

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 1913.

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	14,378
1913	5,346	5,613	1,838	1,353	763	623	15,536
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
1913	120,400	118,744	42,363	28,511	17,299	9,784	337,101

* 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 resolution 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 five 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>CLASS I.—TREATING RAW MATERIALS, ETC. Boiling-down, Tallow Refining, etc. Tanneries Woolscouring & 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>CLASS XII.—SHIP AND BOAT BUILDING AND REPAIRING. Docks and Slips Sailmaking Ship and Boat Building and Repairing</p>
<p>CLASS II.—OILS AND FAT, ETC. Oil and Grease Soap and Candles</p>	<p>CLASS VII.—CLOTHING AND TEXTILE FABRICS. Woolen 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>CLASS XIII.—FURNITURE, BEDDING, ETC. Bedding, Flock, & Upholstery Billiard Tables Furniture and Cabinet Making Picture Frames Window Blinds</p>
<p>CLASS III.—STONE, CLAY, GLASS, ETC. Bricks and Tiles Glass (including Bottles) Glass (Ornamental) Lime, Plaster, Cement and Asphalt Marble, Slate, etc. Modelling, etc. Pottery and Earthenware</p>	<p>CLASS VIII.—BOOKS, PAPER, PRINTING, ETC. Electrotyping & Stereotyping Paper-making, Paper Boxes, Bags, etc. Photo-engraving Printing and Binding</p>	<p>CLASS XIV.—DRUGS AND CHEMICALS, ETC. Chemicals, Drugs, and Medicines Fertilisers Paints, Varnishes, and By-products</p>
<p>CLASS IV.—WORKING IN WOOD. Boxes and Cases Cooperage Joinery Saw Mills Wood-turning, etc.</p>	<p>CLASS IX.—MUSICAL INSTRUMENTS, ETC. Musical Instruments and Sewing Machines</p>	<p>CLASS XV.—SURGICAL AND OTHER SCIENTIFIC INSTRUMENTS. Surgical, Optical, and other Scientific Instruments</p>
<p>CLASS V.—METAL WORKS, MACHINERY, ETC. Agricultural Implements Brass and Copper Cutlery Engineering Galvanised Iron-working Ironworks and Foundries Lead Mills Railway Carriages Railway and Tramway Workshops Smelting Stoves and Ovens Tinsmithing Wireworking Other Metal Works</p>	<p>CLASS X.—ARMS & EXPLOSIVES Arms and Explosives</p>	<p>CLASS XVI.—TIMEPIECES, JEWELLERY, & PLATED WARE. Electro-plating Manufacturing Jewellery, etc.</p>
<p>CLASS VI.—FOOD AND DRINK, ETC. Bacon Curing Butter Factories Butterine and Margarine Cheese Factories Condensed Milk Meat and Fish Preserving Biscuits Confectionery</p>	<p>CLASS XI.—VEHICLES, SADDLERY, HARNESS, ETC. Coach and Wagon Building Cycles Perambulators Saddlery, Harness, etc. Spokes, etc.</p>	<p>CLASS XVII.—HEAT, LIGHT, AND POWER. Coke Works Electric Apparatus Electric Light and Power Gas Works and Kerosene Lamps and Fittings, etc. Hydraulic Power</p> <p>CLASS XVIII.—LEATHERWARE (N.E.I.) Leather Belting, Fancy Leather, Portmanteaux & Bags</p> <p>CLASS XIX.—MINOR WARES. 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 1913, 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 1913.

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
1913 ...	5,346	5,613	1,838	1,353	763	623	15,536

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

(i.) *Classification of Factories in Commonwealth, 1908 to 1913.* The following table shews the total number of factories in the Commonwealth at the end of each year from 1908 to 1913, classified on the basis indicated in § 1, 3 hereof:—

CLASSIFICATION OF FACTORIES IN THE COMMONWEALTH, 1908 to 1913.

Class of Industry.	1908.	1909.	1910.	1911.	1912.	1913.
	No.	No.	No.	No.	No.	No.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	812	855	855	857	871	907
II. Treating oils and fats, animal, vegetable, etc. ...	97	94	100	105	102	100
III. Processes in stone, clay, glass, etc. ...	627	645	703	719	709	732
IV. Working in wood ...	1,322	1,411	1,474	1,625	1,752	1,812
V. Metal works, machinery, etc. ...	1,548	1,588	1,620	1,697	1,779	1,814
VI. Connected with food and drink, etc. ...	2,253	2,258	2,286	2,310	2,331	2,366
VII. Clothing and textile fabrics, etc. ...	2,681	2,774	2,982	3,093	3,115	3,266
VIII. Books, paper, printing and engraving ...	993	1,011	1,062	1,144	1,158	1,206
IX. Musical instruments, etc. ...	17	18	20	19	21	21
X. Arms and explosives ...	8	9	13	14	16	20
XI. Vehicles and fittings, saddlery & harness, etc. ...	1,105	1,117	1,195	1,208	1,249	1,396
XII. Ship and boat building and repairing ...	76	84	85	87	97	96
XIII. Furniture, bedding, and upholstery ...	483	512	560	613	670	719
XIV. Drugs, chemicals, and by-products ...	153	164	176	189	202	206
XV. Surgical and other scientific instruments ...	28	30	35	41	44	48
XVI. Jewellery, timepieces, and platedware ...	153	150	155	169	177	190
XVII. Heat, light, and power ...	307	314	326	351	372	420
XVIII. Leatherware, n.e.i. ...	54	55	60	62	66	67
XIX. Minor wares, n.e.i. ...	136	140	143	152	147	150
Total ...	12,853	13,229	13,850	14,455	14,878	15,536

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 1913 was 2,683, or an average of 537 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, 1913.* The following table shews the number of factories in each State of the Commonwealth at the end of the year 1913, classified according to the nature of the industry. (See classification given in § 1, 3 hereof):—

CLASSIFICATION OF FACTORIES IN EACH STATE, 1913.

Class of Industry.	N.S.W.	Vic.	Q'land.	S. Aus.	W. Aus.	Tas.	Cwth.
	No.	No.	No.	No.	No.	No.	No.
I. Treating raw material, product of agricul. and pastoral pursuits, etc.	297	361	47	120	36	46	907
II. Treating oils and fats, animal, vegetable, etc.	41	26	15	12	3	3	100
III. Processes in stone, clay, glass, etc.	313	209	44	99	46	21	732
IV. Working in wood	717	451	315	101	71	157	1,812
V. Metal works, machinery, etc.	553	721	237	179	77	47	1,814
VI. Connected with food and drink, etc.	770	656	434	256	135	115	2,366
VII. Clothing and textile fabrics, etc.	1,007	1,502	273	240	153	91	3,266
VIII. Books, paper, printing & engraving	447	447	144	77	66	25	1,206
IX. Musical instruments, etc.	13	5	...	2	1	...	21
X. Arms and explosives	8	11	...	1	...	...	20
XI. Vehicles and fittings, saddlery and harness, etc.	434	524	168	146	69	55	1,396
XII. Ship and boat building & repairing	46	13	13	10	6	8	96
XIII. Furniture, bedding, and upholstery	246	270	83	57	39	24	719
XIV. Drugs, chemicals, and by-products	87	91	3	10	13	2	206
XV. Surgical and other scientific instruments	13	21	7	2	5	...	48
XVI. Jewellery, timepieces, & platedware	55	92	17	13	6	7	190
XVII. Heat, light and power	216	126	24	13	25	16	420
XVIII. Leatherware, n.e.i.	23	35	4	3	2	...	67
XIX. Minor wares, n.e.i.	60	52	10	12	10	6	150
Total ...	5,346	5,613	1,838	1,353	763	623	15,536

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 1913:—

UTILISATION OF MECHANICAL POWER IN FACTORIES IN EACH STATE, 1913.

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. 3,974	No. 1,372	No. 5,346	141,025	13,802	1,478	35,885	192,190
Victoria ...	3,911	1,702	5,613	67,262	16,759	2,471	18,732	105,224
Queensland ...	1,333	505	1,838	40,369	8,419	1,220	5,006	55,016
South Australia ...	977	376	1,353	24,308	6,068	1,865	5,194	37,435
Western Australia	569	194	763	27,935	3,346	625	4,633	36,799
Tasmania ...	475	148	623	12,126	283	283	2,798	15,490
Commonwealth	11,239	4,297	15,536	313,085	46,677	8,142	72,250	442,154

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 during 1913 was 11,239, being 72.34 per cent.; 4,297 establishments, representing 27.66 per cent., used no mechanical power. The total average horse-power in use was 442,154, of which engines in which the motive power was steam formed 70.81 per cent.; gas, 11.01 per cent.; oil, 1.84 per cent.; and electricity, 16.34 per cent.

During 1913 there were 681 more establishments using power than in 1912, the increase in horse-power employed being 50,395, or over eleven per cent.

The following table shews the horse-power of engines used in connection with factories in the Commonwealth during each of the last six years :—

**UTILISATION OF MECHANICAL POWER IN FACTORIES IN COMMONWEALTH
DURING 1908 TO 1913.**

Year.	Number of Establishments.			Actual Horse-power of Engines used.				
	Using Machinery worked by Steam, Gas, Oil, or Electricity.	Others.	Total.	Steam.	Gas.	Oil.	Electricity.	Total.
	No.	No.	No.	H.P.	H.P.	H.P.	H.P.	H.P.
1908 ...	8,237	4,566	12,853	194,706	16,803	4,346	26,561	242,416
1909 ...	8,738	4,491	13,229	219,224	23,749	4,530	29,861	277,364
1910 ...	9,264	4,586	13,850	228,902	23,323	4,939	36,437	298,601
1911 ...	9,972	4,483	14,455	255,061	55,989	6,024	46,576	343,550
1912 ...	10,558	4,320	14,878	284,223	43,905	6,829	56,797	391,759
1913 ...	11,239	4,297	15,536	313,085	48,677	8,142	72,250	442,154

During the last five years the number of establishments using mechanical power has increased over 35½ per cent., the actual horse-power of engines used increasing over 82 per cent. during the same period.

§ 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 1913.* The following table shews, for each year from 1908 to 1913 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 1913.**

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	103,176	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	40,943*	23,500	16,382	9,957	327,456
1913 ...	120,400	118,744	42,363*	23,511	17,299	9,784	337,101
PERCENTAGE ON COMMONWEALTH TOTAL.							
1908 ...	34.60	36.42	11.34	9.42	4.83	3.39	100.00
1909 ...	34.89	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
1913 ...	35.72	35.22	12.57*	8.46	5.13	2.90	100.00

AVERAGE NUMBER OF PERSONS EMPLOYED IN MANUFACTURING INDUSTRIES, 1908 TO 1913—Continued.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
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
1913 ...	665	852	649*	658	551	499	702

* 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 1913.* 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 1913.

Years.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
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	— 3.31	5.03
1912-13 ...	4.19	2.27	3.46*	0.04	5.60	— 1.74	2.95

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

2. **Classification of Numbers Employed in Factories in the Commonwealth, 1908 to 1913.**—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 1913 inclusive:—

AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES IN THE COMMONWEALTH, 1908 to 1913.

Class of Industry.	1908.	1909.	1910.	1911.	1912.	1913.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	9,042	9,549	9,655	9,805	9,624	9,495
II. Treating oils and fats, animal, vegetable, etc. ...	1,735	1,812	1,872	2,019	2,091	2,091
III. Processes in stone, clay, glass, etc. ...	9,420	9,605	10,737	12,093	12,909	13,794
IV. Working in wood ...	21,310	22,487	24,520	27,948	30,660	31,646
V. Metal works, machinery, etc. ...	48,505	49,753	54,238	60,538	66,472	68,539
VI. Connected with food and drink, etc. ...	40,652	41,006	42,921	45,623	46,812	49,882
VII. Clothing and textile fabrics, etc. ...	70,075	73,567	78,983	83,845	84,661	84,237
VIII. Books, paper, printing and engraving ...	21,448	21,943	23,064	24,292	25,077	26,013
IX. Musical instruments, etc. ...	444	433	553	607	628	616
X. Arms and explosives ...	339	377	431	508	589	1,240
XI. Vehicles and fittings, saddlery and harness, etc. ...	10,784	11,366	12,484	13,294	13,400	13,913
XII. Ship and boat building and repairing ...	2,278	2,220	2,506	2,920	3,821	4,216
XIII. Furniture, bedding and upholstery ...	7,117	7,638	8,434	9,480	10,405	10,462
XIV. Drugs, chemicals and by-products ...	3,086	3,391	3,627	4,165	4,381	4,328
XV. Surgical & other scientific instruments ...	176	173	190	233	238	264
XVI. Jewellery, timepieces, and platedware ...	1,771	1,800	1,696	2,142	2,302	2,170
XVII. Heat, light, and power ...	5,754	5,986	6,735	7,651	8,550	9,394
XVIII. Leatherware, n.e.i. ...	893	924	1,097	1,226	1,231	1,204
XIX. Minor wares, n.e.i. ...	2,665	2,631	2,763	3,321	3,295	3,29
Total ...	257,494	266,661	286,928	311,710	327,456	337,101

The total increase in the average number of hands employed from 1908 to 1913 was 79,607, or an annual average of 15,921. The increase was general throughout all the various classes of industry. The greatest development took place in Classes V. and VII., the increases being 20,334 and 14,162 respectively.

3. Classification of Numbers Employed in each State, according to Class of Industry, 1913.—The following table shews a similar classification of employees in manufacturing industries in each State for the year 1913:—

AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES IN EACH STATE, 1913.

