	23,975	24,359	10,079	6,150	423,612

COAL USED.

Coal ... .. tons	708,586	284,670	67,153	43,366	10,052	13,775	1,127,602
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