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.	3,992	3,246	590	1,004	286	377	9,495
II. Treating oils and fats, animal, vegetable, etc.	923	656	147	255	77	33	2,091
III. Processes in stone, clay, glass, etc.	6,563	4,137	671	1,502	691	230	13,794
IV. Working in wood ...	9,381	7,653	5,542	1,853	5,234	1,983	31,646
V. Metal works, machinery, etc.	27,619	20,138	7,333	8,278	3,398	2,073	68,839
VI. Connected with food and drink, etc.	15,197	15,153	13,056	3,599	1,515	1,362	49,882
VII. Clothing and textile fabrics, etc.	26,597	39,951	8,034	5,265	2,751	1,639	84,237
VIII. Books, paper, printing & engraving	10,009	9,118	2,982	1,932	1,229	743	26,013
IX. Musical instruments, etc.	406	181	...	21	8	...	616
X. Arms and explosives ...	379	856	...	5	...	...	1,240
XI. Vehicles and fittings, saddlery, and harness, etc.	4,550	5,230	1,442	1,559	650	482	13,913
XII. Ship and boat building & repairing	3,358	433	127	192	50	56	4,216
XIII. Furniture, bedding, and upholstery	4,035	3,240	1,190	1,171	465	361	10,462
XIV. Drugs, chemicals, and by-products	1,365	1,931	71	611	345	5	4,328
XV. Surgical and other scientific instruments ...	97	102	42	6	17	...	264
XVI. Jewellery, timepieces, & platedware	816	951	151	146	89	37	2,170
XVII. Heat, light, and power ...	3,577	3,419	765	893	378	362	9,394
XVIII. Leatherware, n.e.i.	525	568	66	27	18	...	1,204
XIX. Minor wares, n.e.i....	1,011	1,781	154	192	118	41	3,297
Total	120,400	118,744	42,363	28,511	17,299	9,784	337,101

The largest number employed in any particular class in the Commonwealth was in Class VII., in which there were 84,237 employees, or 24.99 per cent. of the whole number. The class affording employment to the smallest number of hands was Class XV., in which there were 264 hands, or 0.08 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, 1913.—In the following table the average numbers of persons employed in each State during the year 1913 are classified according to the nature of their employment:—

AVERAGE NUMBER OF PERSONS EMPLOYED IN EACH STATE, CLASSIFIED ACCORDING TO NATURE OF EMPLOYMENT, 1913.

State.	Average Number of Persons Employed.						
	Working Proprietors.	Managers and Overseers	Accountants and Clerks.	Engine-drivers and Firemen.	Workers, Skilled & Unskilled in Factory Mill or Workshop	Carters, Messengers and Others.	Total.
New South Wales ...	4,736	3,687	4,582	2,761	101,843	2,791	120,400
Victoria ...	5,649	3,314	3,927	1,821	100,022	4,011	118,744
Queensland ...	1,632	1,162	1,634	1,551	33,844	2,540	42,363
South Australia ...	1,335	878	1,126	555	23,849	768	28,511
Western Australia ...	557	544	640	502	13,501	1,555	17,299
Tasmania ...	502	409	396	442	7,637	398	9,784
Commonwealth ...	14,411	9,994	12,305	7,632	280,696	12,063	337,101

* Including out-workers.

5. Classification of Factories according to Number of Hands Employed, 1913.—

(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, 1913.

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 ...	871	944	206	158	130	113	2,422
4 ...	557	636	195	154	76	78	1,696
5 to 10 ...	1,819	1,981	635	520	261	236	5,452
11 to 20 ...	951	940	360	240	119	100	2,710
21 to 50 ...	702	691	264	178	114	64	2,013
51 to 100 ...	240	216	93	60	38	16	663
Over 100 ...	206	205	85	43	25	16	580
Total ...	5,346	5,613	1,838	1,353	763	623	15,536

AVERAGE NUMBER OF HANDS EMPLOYED.

Under 4 ...	2,025	2,168	481	393	290	245	5,602
4 ...	2,228	2,544	780	616	304	312	6,784
5 to 10 ...	12,720	13,761	4,405	3,668	1,813	1,647	38,014
11 to 20 ...	13,880	13,770	5,238	3,511	1,758	1,448	39,605
21 to 50 ...	21,812	21,760	8,223	5,648	3,709	2,076	63,228
51 to 100 ...	16,989	14,875	6,744	4,212	2,675	981	46,476
Over 100 ...	50,746	49,866	16,492	10,463	6,750	3,075	137,392
Total ...	120,400	118,744	42,363	28,511	17,299	9,784	337,101

(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 1913 the percentages were 27.52 and 42.00 respectively. The number of factories with 20 hands or under in 1908 was 80.46 per cent., this number decreasing to 79.04 in 1913, whereas the larger factories employing over 100 hands shewed an increase from 3.20 to 3.73 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 1913, 21.70.

**CLASSIFICATION OF FACTORIES IN THE COMMONWEALTH ACCORDING TO
NUMBER OF HANDS EMPLOYED DURING THE YEARS 1908 to 1913.**

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	78,288	2,186	89,997	442	98,376	13,229	266,661
Average per establishment ...	...	7.38	...	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	107,194	13,850	286,928
Average per establishment ...	...	7.42	...	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 ...	...	7.53	...	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 ...	...	7.48	...	41.67	...	236.88	...	22.01
Percentage to total ...	78.37	26.63	17.97	33.94	3.66	39.43	100.00	100.00
1913—								
Number	12,280	90,005	2,676	109,704	580	137,392	15,536	337,101
Average per establishment ...	...	7.33	...	41.00	...	236.88	...	21.70
Percentage to total ...	79.04	27.52	17.22	33.54	3.73	42.00	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 1913 inclusive :—

NUMBER OF OUTWORKERS* CONNECTED WITH FACTORIES, 1908 to 1913.

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
1913 ...	724	1,910	522	54	7	72	3,289

* 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 1913.**—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 1908 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 1913 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 1913.* The following table shows the average number of male and female employees in factories in each State from 1908 to 1913:—

AVERAGE NUMBER OF MALES AND FEMALES EMPLOYED IN MANUFACTURING INDUSTRIES, 1908 to 1913.

State.	1908.	1909.	1910.	1911.	1912.	1913.
MALES.						
New South Wales ...	67,616	69,184	75,384	82,083	88,178	93,036
Victoria ...	60,873	62,822	66,309	73,573	77,565	80,054
Queensland ...	24,639	24,877	*27,165	*29,832	*33,254	*34,715
South Australia ...	19,640	20,753	21,864	22,629	23,083	23,323
Western Australia ...	10,453	10,703	11,654	13,212	13,805	14,625
Tasmania...	7,334	8,132	8,277	8,737	8,391	8,354
Commonwealth ...	190,555	196,471	210,653	230,066	244,276	254,107

SEX DISTRIBUTION IN FACTORIES.

AVERAGE NUMBER OF MALES AND FEMALES EMPLOYED IN
MANUFACTURING INDUSTRIES, 1908 to 1913—Continued.

State.	1908.	1909.	1910.	1911.	1912.	1913.
FEMALES.						
New South Wales ...	21,482	22,518	24,327	26,541	27,383	27,364
Victoria ...	32,935	34,533	35,867	38,375	38,543	38,690
Queensland ...	4,561	4,627	*6,779	*7,324	*7,694	*7,648
South Australia ...	4,596	4,956	5,146	5,256	5,417	5,188
Western Australia ...	1,972	2,123	2,453	2,587	2,577	2,674
Tasmania ...	1,393	1,433	1,703	1,561	1,566	1,430
Commonwealth ...	66,939	70,190	76,275	81,644	83,180	82,994

* 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 63,552, or an annual average of 12,710, and in the number of female employees a total increase of 16,055, or an annual average of 3,211.

(ii.) *Average Number of Males and Females Employed per 10,000 of Mean Population, 1908 to 1913.* The following table shows 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 1913 :—

AVERAGE NUMBER OF MALE AND FEMALE FACTORY EMPLOYEES PER 10,000 OF
MEAN MALE AND FEMALE POPULATION RESPECTIVELY, 1908 to 1913.

State.	1908.	1909.	1910.	1911.	1912.	1913.
MALES.						
New South Wales ...	816	826	883	947	967	979
Victoria ...	1000	1012	1045	1118	1,145	1,151
Queensland ...	818	801	*843	*892	970	982
South Australia ...	1015	1040	1071	1084	1,077	1,062
Western Australia ...	707	712	754	805	802	823
Tasmania ...	765	835	848	900	854	823
Commonwealth ...	876	887	929	986	1,009	1,015
FEMALES.						
New South Wales ...	288	296	312	334	332	319
Victoria ...	521	539	554	579	567	555
Queensland ...	181	178	*252	*262	266	256
South Australia ...	244	257	261	260	261	242
Western Australia ...	179	188	210	211	199	196
Tasmania ...	152	154	182	167	168	151
Commonwealth ...	332	341	363	379	374	361

* See note (*) to § 3, 1 (i).

3. Rate of Increase for each Sex.—The percentages of annual increase during the years 1908 to 1913 in the average number of males and females employed in manufacturing industries in the several States and the Commonwealth are shown below:—

PERCENTAGES OF ANNUAL INCREASE IN NUMBERS OF MALE AND FEMALE EMPLOYEES, 1908 to 1913.

State.	1908-9.	1909-10.	1910-11.	1911-12.	1912-13.
MALES.					
	%	%	%	%	%
New South Wales ...	2.32	9.01	8.89	7.37	5.51
Victoria ...	3.20	5.55	10.95	5.43	3.21
Queensland ...	0.97	*9.20	*9.82	*11.47	*4.39
South Australia ...	5.67	5.35	3.60	1.91	1.04
Western Australia ...	2.39	8.89	13.37	4.49	5.94
Tasmania ...	10.88	1.78	5.56	-3.96	-0.44
Commonwealth ...	3.10	7.24	9.23	6.15	4.02
FEMALES.					
New South Wales ...	4.82	8.04	9.10	3.17	-0.07
Victoria ...	4.85	3.86	6.99	0.44	0.38
Queensland ...	1.45	*46.51	*8.04	*4.99	*-0.60
South Australia ...	7.83	3.83	2.14	3.06	-4.23
Western Australia ...	7.66	15.54	5.46	-0.39	3.76
Tasmania ...	2.87	18.84	-8.34	0.32	-8.68
Commonwealth ...	4.86	8.67	7.04	1.88	-0.22

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

The above table shews that in each State for the first two 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, 1912, and 1913, 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 masculinity of employees for each State for a series of years. As similar figures have not been published in former editions, the following table furnishes particulars for each of the years 1903 to 1913 inclusive:—

EXCESS OF MALES OVER FEMALES PER 100 OF BOTH SEXES COMBINED, 1903 to 1913.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
1903	59.8	35.7	*66.8	59.7	76.2	65.6	52.5
1904	57.2	32.4	*67.1	59.7	74.7	67.3	50.6
1905	55.5	32.0	*66.8	64.3	74.2	67.8	50.3
1906	54.1	32.2	*66.6	63.2	70.8	69.9	49.6
1907	52.6	31.3	65.9	63.0	69.0	69.9	48.6
1908	51.8	29.8	63.8	62.1	68.3	68.1	48.1
1909	50.9	29.1	68.7	61.5	66.9	70.0	47.4
1910	51.2	29.6	†60.1	61.9	65.2	65.9	46.8
1911	51.1	31.5	†60.6	62.3	67.3	69.7	47.6
1912	52.6	33.6	†62.4	62.0	68.6	68.6	49.2
1913	54.5	34.8	63.9	63.6	69.1	70.8	50.8

* Estimated. † See note (*) to § 3. 1 (i).

This table shews that the proportion of the sexes has not materially changed during the past ten years, the 1913 figures for the whole of the Commonwealth being almost identical with those of 1904. The tables given in the succeeding paragraph shew that the comparatively high ratios for females 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, 1913.—The employment of women in manufacturing industries in Australia is largely confined to a few trades, of which the more important are comprised in Classes VI., VII., and VIII., 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 1913 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, 1913.

Class.	N.S.W.	Vict.	Q'land.	S. Aust.	W.Aust.	Tas.	Cwth.
AVERAGE NUMBER.							
VI. Food, drink, etc. ...	3,585	3,717	624	491	176	201	8,794
VII. Clothing and textile fabrics ...	18,817	29,842	6,010	3,891	2,129	1,052	61,741
VIII. Books, paper, printing, etc. ...	2,614	2,327	655	526	242	91	6,455
All other classes ...	2,348	2,804	359	280	127	86	6,004
Total ...	27,364	38,690	7,648	5,188	2,674	1,430	82,904

PERCENTAGES ON TOTAL AVERAGE FEMALE EMPLOYEES.

VI. Food, drink, etc. ...	13.10	9.61	8.16	9.46	6.58	14.06	10.60
VII. Clothing and textile fabrics ...	68.77	77.13	78.58	75.00	79.62	73.57	74.39
VIII. Books, paper, printing, etc. ...	9.55	6.01	8.57	10.14	9.05	6.36	7.78
All other classes ...	8.58	7.25	4.69	5.40	4.75	6.01	7.23
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 1913.

Industry.	New South Wales.			Victoria.			Other States.		
	Males.	Femls.	Femini- nity.	Males.	Femls.	Femini- nity.	Males.	Femls.	Femini- nity.
Woollen & tweed mills	360	416	7.2	817	973	8.7	224	300	14.5
Boots and shoes ...	2,703	1,559	-26.8	4,435	2,516	-27.6	1,510	733	-34.6
Slop clothing	3,232	8,334	44.1	2,585	8,017	51.2	2,340	6,457	48.8
Clothing (tailoring)									
Dressmaking & millin'y	116	4,814	95.3	289	9,382	94.0	35	3,581	98.1
Dyeworks and cleaning	49	33	-19.5	74	107	18.2	28	15	-30.2
Furriers ...	28	38	15.2	66	155	40.3	2	2	...
Hats and caps ...	570	975	26.2	726	1,011	16.4	92	161	27.3
Waterproof and oilskin	33	77	40.0	60	207	55.1	...	...	...
Shirts, ties, and scarfs	248	2,293	80.5	407	6,932	88.9	97	1,655	88.9
Rope and cordage ...	233	6	-95.0	522	338	-21.4	174	99	-27.5
Tents and tarpaulins...	208	272	13.3	114	60	-31.0	105	79	-14.1
Other ...	...	...	...	14	144	82.3	...	...	...
Total Class VII....	7,780	18,817	41.5	10,109	29,842	49.4	4,607	13,082	47.9

* Excess of females over males per 100 of both sexes combined.

NOTE.—Minus sign (—) intimates excess of males over females.

§ 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 1913.**—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 1913.

AVERAGE NUMBER OF CHILDREN EMPLOYED IN FACTORIES, 1908 to 1913.

State.	1908.	1909.	1910.	1911.	1912.	1913.
MALES.						
New South Wales	2,475	2,433	2,452	2,474	2,225	2,385
Victoria ...	3,049	2,817	2,753	2,623	2,652	2,743
Queensland ...	1,034	1,001	*1,031	*1,176	1,114	1,122
South Australia ...	1,179	1,094	1,082	999	1,078	1,122
Western Australia	289	289	340	368	356	346
Tasmania ...	239	258	282	280	322	283
Commonwealth ...	8,265	7,892	7,940	7,920	7,747	8,001

AVERAGE NUMBER OF CHILDREN EMPLOYED IN FACTORIES,
1908 TO 1913.

State.	1908.	1909.	1910.	1911.	1912.	1913.
FEMALES.						
New South Wales ...	1,859	1,973	2,025	2,267	2,093	2,086
Victoria ...	3,065	2,496	2,174	1,937	1,740	1,840
Queensland ...	583	556	*733	*818	764	701
South Australia ...	568	577	702	555	704	611
Western Australia ...	251	242	266	293	334	360
Tasmania ...	135	128	96	131	121	141
Commonwealth ...	6,461	5,972	5,996	6,001	5,756	5,739
TOTAL.						
New South Wales ...	4,334	4,406	4,477	4,741	4,318	4,471
Victoria ...	6,114	5,313	4,927	4,560	4,392	4,583
Queensland ...	1,617	1,557	*1,764	*1,994	1,878	1,823
South Australia ...	1,747	1,671	1,784	1,554	1,782	1,733
Western Australia ...	540	531	606	661	690	706
Tasmania ...	374	386	378	411	443	424
Commonwealth ...	14,726	13,864	13,936	13,921	13,503	13,740

* See Note (*) to § 3. 1 (i).

3. Percentage of Children to Total Persons Employed.—The foregoing table shews 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 3.86 in 1913.

PERCENTAGE OF CHILDREN IN FACTORIES TO TOTAL NUMBER OF EMPLOYEES,
1908 to 1913.

State.	1908.	1909.	1910.	1911.	1912.	1913.
	%	%	%	%	%	%
New South Wales ...	4.86	4.80	4.49	4.36	3.74	3.71
Victoria ...	6.52	5.46	4.82	4.07	3.78	3.86
Queensland ...	5.54	5.28	5.20	5.37	4.59	4.30
South Australia ...	7.21	6.50	6.60	5.57	6.25	6.08
Western Australia ...	4.35	4.14	4.30	4.18	4.21	4.08
Tasmania ...	4.29	4.04	3.79	3.99	4.45	4.33
Commonwealth ...	5.72	5.20	4.86	4.47	4.12	4.08

4. Industries Employing Child Labour, 1913.—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 1913:—

NUMBER OF CHILDREN ENGAGED IN VARIOUS INDUSTRIES, 1913.

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	53	1	40	...	21	...	14	...	6	...	7	...	141	1
IV.	Joinery, boxes, cases, etc.	85	...	80	...	35	...	57	...	9	...	5	...	271	...
V.	Engin'ring, ironworks, and foundries	232	11	281	1	58	...	96	...	55	...	11	...	733	12
"	Galvanised iron-working and tinsmithing	82	2	91	17	55	1	86	4	...	...	5	...	319	24
"	Railway carriages, railway & tramway workshops	89	...	175	...	41	...	53	...	25	...	5	...	388	...
VI.	Biscuits, cakes, etc.	162	117	50	20	15	4	12	10	24	12	20	...	283	163
"	Confectionery	42	74	14	31	20	25	14	30	1	6	...	...	91	166
"	Jams, pickles, sauces, etc.	18	9	38	45	8	...	44	47	3	2	34	44	145	147
"	Aerated waters, cordials, etc.	45	4	62	5	62	3	15	...	11	...	3	...	198	12
"	Tobacco, cigars, etc.	52	64	31	9	2	2	4	...	2	4	...	...	91	79
VII.	Woollen, tweed, and cotton mills...	20	64	96	98	6	18	5	23	...	...	...	9	127	212
"	Boots and shoes	108	145	163	181	38	37	34	44	10	9	12	7	365	423
"	Clothing (tailoring and slop)...	84	500	92	291	60	259	31	185	14	92	10	19	291	1,346
"	Dressmaking and millinery	1	403	6	464	2	136	...	95	...	159	...	44	9	1,301
"	Hats and caps	26	60	28	29	3	8	4	4	...	...	...	...	61	101
"	Shirts, ties, scarfs, etc.	7	190	9	325	7	97	1	76	2	35	...	5	26	728
VIII.	Electrotyping, printing and binding...	378	164	434	127	159	63	87	26	64	21	42	12	1,164	413
"	Paper making, paper boxes, etc.	36	75	14	30	1	15	15	34	3	7	...	...	69	161
XI.	Coach & wagon building, etc.	65	...	138	...	29	...	59	...	12	...	11	...	315	...
XIII.	Billiard tables, cabinet making and furniture	82	1	49	1	63	5	57	1	5	1	22	...	278	9

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 Commonwealth is indicated by the fact that the total value of the output for 1913 was £161,560,763, of which amount the sum of £96,407,477 represents the value of the raw materials used. The difference between these two amounts, viz., £65,153,286, 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 1913 was £33,606,087.

2. Amount of Salaries and Wages Paid, 1913.—The total amount of salaries and wages paid during the year 1913 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 herein 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, 1913.*

Class of Industry.	N.S.W.	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	C'with.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	370,943	289,765	67,797	87,678	21,074	20,606	857,863
II. Treating oils and fats, animal, vegetable, etc. ...	82,325	68,949	15,314	28,276	9,112	3,298	207,274
III. Processes in stone, clay, glass, etc. ...	754,291	460,293	69,314	171,836	84,082	22,617	1,562,433
IV. Working in wood ...	988,590	802,930	549,155	211,965	797,022	160,099	3,509,761
V. Metal works, machinery, etc. ...	3,676,626	2,377,229	878,566	1,128,399	463,192	261,862	8,785,374
VI. Connected with food and drink, etc. ...	1,568,207	1,489,936	1,302,587	377,074	201,985	111,060	5,050,849
VII. Clothing and textile fabrics, etc. ...	1,841,867	2,367,020	476,927	319,307	195,531	95,050	5,295,702
VIII. Books, paper, printing and engraving ...	1,099,656	958,637	320,354	194,818	174,788	86,700	2,834,953
IX. Musical instruments, etc. ...	50,618	22,535	...	1,860	949	...	75,962
X. Arms and explosives ...	48,424	92,201	...	350	...	...	130,975
XI. Vehicles and fittings, saddlery and harness, etc. ...	450,123	464,602	122,431	153,204	68,587	37,628	1,296,575
XII. Ship and boat building and repairing... ..	464,912	47,739	13,540	20,639	5,419	7,513	559,762
XIII. Furniture, bedding and upholstery ...	425,417	317,349	113,325	117,713	58,721	29,021	1,061,546
XIV. Drugs, chemicals, and by-products ...	132,363	183,338	6,583	65,192	41,808	315	429,599
XV. Surgical and other scientific instruments ...	11,170	8,695	3,082	854	1,527	...	25,328
XVI. Jewellery, timepieces, and platedware ...	93,784	94,329	14,468	17,325	9,429	3,156	232,491
XVII. Heat, light, and power ...	492,510	462,795	106,528	119,294	70,683	42,308	1,294,108
XVIII. Leatherware, n.e.i. ...	49,190	43,957	5,548	2,954	1,182	...	102,811
XIX. Minor wares, n.e.i. ...	82,368	172,087	9,672	15,809	10,096	2,219	292,201
Total	12,683,384	10,714,336	4,075,191	3,034,537	2,215,187	883,452	33,606,087

* 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 £8,785,874, or 26.14 per cent. on the total amount; the minimum amount was in Class XV., £25,328, or 0.075 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 1913; 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 1913.

Year.	Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'with.
		£	£	£	£	£	£	£
1908	Total amount paid ...	7,218,556	6,380,296	2,192,015	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	6,807,351	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	92.36
1912	Total amount paid ...	11,592,052	10,102,244	3,699,065	2,869,653	2,169,144	855,334	31,287,493
	Average per employee ...	104.44	91.19	93.88	105.62	136.67	90.41	99.74
1913	Total amount paid ...	12,683,384	10,714,336	4,075,191	3,034,537	2,215,187	883,452	33,606,087
	Average per employee ...	109.66	94.74	100.05	111.66	132.31	95.18	104.14

In comparing the figures in the above table regard should be paid to the nature of certain industries which are carried on to a greater extent in some States than in others (see § 2 hereof). In Victoria, for instance, where the average is lowest, there are a large number of hands employed in Class VII., of whom a large percentage are women and children. 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 1908-13 there has been an increase of 69.00 per cent. on the total amount of wages paid and 28.58 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 1913, and total amounts paid to each sex in New South Wales and Victorian factories during the last five years, in South Australia and Tasmania during the last three years, and in Queensland and Western Australia during 1912 and 1913 :—

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 1913.

Class of Industry.	N.S.W.	Vic.	Q'land.	S. Aust.	W. A.	Tas.	C'wealth.
MALES.							
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	365,628	288,437	67,625	87,376	21,074	20,531	850,671
II. Treating oils and fats, animal, vegetable, etc.	72,491	66,026	14,945	27,964	9,112	3,129	193,667
III. Processes in stone, clay, glass, etc.	751,809	456,654	69,168	171,553	83,532	92,617	1,555,333
IV. Working in wood	984,160	799,736	546,574	210,937	796,775	159,440	3,497,622
V. Metal works, machinery, etc.	3,663,431	2,362,692	875,689	1,125,592	462,152	261,444	8,751,000
VI. Connected with food and drink, etc.	1,396,898	1,313,497	1,277,143	357,844	193,704	102,555	4,641,641
VII. Clothing and textile fabrics, etc.	895,749	1,020,941	217,198	146,607	77,235	53,326	2,411,056
VIII. Books, paper, printing and engraving	977,005	644,887	292,646	174,116	161,607	83,557	2,533,908
IX. Musical instruments, etc.	48,699	22,061	...	1,860	949	...	73,569
X. Arms and explosives	47,921	46,366	...	350	...	...	94,637
XI. Vehicles and fittings, saddlery and harness, etc.	445,444	457,557	120,431	151,810	67,885	36,645	1,279,772
XII. Ship and boat building and repairing	464,812	47,739	13,540	20,639	5,419	7,513	559,662
XIII. Furniture, bedding and upholstery	404,175	301,993	108,692	116,684	56,068	28,084	1,016,596
XIV. Drugs, chemicals and by-products	106,427	166,470	4,763	62,687	39,990	315	380,652
XV. Surgical and other scientific instruments	10,015	8,204	2,796	854	1,427	...	23,296
XVI. Jewellery, timepieces and platedware	87,864	90,267	13,468	16,833	9,234	3,096	220,762
XVII. Heat, light and power	488,872	447,771	106,044	118,159	70,683	42,128	1,273,657
XVIII. Leatherware, n.e.i.	43,556	36,176	4,730	2,648	1,065	...	88,175
XIX. Minor wares, n.e.i.	68,745	148,340	8,598	14,553	9,401	1,978	251,615
Total ...	11,323,791	8,925,814	3,744,050	2,809,066	2,068,212	826,358	29,697,291

* 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.	5,315	1,328	172	302	...	75	7,192
II. Treating oils and fats, animal, vegetable, etc.	9,834	2,923	369	312	...	169	13,607
III. Processes in stone, clay, glass, etc.	2,482	3,639	146	283	550	...	7,100
IV. Working in wood	4,430	3,194	2,581	1,028	347	659	12,139
V. Metal works, machinery, etc.	13,195	14,537	2,877	2,807	1,040	418	34,874
VI. Connected with food and drink, etc.	171,309	176,439	25,444	19,230	8,281	8,505	409,208
VII. Clothing and textile fabrics, etc.	946,118	1,346,079	259,729	172,700	118,296	41,724	2,884,646
VIII. Books, paper, printing and engraving	122,561	113,750	27,708	20,702	13,181	3,143	301,045
IX. Musical instruments, etc.	1,919	474	...	...	...	...	2,393
X. Arms and explosives	503	35,335	...	...	...	...	35,338
XI. Vehicles and fittings, saddlery and harness, etc.	4,679	7,045	2,000	1,394	702	983	16,803
XII. Ship and boat building and repairing	100	...	...	...	...	...	100
XIII. Furniture, bedding, and upholstery	21,242	15,356	4,633	1,029	1,753	937	44,950
XIV. Drugs, chemicals, and by-products	25,936	16,868	1,820	2,505	1,818	...	48,947
XV. Surgical and other scientific instruments	1,155	491	286	...	100	...	2,032
XVI. Jewellery, timepieces and platedware	5,920	4,062	1,000	492	195	60	11,729
XVII. Heat, light, and power	3,638	15,024	494	1,125	...	180	20,451
XVIII. Leatherware, n.e.i.	5,634	7,781	818	306	117	...	14,656
XIX. Minor wares, n.e.i.	13,623	23,697	1,074	1,256	695	241	40,586
Total	1,359,593	1,788,522	331,141	225,471	146,975	57,094	3,908,796

* Exclusive of amount drawn by working proprietors.

AMOUNT* OF SALARIES AND WAGES PAID TO MALES AND FEMALES IN FACTORIES IN CERTAIN STATES, 1909 to 1913.

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	88.92	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	88.76	82.57	...	91.87	...	93.51	...
Average per employee	£ 114.22	106.62	...	113.66	...	93.67	...
1912. Amount paid	£ 10,283,733	8,388,613	3,386,191	2,647,842	2,024,318	798,098	27,528,795
Per cent. on total	88.71	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	118.56
1913. Amount paid	£ 11,323,791	8,925,814	3,744,050	2,809,066	2,068,212	826,358	29,697,291
Per cent. on total	89.28	83.30	91.87	92.57	93.37	93.54	88.37
Average per employee	£ 127.76	118.94	112.95	127.43	146.79	105.09	123.32
FEMALES.							
1909. Amount paid	£ 841,393	1,200,148	...	...	...	...	...
Per cent. on total	10.98	17.63	...	...	...	...	...
Average per employee	£ 97.91	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	312,974	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
1913. Amount paid	£ 1,359,593	1,788,522	331,141	225,471	146,975	57,094	3,908,796
Per cent. on total	10.72	16.70	8.13	7.43	6.63	6.46	11.63
Average per employee	£ 50.29	47.01	43.66	43.94	55.42	40.24	47.74

* Exclusive of amounts drawn by working proprietors.

A further analysis of salaries and wages paid during 1913 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 1913.**

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.	90,367	2,223	760,304	4,969	850,671	7,192	857,863
II. Treating oils and fats, animal, vegetable, etc. ...	44,424	2,657	149,243	10,950	193,667	13,607	207,274
III. Processes in stone, clay, glass, etc. ...	135,810	3,070	1,419,523	4,030	1,555,333	7,100	1,562,433
IV. Working in wood ...	311,353	8,136	3,186,270	4,003	3,497,622	12,139	3,509,761
V. Metal works, machinery, etc. ...	665,681	17,968	8,085,319	16,906	8,751,000	34,874	8,785,874
VI. Connected with food and drink, etc. ...	807,166	28,336	3,834,475	380,872	4,641,641	409,208	5,050,849
VII. Clothing and textile fabrics, etc. ...	353,847	141,679	2,057,209	2,742,967	2,411,056	2,884,646	5,295,702
VIII. Books, paper, printing and engraving ...	458,474	35,676	2,075,434	265,369	2,533,908	301,045	2,834,953
IX. Musical instruments, etc. ...	7,430	687	66,139	1,706	73,569	2,393	75,962
X. Arms and explosives	12,830	661	81,807	35,677	94,637	36,338	130,975
XI. Vehicles and fittings, saddlery and harness, etc. ...	102,759	5,687	1,177,013	11,116	1,279,772	16,803	1,296,575
XII. Ship and boat building and repairing ...	45,102	100	514,560	...	559,662	100	559,762
XIII. Furniture, bedding, & upholstery ...	66,432	4,663	950,164	40,287	1,016,596	44,950	1,061,546
XIV. Drugs, chemicals, and by-products ...	78,331	5,007	302,321	43,940	380,652	48,947	429,599
XV. Surgical & other scientific instruments ...	3,490	221	19,806	1,811	23,296	2,032	25,328
XVI. Jewellery, timepieces, and platedware ...	20,933	3,371	199,829	8,358	220,762	11,729	232,491
XVII. Heat, light, and power	206,294	3,719	1,067,363	16,732	1,273,657	20,451	1,294,108
XVIII. Leatherware, n.e.i. ...	14,566	1,803	73,609	12,853	88,175	14,656	102,831
XIX. Minor wares, n.e.i. ...	34,145	3,208	217,470	37,378	251,615	40,586	292,201
Total ...	3,459,433	268,872	26,237,858	3,639,924	29,697,291	3,908,796	33,606,087
Average paid per employee ...	209.93 (c)	88.91 (c)	138.37 (c)	51.12 (c)	123.32 (d)	47.74 (d)	104.14 (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, 1913.—The amount expended in factories on fuel and light is of considerable importance; in 1913 it amounted to £3,240,901, being an increase on the previous year's figures of £193,517. The classes of industry in which fuel was most extensively used were Class V., Metal Works, Machinery, etc., £1,035,864; Class VI., Connected with Food, Drink, etc., £655,609; Class XVII., Heat, Light, Power, etc., £563,877, of which amount £473,464 was expended on generating

electric light and power; and Class III., £425,260, of which £332,631 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 1913, and of the total used for each of the last six years:—

VALUE OF FUEL AND LIGHT USED IN FACTORIES IN COMMONWEALTH, 1913.

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. ...	42,208	29,372	12,267	10,678	1,849	2,951	99,825
II. Treating oils and fats, animal, vegetable, etc. ...	15,633	13,005	2,105	6,368	841	415	38,387
III. Processes in stone, clay, glass, etc. ...	208,084	114,771	10,998	58,994	24,548	7,865	425,260
IV. Working in wood ...	22,525	16,944	9,387	4,629	2,139	1,800	57,424
V. Metal wks., machinery, etc.	475,477	153,817	61,517	212,272	31,505	101,276	1,035,864
VI. Connected with food and drink, etc. ...	188,564	186,873	181,385	56,037	30,449	12,301	655,609
VII. Clothing and textile fabrics, etc. ...	34,819	61,374	4,955	8,223	3,726	1,931	115,028
VIII. Books, paper, printing, and engraving ...	32,967	39,376	11,046	7,617	5,713	1,490	98,309
IX. Musical instruments, etc. ...	910	183	...	31	3	...	1,127
X. Arms and explosives ...	1,594	4,652	...	12	...	...	6,558
XI. Vehicles and fittings, saddlery and harness, etc. ...	12,866	14,248	1,839	5,215	2,810	1,214	38,192
XII. Ship and boat building and repairing ...	13,662	2,330	330	476	82	95	16,975
XIII. Furniture, bedding, and upholstery ...	6,947	7,047	2,471	3,126	1,545	840	21,976
XIV. Drugs, chemicals, and by-products ...	15,360	13,842	414	7,601	4,012	148	41,377
XV. Surgical and other scientific instruments ...	217	329	97	23	66	...	732
XVI. Jewellery, timepieces, and platedware ...	1,757	2,868	418	644	196	100	5,983
XVII. Heat, light, and power ...	293,245	64,966	29,048	34,931	88,485	53,202	563,877
XVIII. Leatherware, n.e.i. ...	811	1,229	148	13	31	...	2,232
XIX. Minor wares, n.e.i. ...	3,479	12,109	94	370	161	53	16,266
Total ...	1,371,425	739,835	328,519	417,280	198,161	185,681	3,240,901

VALUE OF FUEL AND LIGHT USED IN FACTORIES IN COMMONWEALTH DURING THE YEARS 1908 to 1913.

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
1913 ...	1,371,425	739,835	328,519	417,280	198,161	185,681	3,240,901

* Figures estimated.

4. Value of Raw Materials used in Factories, 1913.—The total value of raw materials worked up (*i.e.*, exclusive of fuel, lubricants, etc.) in factories in the Commonwealth during 1913 was £96,407,477, which represents 59.67 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 1913:—

VALUE OF RAW MATERIALS WORKED UP IN FACTORIES IN COMMONWEALTH, 1913.

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. ...	£ 4,561,365	£ 2,337,545	£ 1,462,594	£ 691,110	£ 164,493	£ 178,975	£ 9,396,082
II. Treating oils and fats, animal, vegetable, etc. ...	736,464	480,016	65,736	136,636	58,912	8,987	1,486,751
III. Processes in stone, clay, glass, etc. ...	335,668	224,298	14,695	65,303	18,956	7,396	666,319
IV. Working in wood ...	2,414,486	1,170,881	793,725	819,923	115,913	153,078	5,468,006
V. Metal wks., machinery, etc.	9,684,085	3,123,196	1,308,576	2,596,943	711,722	793,707	18,218,229
VI. Connected with food and drink, etc. ...	15,900,805	12,278,374	9,178,986	2,614,283	890,144	657,883	41,520,475
VII. Clothing and textile fabrics, etc. ...	2,961,902	4,695,840	846,411	537,083	325,654	123,721	9,490,611
VIII. Books, paper, printing, and engraving ...	977,282	990,311	164,240	186,206	108,856	45,897	2,472,792
IX. Musical instruments, etc.	67,588	17,544	...	1,016	7,877	...	94,025
X. Arms and explosives ...	30,057	153,010	...	1,000	...	...	184,067
XI. Vehicles and fittings, saddlery and harness, etc. ...	473,537	477,951	130,160	177,313	77,712	46,793	1,388,406
XII. Ship and boat building and repairing ...	211,749	31,538	7,232	10,050	4,495	6,711	271,775
XIII. Furniture, bedding, and upholstery ...	613,065	489,841	119,010	122,594	78,880	30,310	1,453,700
XIV. Drugs, chemicals, and by-products ...	549,241	664,904	11,112	291,669	162,170	3,300	1,682,396
XV. Surgical and other scientific instruments ...	8,338	7,272	2,496	713	744	...	19,563
XVI. Jewellery, timepieces, and platedware ...	137,550	188,059	18,610	19,294	20,431	3,211	387,155
XVII. Heat, light, and power ...	547,245	362,440	37,965	54,723	21,587	21,549	1,045,509
XVIII. Leatherware, n.e.i. ...	152,033	189,678	9,768	3,116	1,610	...	356,205
XIX. Minor wares, n.e.i. ...	175,016	583,001	12,220	25,283	12,683	2,208	810,411
Total ...	40,537,476	28,465,699	14,183,539	8,354,258	2,782,839	2,083,666	96,407,477

The class in which the maximum value of raw materials was used was Class VI., "Connected with Food and Drink, etc.," the value being £41,520,475. The next important class in order of value was Class V., "Metal Works, Machinery, etc.," in which raw materials to the value of £18,218,229 were used. The class in which the minimum value appears is Class XV., "Surgical and other Scientific Instruments," the value being only £19,563. 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 six years ended 1913, so far as information is available:—

VALUE OF RAW MATERIALS WORKED UP IN FACTORIES IN COMMONWEALTH DURING THE YEARS 1908 to 1913.

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
1913 ...	40,537,476	28,465,699	14,183,539	8,354,258	2,782,839	2,083,666	96,407,477

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

5. Total Value of Output of Manufacturing Industries, 1913.—The value of the output of new goods manufactured and repairs effected in factories of various classes in each State during the year 1913 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, 1913.

Class of Industry.	N.S. W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'w'lbh.
	£	£		£	£	£	£
I. Treating raw material, product of agricultural & pastoral pursuits, etc.	5,372,798	2,927,609	1,700,950	849,951	224,172	229,523	11,305,003
II. Treating oils and fats, animal, vegetable, etc.	989,465	716,703	120,599	223,938	83,938	14,526	2,149,169
III. Processes in stone, clay, glass, etc.	1,866,029	1,063,423	146,098	355,901	163,968	52,556	3,647,375
IV. Working in wood	3,284,383	2,381,037	1,802,243	1,182,064	1,233,349	377,180	10,859,256
V. Metal works, mach'y, etc.	16,504,236	6,638,526	2,942,716	4,611,741	1,249,338	1,204,695	33,241,252
VI. Connected with food and drink, etc.	20,420,126	16,079,600	13,400,482	3,616,304	1,512,843	950,654	55,980,009
VII. Clothing and textile fabrics, etc.	5,794,533	8,552,260	1,644,373	1,010,108	594,717	267,967	17,863,958
VIII. Books, paper, printing, and engraving	2,794,304	2,781,535	806,308	492,672	436,282	179,185	7,490,286
IX. Musical instruments, etc.	157,613	50,942	...	3,370	8,811	...	220,736
X. Arms and explosives	83,357	277,921	...	2,000	...	...	363,278
XI. Vehicles and fittings, saddlery and harness, etc.	1,183,809	1,180,203	350,153	418,383	183,223	105,187	3,420,958
XII. Ship and boat building and repairing	787,528	106,759	25,882	38,723	11,332	18,412	988,636
XIII. Furniture, bedding, and upholstery	1,234,117	967,739	291,350	276,180	158,260	78,178	3,005,824
XIV. Drugs, chemicals, and by-products	1,026,510	1,175,459	27,273	485,921	241,198	4,371	2,960,732
XV. Surgical and other scientific instruments	27,469	22,098	8,600	2,100	4,188	...	64,405
XVI. Jewellery, timepieces, and platedware	282,056	369,532	40,066	48,077	34,909	9,563	784,203
XVII. Heat, light, and power	2,708,881	1,493,549	337,059	323,021	308,371	195,552	5,366,433
XVIII. Leatherware, n.e.i.	241,874	282,566	19,654	8,187	5,079	...	557,360
XIX. Minor wares, n.e.i.	313,407	869,186	24,983	50,029	29,003	5,282	1,291,890
Total	65,672,495	47,936,647	23,688,789	13,998,670	6,481,331	3,782,831	161,560,763

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 £65,672,495, or 40.65 per cent. on the total for the Commonwealth. The next State in order of value is Victoria, which produced 29.67 per cent.; the value of the output of Queensland was 14.67 per cent.; of South Australia 8.66 per cent.; of Western Australia 4.01 per cent.; and of Tasmania 2.34 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, value per employee, and per head of mean population in each State during the six years ended 1913:—

TOTAL VALUE OF OUTPUT OF FACTORIES IN COMMONWEALTH DURING THE YEARS 1908 to 1913.

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	*2,858,000	99,529,631
1909 ...	42,960,689	32,898,235	12,823,685	9,926,105	4,008,604	*3,339,000	105,953,328
1910 ...	49,615,643	36,680,854	15,792,109	11,184,695	4,533,611	3,073,216	120,860,158
1911 ...	54,346,011	41,747,863	15,675,662	12,416,361	5,311,088	3,525,087	133,022,000
1912 ...	61,163,323	45,410,773	18,798,904	13,438,218	6,092,268	3,871,915	148,775,407
1913 ...	65,672,495	47,936,647	23,688,789	13,998,670	6,481,331	3,782,831	161,560,763

PER EMPLOYEE. †

	£	£	£	£	£	£	£
1908 ...	451	328	383	432	326	329	387
1909 ...	469	338	435	386	313	349	397
1910 ...	498	359	465	414	321	308	421
1911 ...	500	373	422	445	336	342	427
1912 ...	529	391	459	472	372	389	454
1913 ...	545	404	559	491	375	387	479

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
1913 ...	36.32	34.41	36.30	32.29	20.64	19.30	33.67

* See note (*) to last table § 6, 4.

† Including working proprietors.

6. Value of Production of Manufacturing Industries, 1913.—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 shows the value added in this manner in each State during the year 1913 for the various classes of factories:—

VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN COMMONWEALTH, 1913.

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. ...	811,433	590,064	238,356	158,841	59,679	50,548	1,908,921
II. Treating oils and fats, animal, vegetable, etc. ...	253,001	236,687	54,863	87,302	25,026	5,539	662,418
III. Processes in stone, clay, glass, etc. ...	1,530,361	839,125	131,400	290,598	144,412	45,160	2,981,056
IV. Working in wood... ..	1,469,897	1,210,156	1,008,518	362,141	1,116,436	234,102	5,391,250
V. Metal works, machinery, etc. ...	6,820,151	3,515,330	1,634,140	2,014,798	537,616	500,988	15,023,023
VI. Connected with food and drink, etc. ...	4,519,321	3,801,226	4,221,496	1,002,021	623,699	292,771	14,459,534
VII. Clothing and textile fabrics, etc. ...	2,832,631	3,856,420	797,962	473,025	269,063	144,246	8,373,347
VIII. Books, paper, printing, and engraving ...	1,817,022	1,791,224	642,068	306,466	327,426	133,288	5,017,494
IX. Musical instruments, etc. ...	90,025	33,398	...	3,354	934	...	126,711
X. Arms and explosives ...	53,300	124,911	...	1,000	...	...	179,211
XI. Vehicles and fittings, saddlery and harness, etc. ...	710,273	702,252	219,993	241,070	105,511	58,454	2,037,553
XII. Ship and boat building and repairing ...	575,779	75,221	18,550	28,673	6,837	11,701	716,861
XIII. Furniture, bedding, and upholstery ...	621,052	477,898	172,340	153,586	79,380	47,868	1,552,124
XIV. Drugs, chemicals, and by-products ...	477,269	510,555	16,161	194,252	79,028	1,071	1,278,336
XV. Surgical and other scientific instruments ...	19,131	14,826	6,104	1,387	3,394	...	44,842
XVI. Jewellery, timepieces, and plated ware ...	144,506	181,473	21,456	28,783	14,478	6,352	397,048
XVII. Heat, light, and power ...	2,161,636	1,131,109	299,094	268,298	286,784	174,003	4,320,924
XVIII. Leatherware, n.e.i. ...	89,841	92,888	9,886	5,071	3,469	...	201,155
XIX. Minor wares, n.e.i. ...	138,391	286,185	12,763	24,746	16,320	3,074	481,479
Total	25,135,019	19,470,948	9,505,250	5,644,412	3,698,492	1,699,165	65,153,286

The amount of the value added in each State is not in the same order as in the case of value of output, the four most important classes being V., VI., VII., and IV., in the order named. The value added to raw material by process of manufacture and amount per employee and per head of mean population are shown in the following statement for the years 1908 to 1913:—

VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN COMMONWEALTH, 1908 to 1913.

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	£ 38,572,005
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
1913 ...	25,135,019	19,470,948	9,505,250	5,644,412	3,698,492	1,699,165	65,153,286
PER EMPLOYEE.							
1908 ...	£ 165	£ 129	£ 145	£ 156	£ 198	£ 130	£ 150
1909 ...	171	136	175	153	193	120	157
1910 ...	183	144	186	166	193	162	168
1911 ...	190	149	185	176	206	153	173
1912 ...	208	159	189	184	214	159	185
1913 ...	209	164	224	198	214	174	193

* See note (*) to last table § 6, 4.

VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN
COMMONWEALTH, 1908 TO 1913—Continued.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
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
1913 ...	13.90	13.98	14.57	13.02	11.78	8.67	13.56

As the total value of the output for the Commonwealth was estimated at £161,560,763, there remained, after payment of £96,407,477, the value of the raw materials used, of £33,606,087 for salaries and wages, and of £3,240,901 for fuel, the sum of £28,306,298 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, 1913.

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 ...	40,537,476	1,371,425	12,683,384	11,080,210	65,672,495
Victoria ...	28,465,699	739,835	10,714,336	8,016,777	47,936,647
Queensland ...	14,183,539	328,519	4,075,191	5,101,540	23,688,789
South Australia ...	8,354,258	417,280	3,034,537	2,192,595	13,998,670
Western Australia ...	2,782,839	198,161	2,215,137	1,285,144	6,481,331
Tasmania ...	2,083,666	185,681	883,452	630,032	3,782,831
Commonwealth ...	96,407,477	3,240,901	33,606,087	28,306,298	161,560,763

PERCENTAGE OF COSTS, ETC., ON TOTAL VALUE.

	%	%	%	%	%
New South Wales ...	61.73	2.09	19.31	16.87	100.00
Victoria ...	59.38	1.54	22.35	16.73	100.00
Queensland ...	59.87	1.39	17.20	21.54	100.00
South Australia ...	59.68	2.98	21.68	15.66	100.00
Western Australia ...	42.93	3.06	34.18	19.83	100.00
Tasmania ...	55.08	4.91	23.35	16.66	100.00
Commonwealth ...	59.67	2.01	20.80	17.52	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 1908 to 1913 by £21,543,924, *i.e.*, from £52,585,754 to £74,129,678, or at the rate of £4,308,785 per annum.

The following statement shows for the year 1913 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, 1913.

Value of—	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'with.
	£	£	£	£	£	£	£
Land and buildings ...	15,792,105	10,753,309	3,923,584	3,261,242	2,036,769	1,105,711	36,873,720
Plant and machinery ...	14,861,676	10,022,429	5,877,387	2,982,323	2,264,455	1,248,688	37,256,958
Total ...	30,653,781	20,775,738	9,800,971	6,243,565	4,301,224	2,354,399	74,129,678

The total capital invested in land, buildings, plant and machinery in manufacturing industries in the Commonwealth during the year 1913 was approximately £74,129,678 (or £15 4s. 3d. per head of population); of that sum £36,872,720 was invested in land and buildings occupied as manufactories, the remaining £37,256,958 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 1913.* The following table shows 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 1913 inclusive:—

VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN COMMONWEALTH, 1908 to 1913.

Class of Industry.	1908.	1909.	1910.	1911.	1912.	1913.
	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	847,113	870,588	921,785	978,978	1,004,221	1,014,783
II. Treating oils and fats, animal, vegetable, etc. ...	359,624	376,681	394,079	445,499	449,453	452,415
III. Processes in stone, clay, glass, etc. ...	937,753	956,733	1,073,612	1,228,889	1,382,062	1,593,769
IV. Working in wood ...	1,195,581	1,285,267	1,492,673	1,668,045	1,923,963	2,184,257
V. Metal works, machinery, etc. ...	4,378,755	4,415,525	4,554,693	5,000,274	5,437,718	5,846,225
VI. Connected with food & drink, etc. ...	7,161,845	7,191,976	7,399,625	8,167,496	8,259,066	8,656,547
VII. Clothing and textile fabrics, etc. ...	3,377,905	3,809,148	4,191,488	4,601,924	4,928,474	5,188,631
VIII. Books, paper, printing, and engraving ...	2,483,693	2,642,029	2,779,754	2,964,466	3,150,049	3,388,072
IX. Musical instruments, etc. ...	31,054	33,314	75,632	82,168	85,731	88,136
X. Arms and explosives ...	34,586	33,016	38,763	41,462	112,300	184,772
XI. Vehicles and fittings, saddlery and harness, etc. ...	1,172,556	1,186,750	1,325,152	1,453,077	1,654,488	1,835,221
XII. Ship & boat building & repairing ...	988,141	1,033,513	1,052,868	1,163,299	1,261,647	1,113,243
XIII. Furniture, bedding & upholstery ...	659,604	690,588	757,485	893,408	1,043,680	1,149,120
XIV. Drugs, chemicals & by-products ...	531,765	543,507	687,162	760,441	823,429	831,892
XV. Surgical and other scientific instruments ...	33,054	56,378	56,149	61,703	59,308	70,968
XVI. Jewellery, timepieces, & plated-ware ...	226,352	232,483	271,834	300,717	344,306	353,900
XVII. Heat, light, and power ...	1,928,734	2,026,611	2,112,220	2,320,348	2,511,317	2,517,179
XVIII. Leatherware, n.e.i. ...	91,036	83,578	100,096	111,506	120,646	133,283
XIX. Minor wares, n.e.i. ...	218,840	210,325	220,984	250,550	257,298	270,307
Total ...	26,657,991	27,672,010	29,506,054	32,494,250	34,809,156	36,872,720

As shewn in the above table the total net increase during the five years was £10,214,729, or an annual average of £2,042,946. The largest increases were in Classes VII., VI., and V., and amounted to £1,810,726, £1,494,702, and £1,467,470 respectively.

(ii.) *Value in each State, 1913.* The following table gives similar information for each State up to the 31st December, 1913 :—

VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN EACH STATE, 1913.

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. ...	399,149	404,064	55,695	100,109	39,520	16,246	1,014,783
II. Treating oils and fats, animal, vegetable, etc. ...	235,402	103,692	27,365	68,931	12,710	4,315	452,415
III. Processes in stone, clay, glass, etc. ...	915,358	413,118	51,068	132,059	55,976	26,190	1,593,769
IV. Working in wood. ...	1,033,088	421,247	202,811	160,417	282,774	83,920	2,184,257
V. Metal works, machinery, etc. ...	2,700,256	1,343,288	634,183	552,312	530,494	85,692	5,846,225
VI. Connected with food and drink, etc. ...	2,787,934	2,544,483	1,568,492	775,415	403,330	575,893	8,656,547
VII. Clothing and textile fabrics, etc. ...	2,230,705	1,907,514	398,553	393,613	145,489	112,757	5,188,631
VIII. Books, paper, printing and engraving ...	1,433,936	927,013	456,758	322,848	200,813	46,704	3,388,072
IX. Musical instruments, etc. ...	57,076	25,320	...	3,140	2,600	...	88,136
X. Arms and explosives ...	78,522	102,750	...	3,500	...	...	184,772
XI. Vehicles and fittings, saddlery and harness, etc. ...	741,124	532,014	167,141	250,017	85,265	59,660	1,835,221
XII. Ship and boat building and repairing ...	822,411	212,096	9,215	62,540	2,890	4,097	1,113,243
XIII. Furniture, bedding and upholstery ...	506,356	350,253	106,171	97,904	56,234	32,202	1,149,120
XIV. Drugs, chemicals, and by-products ...	285,324	323,133	10,500	136,950	74,785	1,200	831,892
XV. Surgical and other scientific instruments ...	33,984	18,290	13,440	2,400	2,854	...	70,968
XVI. Jewellery, timepieces, and plated ware ...	154,653	125,421	22,206	32,270	7,800	11,550	353,900
XVII. Heat, light, and power ...	1,194,851	841,924	178,516	146,427	114,376	41,085	2,517,179
XVIII. Leatherware, n.e.i. ...	60,062	56,531	9,800	4,200	2,690	...	133,283
XIX. Minor wares, n.e.i. ...	121,914	101,164	11,670	16,190	16,169	3,200	270,307
Total ...	15,792,105	10,753,309	3,923,584	3,261,242	2,036,769	1,105,711	36,872,720

The maximum value for the Commonwealth of land and buildings in any particular class was in Class VI., amounting to £8,656,547, or 23.48 per cent. on the total value. The next classes in importance were Classes V., VII., VIII., and XVII., in which the values were £5,846,225, £5,188,631, £3,388,072, and £2,517,179 respectively. The sum of the values for the five classes mentioned amounted to £25,596,654, or 69.42 per cent. on the total value for all classes.

(iii.) *Total Value in each State, 1908 to 1913.* The following table shews the total value of land and buildings occupied as manufactories in each State at the end of each year from 1908 to 1913 inclusive :—

TOTAL VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN EACH STATE, 1908 to 1913.

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	8,642,344	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
1913...	15,792,105	10,753,309	3,923,584	3,261,242	2,036,769	1,105,711	36,872,720

It will 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. The fall in Tasmania for 1910 was due to the closing down of a large pyrites works.

3. Value of Plant and Machinery.—(i.) 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 1913 inclusive:—

VALUE OF PLANT AND MACHINERY USED IN FACTORIES IN COMMONWEALTH, 1908 to 1913.

Class of Industry.	1908.	1909.	1910.	1911.	1912.	1913.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	£ 671,015	£ 754,556	£ 829,255	£ 877,820	£ 926,966	£ 985,619
II. Treating oils and fats, animal, vegetable, etc. ...	349,997	349,479	360,660	435,315	417,231	444,502
III. Processes in stone, clay, glass, etc. ...	833,809	901,193	1,109,139	1,299,774	1,491,333	1,717,544
IV. Working in wood ...	1,583,496	1,623,497	1,852,296	2,207,703	2,455,436	2,664,508
V. Metal works, machinery, etc. ...	4,633,656	4,941,632	5,255,575	5,722,956	6,308,356	6,879,461
VI. Connected with food and drink, etc. ...	7,744,682	7,772,770	8,212,440	8,570,565	9,029,735	9,650,298
VII. Clothing and textile fabrics, etc. ...	1,158,698	1,280,102	1,403,135	1,538,062	1,620,437	1,746,713
VIII. Books, paper, printing, and engraving ...	2,091,168	2,207,930	2,362,268	2,481,399	2,628,039	2,814,226
IX. Musical instruments, etc. ...	9,124	11,263	16,443	17,924	20,960	22,630
X. Arms and explosives ...	46,113	45,940	47,012	56,255	158,823	190,060
XI. Vehicles and fittings, saddlery and harness, etc. ...	204,138	220,746	249,973	283,470	329,933	374,371
XII. Ship and boat building, and repairing ...	432,803	434,905	443,429	478,012	597,783	725,934
XIII. Furniture, bedding, and upholstery ...	117,481	126,000	150,774	177,924	207,211	235,068
XIV. Drugs, chemicals, & by-products ...	398,028	435,019	517,781	602,276	629,402	650,185
XV. Surgical and other scientific instruments ...	8,144	9,215	9,929	11,158	11,615	13,121
XVI. Jewellery, timepieces, and platedware ...	46,160	43,980	49,490	61,765	61,791	68,186
XVII. Heat, light, and power ...	5,481,759	5,561,333	5,961,816	6,611,770	7,392,958	7,880,325
XVIII. Leatherware, n.e.i. ...	18,989	19,555	24,651	25,565	27,695	28,035
XIX. Minor wares, n.e.i. ...	98,503	116,097	120,669	138,896	145,141	166,172
Total ...	25,927,763	26,855,212	28,976,735	31,599,209	34,460,895	37,256,958

It may be seen that during the period in question there has been a steady and substantial net increase amounting in all to £11,329,195, or an annual average of £2,265,859. The increase has occurred in all classes of industry, the largest increase being in Class XVII., "Heat, Light, and Power," amounting to £2,398,566, while the two next largest were in Class V., "Metal Works, Machinery, etc.," amounting to £2,245,805, and Class VI., "Connected with Food and Drink, etc.," with an increase of £1,905,616.

(ii.) Total Value in each State, 1908 to 1913. The figures which were given in the above table referred to the Commonwealth as a whole. In the following table they are shewn for the States. It will be seen that the increase in value referred to above is general throughout the States. New South Wales shews by far the largest increase, viz., £5,142,834; while Victoria comes next with £3,064,823.

VALUE OF PLANT AND MACHINERY IN FACTORIES, 1908 to 1913.

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
1913	14,861,676	10,022,429	5,877,387	2,982,323	2,264,455	1,248,688	37,256,958

(iii.) Classified Value in each State, 1913. The following table shews the value of plant and machinery used in factories in each State during the year 1913, classified according to the nature of the industry in which used:—

VALUE OF PLANT AND MACHINERY USED IN FACTORIES IN EACH STATE, 1913.

Class of Industry.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wlth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	403,442	324,246	121,363	68,943	24,192	43,433	985,619
II. Treating oils and fats, animal, vegetable, etc. ...	232,062	131,556	40,348	28,276	11,139	1,121	444,502
III. Processes in stone, clay, glass, etc. ...	1,054,918	372,864	83,962	134,742	55,605	15,453	1,717,544
IV. Working in wood ...	846,446	567,578	471,363	84,088	506,638	188,395	2,664,508
V. Metal wks., machinery, etc. ...	3,447,776	1,400,623	782,683	510,848	386,517	351,014	6,879,461
VI. Connected with food and drink, etc. ...	3,150,439	2,130,758	3,253,324	594,202	384,330	137,245	9,650,298
VII. Clothing and textile fabrics, etc. ...	585,552	834,510	141,623	95,209	37,634	52,185	1,746,713
VIII. Books, paper, printing, and engraving ...	1,141,588	936,214	271,536	221,429	177,039	66,420	2,814,226
IX. Musical instruments, etc. ...	15,230	6,530	...	690	180	...	22,630
X. Arms and explosives ...	95,710	93,950	...	400	...	...	190,060
XI. Vehicles and fittings, saddlery and harness, etc. ...	132,708	127,488	32,170	49,062	21,391	11,552	374,371
XII. Ship and boat building and repairing ...	616,383	78,281	11,908	13,705	1,080	4,577	725,934
XIII. Furniture, bedding, and upholstery ...	70,757	69,515	35,687	37,655	14,294	7,160	235,068
XIV. Drugs, chemicals, and by-products ...	189,577	224,479	4,600	122,649	108,180	700	650,185
XV. Surgical and other scientific instruments ...	5,057	4,222	1,692	925	1,225	...	13,121
XVI. Jewellery, timepieces, and platedware ...	28,190	27,197	4,592	4,718	2,044	1,445	68,186
XVII. Heat, light, and power ...	2,761,016	2,591,218	618,065	1,012,320	530,063	367,613	7,880,325
XVIII. Leatherware, n.e.i. ...	11,433	14,624	1,120	359	499	...	28,035
XIX. Minor wares, n.e.i. ...	73,392	86,576	1,351	2,103	2,375	375	166,172
Total ...	14,861,676	10,022,429	5,877,387	2,982,323	2,264,455	1,248,688	37,256,958

The greatest value for any particular class of industry is for Class VI., "Connected with Food and Drink, etc.," and amounts to £9,650,298, or 25.90 per cent. on the total for all classes. The next in order of importance is Class XVII., "Heat, Light, and Power," which amounts to £7,880,325, or 21.15 per cent. on the total; followed by Class V., "Metal Works, Machinery, etc.," amounting to £6,879,461, or 18.47 per cent. on the total value. The total for these three classes amounts to £24,410,084, or 65.52 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 is necessary to furnish details of the development of individual industries. While it is not possible, within the limits of this article, to give a full and detailed account of all 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.**—(i.) 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 1913 was as follows:—

TANNERIES, 1913.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories	72	52	20	13	3	4	164
" employees	942	1,401	195	217	57	80	2,892
Actual horse-power of engines employed	1,269	1,699	355	226	133	66	3,748
Approx. value of lands and buildings £	125,859	177,964	16,472	22,030	14,640	9,731	366,696
Approx. value of plant and machinery £	59,010	137,566	18,669	11,328	10,150	9,887	276,610
Total amount of wages paid during year £	102,116	159,025	22,675	23,977	6,890	9,064	322,747
Value of fuel used	£ 6,469	9,252	1,170	1,589	435	727	19,642
Value of raw material worked up	£ 865,021	1,145,139	183,049	192,467	47,988	64,339	2,428,003
Total value of output	£ 1,060,049	1,425,350	237,955	164,890	58,137	84,404	3,030,785
Value added in process of manufacture £	195,028	280,211	54,906	42,423	10,149	20,065	602,782

(ii.) *Raw Materials used in Tanneries, 1913.* The quantity of raw materials used in tanneries in each State during the year 1913 is shewn in the following table:—

RAW MATERIAL USED IN TANNERIES, 1913.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
RAW MATERIALS USED.							
Hides & calf skins ... No.	453,640	719,760	120,886	75,248	23,469	28,969	1,421,973
Sheep pelts	3,693,515	760,683	174,046	57,390	...	28,667	4,714,301
Other skins	120,684	102,897	55,716	7,035	2,548	711	289,591
Bark Tons	9,614	11,279	2,336	1,330	589	315	25,463

(iii.) *Progress of Tanning Industries, 1908 to 1913.* The development of the tanning industry during the period 1908 to 1913 is shewn in the following table:—

DEVELOPMENT OF TANNING INDUSTRY IN THE COMMONWEALTH, 1908 to 1913.

Items.	1908.	1909.	1910.	1911.	1912.	1913.
Number of factories	181	179	176	176	174	164
Number of employees	3,044	2,980	3,110	3,247	3,071	2,892
Actual horse-power of engines used	2,311	2,846	3,125	3,168	3,274	3,748
Approx. value of land and buildings £	292,165	251,893	301,500	343,914	366,898	366,696
Approx. value of plant and machinery £	194,634	202,961	212,253	241,245	250,495	276,610
Total amount of wages paid	£ 259,054	266,797	303,012	332,206	328,060	322,747
Value of fuel used	£ 20,449	21,581	23,644	21,711	21,341	19,642
Value of raw materials worked up	£ 1,654,336	1,832,309	1,988,512	2,099,034	2,216,705	2,428,003
Value of final output	£ 2,191,689	2,320,190	2,570,858	2,698,250	2,834,007	3,030,785
Value added in process of manufacture £	537,293	487,581	572,346	599,216	617,302	602,782

* Exclusive of Tasmania.

It will be seen from the above table that as regards the number of factories and of hands employed, the figures during the last five years have been almost stationary. The approximate amount of permanently invested capital, however, shows a very substantial increase, amounting to 25.5 per cent. in the value of land and buildings, and 42.1 per cent. in that of plant and machinery. The amount of wages paid, value of materials used, and of final output also shew a substantial increase during the period.

3. **Fellmongering and Wool-scouring.**—(i.) The next industry in importance in Class I. is that of fellmongering and wool-scouring, one of the earliest industries established in Australia. The following table gives particulars of the industry in each State for the year 1913:—

FELLMONGERING AND WOOL-SCOURING, 1913.

Items.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	C'with.
Number of factories	62	32	21	4	...	...	119
Number of employees	1,553	423	346	53	...	...	2,375
Actual horse-power of engines used	2,421	699	735	111	...	...	3,966
Approx. value of land and buildings	£ 159,806	66,735	36,153	7,201	...	...	269,895
Approx. value of plant and machinery	£ 183,388	59,282	95,225	8,486	...	...	346,381
Total amount of wages paid	£ 147,268	35,923	40,978	6,276	...	...	230,445
Value of fuel used	£ 19,079	4,669	8,823	833	...	...	33,404
Value of raw material worked up	£ 2,496,029	462,114	1,271,470	135,800	...	...	4,365,413
Value of final output	£ 2,808,198	536,303	1,443,722	152,187	...	...	4,940,410
Value added in process of manufacture	£ 312,169	74,189	172,252	16,387	...	...	574,997

(ii.) *Development of Fellmongering and Wool-scouring, 1908 to 1913.*—The following return furnishes particulars of fellmongering and wool-scouring establishments in the Commonwealth for the last six years :—

DEVELOPMENT OF FELLMONGERING AND WOOL-SCOURING IN THE COMMONWEALTH, 1908 to 1913.

Items.	1908.	1909.	1910.	1911.	1912.	1913.
Number of factories	122	124	122	112	120	119
Number of employees	2,526	2,655	2,674	2,590	2,544	2,375
Actual horse-power of engines used	1,997	2,473	2,896	3,230	3,891	3,966
Approx. value of land and buildings	£ 234,983	255,030	274,122	273,281	267,188	269,895
Approx. value of plant and machinery	£ 222,412	243,894	298,548	308,211	348,970	346,381
Total amount of wages paid	£ 181,650	210,500	217,919	208,627	209,352	230,445
Value of fuel used	£ 20,845	25,907	31,250	21,581	31,445	33,404
Value of raw materials worked up	£ 3,186,497	3,714,968	3,965,303	3,757,750	3,859,200	4,365,413
Value of final output	£ 3,666,447	4,550,457	4,655,517	4,343,690	4,444,938	4,940,410
Value added in process of manufacture	£ 479,950	835,489	690,214	585,940	585,738	574,997

Little alteration has taken place in this industry during the last five years as regards the number of establishments or employees. In the other items shewn in the above table very large increases appear. The horse-power of engines used increased 98½ per cent., the value of raw materials used, 37 per cent., and that of the finished articles 35 per cent.

4. *Soap and Candle Factories.*—(i.) 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 1913 :—

SOAP AND CANDLE FACTORIES, 1913.

Items.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	Cw'ith.
Number of factories	31	18	15	5	3	2	74
Number of employees	725	571	147	207	77	28	1,755
Actual horse-power of engines employed	464	444	154	168	80	4	1,314
Approximate value of land and buildings	£ 171,551	89,091	97,385	55,851	12,710	4,215	360,783
Approximate value of plant and machinery	£ 170,995	117,692	40,349	23,512	11,139	671	364,337
Total amount of wages paid during year	£ 59,117	60,703	15,314	25,203	9,112	2,798	172,247
Value of fuel used	£ 11,081	11,289	2,105	6,081	841	365	31,692
Value of raw material worked up	£ 406,113	401,468	65,736	125,935	58,912	8,337	1,067,001
Total value of output	£ 610,175	610,881	120,599	205,069	83,938	13,526	1,644,188
Value added in process of manufacture	£ 204,062	209,413	54,863	79,134	25,026	4,689	577,187

(ii.) *Development of Soap and Candle Factories, 1908 to 1913.* The following table gives similar particulars for the last six years as regards the Commonwealth as a whole :—

**DEVELOPMENT OF SOAP AND CANDLE FACTORIES IN THE COMMONWEALTH,
1908 to 1913.**

Items.	1908.	1909.	1910.	1911.	1912.	1913.
Number of factories... ..	73	73	78	81	77	74
" employees	1,496	1,582	1,606	1,668	1,776	1,755
Actual horse-power of engines used... ..	*900	920	1,002	1,266	1,274	1,314
Approximate value of land and buildings £	287,685	296,312	311,333	347,834	360,572	360,783
" " plant and machinery £	302,742	300,015	305,693	326,273	348,365	364,357
Total amount of wages paid... ..	£ 122,286	139,959	140,423	148,592	162,551	172,247
Value of fuel used	£ 128,295	30,270	33,222	31,701	30,896	31,692
" of raw material worked up	£ 1734,110	832,263	952,770	1,018,757	1,030,770	1,067,001
" of final output	£ 1,167,443	1,304,463	1,440,176	1,588,416	1,614,898	1,644,188
" added in process of manufacture	£ 1433,333	472,220	487,406	569,659	584,128	577,187

* Approximate.

† Exclusive of Tasmania.

(iii.) *Production of Soap and Candles, 1908 to 1913.* The subjoined statement shows that, taking the Commonwealth as a whole, there has been a considerable and consistent increase in the output of soap during the past five years.

PRODUCTION OF SOAP AND CANDLES IN THE COMMONWEALTH, 1908 to 1913.

	1908.	1909.	1910.	1911.	1912.	1913.
Soap cwt.	549,714	567,648	617,458	639,458	688,722	700,878
Candles "	127,962	143,722	144,621	130,122	130,785	129,877

(iv.) *Raw Materials Used, 1908 to 1913.* The following statement shows the quantity of certain raw materials used in soap and candle factories in the Commonwealth during the years 1908 to 1913 :—

RAW MATERIALS USED IN SOAP AND CANDLE FACTORIES, 1908 to 1913.

Particulars.	1908.	1909.	1910.	1911.	1912.	1913.
Tallow cwt.	344,229	346,591	349,035	356,471	411,701	391,133
Alkali "	103,546	107,225	134,010	133,675	135,643	135,231
Cocoonut oil gal.			355,802	505,612	489,329	457,693

* Figures not available.

5. *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, JOINERY, Etc., 1913.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lth.
Number of factories	662	394	300	91	71	152	1,670
" employees	8,870	7,139	5,431	1,729	5,234	1,968	30,371
Actual horse-power of engines employed	16,592	10,361	7,621	1,585	6,924	2,601	45,684
Approx. value of land and buildings £	937,507	366,485	191,921	149,742	282,774	79,606	2,008,035
" " plant and machinery £	788,800	544,466	467,451	77,264	506,638	187,075	2,571,701
Total amount of wages paid during year £	935,990	753,833	536,904	200,865	797,022	159,283	3,388,907
Value of fuel used	£ 19,973	14,532	8,792	4,294	2,139	1,706	51,436
Value of raw material worked up	£ 2,300,851	1,113,577	709,042	791,915	1,115,913	152,360	5,245,688
Total value of output	£ 3,679,732	2,239,991	1,752,690	1,332,524	1,232,349	374,637	10,411,925
Value added in process of manufacture £	1,378,851	1,126,414	983,646	340,609	1,116,436	222,277	5,168,235

The development of forest and other saw mills, etc., since 1908, is shewn in the following table :—

**DEVELOPMENT OF SAW MILLS, FOREST AND OTHER, Etc., IN THE
COMMONWEALTH, FROM 1908 to 1913.**

Items.	1908.	1909.	1910.	1911.	1912.	1913.
Number of establishments	1,205	1,284	1,350	1,494	1,609	1,670
" employees	20,350	21,416	23,424	26,785	29,358	30,371
Actual horse-power of engines used...	24,056	27,141	30,520	34,540	40,256	45,684
Approximate value of land and buildings	£ 1,080,881	1,160,713	1,363,927	1,532,620	1,754,241	2,008,035
" of plant and machinery	£ 1,530,818	1,562,130	1,794,078	2,141,883	2,365,462	2,571,701
Total amount of wages paid...	£ 1,851,651	2,007,298	2,290,059	2,749,209	3,211,625	3,388,907
Value of fuel used	£ *24,443	28,694	29,856	37,308	43,913	51,436
" of raw material worked up	£ *2,904,408	2,977,219	3,372,421	4,208,333	4,900,612	5,273,688
" of final output	£ *5,521,333	6,098,939	6,928,310	8,535,800	9,882,810	10,411,923
" added in process of manufacture	£ *2,616,925	3,121,720	3,555,889	4,327,467	4,982,198	5,168,235

* Exclusive of Tasmania.

The great development in the building and other trades that has taken place in Australia during late years is reflected in the very satisfactory progress of the timber industries. The large increase shewn in wages paid, value of materials used, and of final output, as well as in capital invested in land and buildings, and plant and machinery, all point to the rapid development of these industries.

6. 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 1913 :—

AGRICULTURAL IMPLEMENT WORKS, 1913.

Items.	N.S.W.	Victoria	Q'land.	S.Aust.	W.A.	Tas.	C'w'lh.
Number of factories	23	66	4	53	6	2	154
" employees	651	2,242	98	1,092	346	15	4,444
Actual horse-power of engines employed	281	1,289	50	933	136	9	2,698
Approx. value of land and buildings	£ 85,896	155,984	6,012	67,824	32,250	700	348,666
" plant and machinery	£ 29,618	175,217	7,343	72,436	23,726	675	309,015
Total amount of wages paid during year	£ 77,361	268,890	10,384	114,086	30,857	676	502,244
Value of fuel used	£ 2,444	16,915	697	7,684	2,598	70	30,408
Value of raw material worked up	£ 307,106	324,063	19,056	123,536	50,045	750	824,556
Total value of output	£ 427,852	710,832	36,799	287,456	71,527	1,912	1,536,378
Value added in process of manufacture	£ 120,746	386,769	17,743	163,920	21,482	1,162	711,822

Development of Agricultural Implement Works. The following table shews the progress of this industry during the years 1908 to 1913 to have been very satisfactory. During the period the number of establishments increased 10 per cent., the number of employees nearly 42 per cent., the value of plant and machinery over 126 per cent., and the value of output about 74 per cent. :—

**DEVELOPMENT OF AGRICULTURAL IMPLEMENT WORKS IN THE
COMMONWEALTH, FROM 1908 to 1913.**

Items.	1908.	1909.	1910.	1911.	1912.	1913.
Number of factories	140	148	150	155	159	154
Number of employees	3,134	4,081	4,868	5,156	4,733	4,444
Actual horse-power of engines used	1,530	1,713	2,228	2,347	2,419	2,698
Approx. value of land and buildings	£ 169,125	199,544	227,936	284,469	331,348	348,666
Approx. value of plant and machinery	£ 136,238	169,778	208,185	245,025	281,923	309,015
Total amount of wages paid	£ 261,275	356,710	470,931	550,922	527,406	502,244
Value of fuel used	£ *16,032	23,992	35,070	32,342	30,961	30,408
Value of raw material worked up	£ *413,825	559,141	743,032	811,322	751,596	824,556
Value of final output	£ *879,409	1,227,339	1,560,880	1,656,364	1,538,421	1,536,378
Value added in process of manufacture	£ *465,584	668,198	817,848	845,042	786,825	711,822

* Exclusive of Tasmania.

7. 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, 1913.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'th.
Number of factories	294	377	106	60	59	23	919
" employees	10,122	9,243	3,054	1,927	1,149	514	26,014
Actual horse-power of engines employed	8,746	7,299	1,708	1,452	1,072	353	20,630
Approx. value of land and buildings	£ 683,600	570,525	178,905	110,017	96,655	40,751	1,980,453
" plant and machinery	£ 954,008	773,061	198,740	113,996	99,961	52,169	2,188,935
Total amount of wages paid during year	£ 1,214,956	1,061,023	324,588	226,469	141,132	56,095	3,044,263
Value of fuel used	£ 72,903	93,517	16,733	16,453	13,350	4,187	217,173
Value of raw material worked up	£ 1,638,609	1,301,214	306,342	247,702	181,491	44,285	3,719,643
Total value of output	£ 3,375,207	3,010,355	847,579	569,216	388,763	124,200	8,315,320
Value added in process of manufacture	£ 1,736,598	1,709,141	541,237	321,514	207,272	79,915	4,595,677

In addition to engineering works which supply ordinary 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.

The development of engineering, ironworks, and foundries in the Commonwealth since 1908 is shewn in the following table:—

DEVELOPMENT OF ENGINEERING, IRONWORKS, AND FOUNDRIES, FROM 1908 to 1913.

Items.	1908.	1909.	1910.	1911.	1912.	1913.
Number of factories	729	764	761	820	877	919
Number of employees	17,699	17,882	20,109	22,539	25,151	26,014
Actual horse-power of engines used	10,200	11,403	13,493	15,015	18,744	20,630
Approx. value of land and buildings	£ 1,268,277	1,335,863	1,352,872	1,579,925	1,792,169	1,980,453
Approx. value of plant and machinery	£ 1,376,427	1,414,187	1,541,107	1,706,405	1,953,478	2,188,935
Total amount of wages paid	£ 1,675,178	1,715,292	1,948,326	2,342,603	2,846,180	3,044,263
Value of fuel used	£ *130,886	149,346	166,449	178,546	195,729	217,173
Value of raw material worked up	£ 2,024,181	2,076,291	2,414,210	2,832,181	3,536,179	3,719,643
Value of final output	£ *4,568,680	4,822,169	5,636,048	6,614,535	7,930,060	8,315,320
Value added in process of manufacture	£ *2,544,499	2,745,878	3,221,838	3,782,354	4,393,881	4,595,677

* Exclusive of Tasmania.

The progress in these industries during late years has been very rapid. Since 1908 the number of establishments has increased 26 per cent., the number of hands employed 47 per cent., the amount of wages paid 82 per cent., and the amount of capital invested in land, buildings, plant and machinery, 57½ per cent. During the past four years the output increased by £3,493,151, or 72½ per cent.

8. Railway Carriages and Rolling Stock, Railway and Tramway Workshops.—(i.)

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, 1913.

Items.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'w'lth.
Number of factories ...	25	17	8	8	8	7	73
" employees ...	10,122	9,248	3,054	1,927	1,149	514	26,014
Actual h.p. of engines employed ...	4,287	1,301	1,137	727	2,008	121	9,581
Approx. value of land and buildings £	953,006	313,232	299,766	259,619	397,509	575	2,213,697
Approx. value of plant and mach'ny £	713,075	242,347	204,166	131,857	264,595	79,010	1,685,050
Total amt. of wages paid during year £	1,338,995	709,069	294,916	347,769	286,855	41,384	3,018,988
Value of fuel used ...	25,837	93,720	5,522	5,569	15,421	1,086	77,155
Value of raw material worked up £	941,898	934,011	250,498	252,803	474,420	20,905	2,874,535
Total value of output ...	£2,492,820	1,807,861	619,934	672,037	776,219	66,952	6,435,823
Value added in process of manuf'ct're	£1,550,922	873,850	369,436	419,234	301,799	46,047	3,561,288

(ii.) *Northern Territory Railway Workshops.* In addition to the above, a railway workshop is in operation in the Northern Territory. 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 1912, wages and salaries amounting to £1460. The cost of materials used was £872, and of fuel £76, while the value of output was £3317, and of land and buildings £14,634.

(iii.) *Development of Railway and Tramway Workshops, 1908 to 1913.* The following table shews the development of railway and tramway workshops in the Commonwealth since 1908:—

DEVELOPMENT OF RAILWAY AND TRAMWAY WORKSHOPS, Etc., FROM 1908 to 1913.

Items.	1908.	1909.	1910.	1911.	1912.	1913.
Number of factories... ..	69	68	68	72	73	73
" employees	12,293	13,176	14,915	17,425	19,662	26,014
Actual horse-power of engines used ...	6,674	10,731	7,384	8,373	9,637	9,581
Approx. value of land and buildings	£ 1,982,116	1,884,351	1,939,092	2,036,178	2,128,273	2,213,697
" " plant and machinery	£ 1,271,974	1,284,764	1,394,657	1,433,093	1,563,710	1,685,050
Total amount of wages paid... ..	£ 1,499,934	1,623,379	1,842,142	2,163,460	2,702,711	3,048,988
Value of fuel used	£ *40,704	43,114	57,777	69,919	75,476	77,155
" of raw material worked up ...	£ *1,326,037	1,426,542	1,558,896	1,939,477	2,574,737	2,874,535
" of final output	£ *2,937,416	3,234,955	3,648,168	4,468,096	5,695,221	6,435,823
" added in process of manufacture	£ *1,611,379	1,808,413	2,089,270	2,528,619	3,120,484	3,561,288

* Exclusive of Tasmania.

The growth of the railway and tramway systems, conjointly with heavy increases in passenger and goods traffic, throughout the Commonwealth during the past few years (see Section XVII., § 2 and 3), has resulted in an enhanced activity in those workshops engaged in the manufacture or repair of rolling stock, etc. The above table shews the number of employees to have increased 87 per cent. during the last five years and the

amount of wages paid 101 per cent. during the same period. Since 1909 the final output increased 199 per cent., while the value added in process of manufacture shews an increase of 97 per cent.

9. **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, 1913.

Items.	N. S. W.	Vic.	Q'land.	S. A.	W. A.	Tas.	C'w'lth.
Number of factories	35	70	17	6	...	4	132
" employees	3,797	497	743	1,765	...	1,116	7,918
Actual horse-power of engines employed	16,680	450	4,764	3,784	...	3,681	29,359
Approx. value of land and buildings £	276,845	11,489	48,949	19,748	...	36,066	393,097
" plant and machinery £	1,537,204	51,305	303,135	68,420	...	216,629	2,176,693
Total am't of wages paid during year £	698,436	44,426	127,576	319,199	...	152,421	1,342,058
Value of fuel used	£ 362,987	5,665	36,683	179,106	...	95,572	680,013
Value of raw material worked up	£5,947,656	87,037	503,076	1,684,713	...	714,242	8,936,724
Total value of output	£8,813,304	174,899	985,382	2,619,137	...	1,071,053	13,663,775
Value added in process of manufacture £	2,865,648	87,862	482,306	934,424	...	356,811	4,727,051

* See third paragraph below.

In New South Wales and Queensland the above figures represent smelting works; those for Victoria include sixty-two 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., £8,813,304, or 64.50 per cent. on the total output for the Commonwealth. South Australia came next with £2,619,137, or 19.17 per cent.; this amount is made up of £2,612,861 smelting and £6276 cyanide. Of the total for Tasmania the output of smelting was £985,141, the balance £85,912 representing that obtained from cyanide works. The output in Victoria was £76,425, £56,936, £35,936, and £5602 from cyanide, pyrites, smelting, and metallurgical works in the order named.

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

10. **Bacon-curing Factories.**—The following table gives particulars of factories engaged in bacon-curing in each State during the year 1913 :—

BACON-CURING FACTORIES, 1913.

Items.	N.S.W.	Vic.	Q and.	S. A.	W. A.	Tas.	C'w'lth.
Number of factories	19	28	7	12	2	7	75
" employees	188	460	336	76	12	93	1,105
Actual horse-power of engines employed	287	779	737	70	39	33	1,945
Approx. value of land and buildings £	62,638	88,198	69,779	12,116	3,690	5,743	242,164
" plant and machinery £	25,091	57,439	38,860	5,017	900	2,081	129,388
Total amount of salaries and wages paid £	29,168	49,305	39,991	7,839	1,857	2,558	130,718
Value of fuel used	£ 3,816	5,272	3,882	587	269	424	14,250
Value of raw material worked up	£405,466	624,288	292,500	89,231	113,664	24,855	1,550,004
Total value of output	£484,415	726,906	470,839	106,417	118,848	34,168	1,941,593
Value added in process of manufacture £	78,949	102,618	178,339	17,186	5,184	9,313	391,539

Quantity and Value of Production, 1913. 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 1913 :—

PRODUCTION OF BACON-CURING FACTORIES, 1913.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.*	Tasmania.	C'wealth.
QUANTITY (,000 omitted).							
Bacon & ham lbs.	12,875	16,346	12,841	2,520	...	785	45,367
Lard ... lbs.	579	747	836	96	...	68	2,326
VALUE.							
Bacon & ham £	433,263	686,906	419,026	101,616	...	28,864	1,669,675
Lard ... £	15,826	22,500	20,880	2,703	...	1,382	63,291
Other products £	18,780	17,500	30,933	2,098	...	3,922	73,233
PIGS KILLED.							
Number ...	140,969	179,710	159,082	29,043	...	10,266	519,070

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

Bacon and ham and other pig products are dealt with more fully in Section IX., *Farmyard and Dairy Production.*

11. **Butter, Cheese, and Condensed Milk Factories.**—(i.) The subjoined table gives particulars of butter, cheese, and condensed milk factories in each State during the year 1913. The returns are exclusive of butterine and margarine factories.

BUTTER, CHEESE, AND CONDENSED MILK FACTORIES, 1913.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lh.
Number of factories ...	170	197	88	48	3	25	531
" employees ...	1,020	1,354	835	194	9	95	3,507
Actual horse-power of engines employed	2,695	3,082	1,371	377	28	173	7,726
Approximate value of land and buildings £	201,368	308,549	96,789	38,292	1,463	18,274	664,735
" plant & machinery £	261,650	341,382	175,871	29,172	3,210	17,701	828,986
Total amount of wages paid ...	£ 136,008	159,529	91,213	16,282	918	7,541	411,491
Value of fuel used ...	£ 27,443	28,650	12,608	2,458	106	749	72,214
Value of raw material worked up ...	£ 3,156,225	3,198,161	1,417,400	247,158	9,350	117,884	8,146,178
Total value of output ...	£ 3,472,689	3,562,057	1,813,706	281,634	11,702	142,959	9,284,747
Value added in process of manufacture £	316,464	363,896	396,306	34,476	2,352	25,075	1,138,569

(ii.) *Development of Factories, 1908 to 1913.* The following table shews the progress of the factories in this industry during the past five years:—

DEVELOPMENT OF BUTTER, CHEESE, AND CONDENSED MILK FACTORIES IN THE COMMONWEALTH 1908 TO 1913.

Items.	1908.	1909.	1910.	1911.	1912.	1913.
Number of factories ...	560	550	548	540	530	531
" employees ...	3,428	3,283	3,479	3,730	3,518	3,507
Actual horse-power of engines used ...	5,835	6,045	6,182	6,818	8,156	7,726
Approx. value of land and buildings £	519,418	545,145	576,644	677,139	659,673	664,735
" plant and machinery £	716,678	694,129	708,239	775,792	788,922	828,986
Total amount of wages paid ...	£ 299,949	295,826	324,505	375,221	385,793	411,491
Value of fuel used ...	£ *60,647	52,789	59,616	67,555	70,155	72,214
" raw material worked up ...	£ *6,059,999	6,012,094	7,378,146	8,341,125	8,676,346	8,146,178
" final output ...	£ *6,643,603	6,727,324	8,230,782	9,432,122	9,760,205	9,284,747
Value added in process of manufacture £	*583,604	715,230	852,636	1,090,997	1,083,859	1,138,569

* Exclusive of Tasmania.

(iii.) *Quantity and Value of Production, 1913.* The following table shews 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 1913 :—

PRODUCTION OF BUTTER, CHEESE, AND CONDENSED MILK FACTORIES, 1913.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'w'lth.
QUANTITY (,000 OMITTED).							
Butter lbs.	73,245	67,702	33,122	4,415	147	2,755	181,386
Cheese "	3,452	2,848	5,262	2,215	...	443	14,220
Condensed and concentrated milk ... lbs.	3,683	21,043	8,059	...	...	...	32,785
VALUE (,000 OMITTED).							
Butter £	3,260	3,083	1,489	229	8	134	8,203
Cheese £	91	74	137	53	...	9	364
Condensed and concentrated milk ... £	53	386	188	...	...	...	627
MILK USED (,000 OMITTED).							
Butter factories ...gals.	172,245	156,159	68,189	8,811	338	6,324	412,066
Cheese " " "	3,658	2,830	5,129	2,163	...	447	14,227
Condensed " milk factories ... "	1,062	7,350	2,137	...	...	...	10,549

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

12. 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 286 and 290 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 the States not being available.

MEAT AND FISH-PRESERVING, ICE AND REFRIGERATING WORKS, 1913.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lth
Number of factories	98	34	51	17	13	7	220
" employees	2,331	1,640	4,104	293	85	29	8,542
Actual horse-power of engines employed	5,031	6,383	5,443	815	678	164	18,514
Approx. value of land and buildings	£ 498,112	353,098	558,189	149,281	45,785	5,790	1,610,255
" " plant and machinery	£ 519,366	236,423	460,641	83,771	46,295	3,192	1,349,688
Total amount of wages paid during year	£ 263,299	171,524	506,915	35,714	12,544	2,241	997,240
Value of fuel used	£ 45,281	29,072	63,486	6,042	5,799	492	150,172
Value of raw material worked up	£ 4,101,904	1,390,019	3,576,439	104,448	2,154	1,837	9,176,801
Total value of output	£ 4,810,993	1,699,723	4,830,039	153,979	35,458	6,541	11,536,733
Value added in process of manufacture	£ 709,089	309,704	1,253,600	49,531	33,304	4,704	2,359,932

The following table gives particulars, so far as available, of various classes of meat preserved during the year 1913 :—

MEAT-PRESERVING WORKS—PARTICULARS OF ANIMALS TREATED, 1913.

Particulars.			N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'w'lt'h.
Sheep treated	...	No.	374,523	2,107,180	731,859	3,347	...	...	3,216,909
Cattle	"	No.	100,827	12,960	449,344	1,861	...	...	564,932
Pigs	"	No.	...	...	1,644	...	...	...	1,644

Large quantities of rabbits, hares, and poultry were treated in freezing works, for which, however, complete returns are not available. During 1913, 2,357,004 pairs of rabbits and hares were treated in Victoria, and 599,001 pairs of rabbits in South Australia. Exclusive of Victoria, for which State particulars are not available, the returns show that 78,770 tons of ice, valued at £170,086, were manufactured in the Commonwealth in 1913.

Full particulars of quantities and value of beef, mutton, and lamb preserved by cold process, exported from the Commonwealth during a series of years, will be found in Section VII., *Pastoral Production*.

13. **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 1913:—

BISCUIT, Etc., MANUFACTORIES, 1913.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lt'h.
Number of factories	7	5	16	3	3	7	41
" employees	1,594	1,391	390	124	155	141	3,795
Actual horse-power of engines employed	1,017	272	148	61	105	51	1,654
Approx. value of land and buildings	£ 112,154	68,651	37,332	17,750	10,341	24,500	270,728
" plant and machinery	£ 107,720	56,756	23,531	10,867	15,047	11,142	225,063
Total amount of wages paid during year	£ 88,353	101,438	36,617	10,183	12,827	9,587	259,060
Value of fuel used	£ 9,731	9,623	1,930	1,603	1,513	1,184	25,584
Value of raw material worked up	£ 426,135	348,498	87,675	23,688	38,858	30,581	960,435
Total value of output	£ 665,226	569,321	186,342	56,820	72,545	53,711	1,603,965
Value added in process of manufacture	£ 239,091	220,823	98,667	23,132	33,637	23,130	643,530

14. **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 1913. Separate returns for the individual industries are not available for most of the States.

JAM AND FRUIT PRESERVING, PICKLES, SAUCES, AND VINEGAR MANUFACTORIES, 1913.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lt'h.
Number of factories	35	31	13	29	4	18	130
" employees	1,139	1,947	225	498	44	672	4,525
Actual horse-power of engines employed	294	290	88	102	26	480	1,280
Approx. value of land and buildings	£ 101,548	122,118	15,060	36,209	2,329	56,125	333,389
" plant and machinery	£ 44,342	53,118	11,134	14,474	1,080	21,430	145,478
Total amount of wages paid during year	£ 85,457	131,273	12,895	30,069	3,656	45,559	308,909
Value of fuel used	£ 4,221	8,384	813	2,292	188	3,318	19,216
Value of raw material worked up	£ 400,853	554,974	43,932	123,811	7,611	227,736	1,358,917
Total value of output	£ 575,525	855,881	75,132	188,979	15,732	312,692	2,026,941
Value added in process of manufacture	£ 174,672	303,907	31,200	65,168	8,121	84,956	668,024

Quantity and Value of Production, 1913. The following table shows the quantity and value of jams, pickles, and sauces manufactured in each State during the year 1913:—

QUANTITY AND VALUE OF JAMS, PICKLES, AND SAUCE MANUFACTURED, 1913.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
QUANTITY (,000 OMITTED).							
Jam lbs.	27,619	29,761	952	7,022	134	16,672	82,160
Fruit, preserved lbs.	1,772	11,492	4,152	3,158	...	13,264	23,838
Pickles pints	2,505	1,752	*90	304	108	55	4,814
Sauce pints	3,316	6,459	327	1,427	426	65	12,020
VALUE.							
Jam £	318,405	500,485	16,788	96,060	2,785	217,396	1,151,859
Fruit, preserved £	24,712	153,271	42,690	48,912	...	142,839	312,424
Pickles £	44,145	42,715	1,761	6,167	3,314	1,445	99,547
Sauce £	74,786	162,410	7,124	23,756	8,891	1,682	278,649

* Approximate. † Exclusive of 42,152 cwt. fruit pulped, value £49,111.

15. **Confectionery.**—The following table shews the position of the confectionery industry in 1913, 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, the plant and machinery in the former State being valued at £2815, and at £19,070 in the latter.

CONFECTIONERY FACTORIES, 1913.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lh.
Number of factories	44	31	8	8	5	3	99
" employees	1,429	1,604	395	274	120	18	3,840
Actual horse-power of engines employed	634	532	57	160	130	12	1,525
Approx. value of land and buildings £	210,241	78,203	17,024	34,965	10,755	3,100	354,288
" plant and machinery £	92,472	73,857	15,489	30,834	13,200	580	226,432
Total amount of wages paid during year £	119,863	110,897	26,706	21,998	9,474	1,195	290,133
Value of fuel used	£ 7,243	7,224	821	2,445	1,458	140	19,331
Value of raw material worked up	£ 525,784	397,720	39,484	60,630	31,322	2,962	1,057,902
Total value of output	£ 794,691	591,071	115,282	104,644	45,197	6,160	1,657,045
Value added in process of manufacture £	268,907	193,351	75,798	44,014	13,875	3,198	599,143

16. **Flour Mills.**—(i.) The following table shews the position of the flour-milling industry in the year 1913 :—

FLOUR MILLS, 1913.

Items.	N.S.W.	Vic.	Q'land.	S.A.*	W.A.*	Tas.*	C'w'lh.
Number of factories	68	61	11	48	17	17	222
" employees	1,035	842	166	547	227	113	2,930
Actual horse-power of engines employed	4,708	4,789	866	2,924	1,247	565	15,099
Approx. value of land and buildings £	375,396	223,630	55,953	119,643	88,475	44,000	907,097
" plant and machinery £	342,367	262,521	69,304	151,552	78,666	27,685	932,065
Total am't of wages paid during year £	137,514	102,882	25,671	69,120	34,305	12,312	381,804
Value of fuel used	£ 25,455	25,715	2,841	15,819	7,673	2,778	80,281
Value of raw material worked up	£ 2,530,840	2,239,512	322,877	939,826	523,007	190,630	6,746,692
Total value of output	£ 2,957,947	2,633,604	397,940	1,142,394	673,117	231,532	8,036,434
Value added in process of manufacture £	427,107	394,092	75,063	202,468	150,110	40,902	1,289,742

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

(ii.) *Production of Flour Mills, 1908 to 1913.* The production of flour by the mills in each State of the Commonwealth in the years 1908 to 1913 was as follows :—

FLOUR MILLS—PRODUCTION, 1908 to 1913.

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
1913	285,425	252,763	33,889	107,994	61,997	18,545	760,613

* Tons of 2000 lbs.

The total production of flour for the Commonwealth for 1913, viz., 760,613 tons, was valued at £6,309,562; in addition 343,608 tons of bran and pollard, valued at £1,618,412, were made. The total quantity of wheat ground in 1913 was 37,281,806 bushels.

17. **Sugar Mills.**—The following table shews the position of the cane-crushing branch of the sugar-making industry in 1913. 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, 1913.

Items.	N.S.W.	Queensland.	Total.
Number of factories	3	48	51
„ employees	486	4,524	5,010
Actual horse-power of engines employed	2,750	10,444	13,194
Approximate value of land and buildings	£ 54,000	342,591	396,591
„ „ plant and machinery	£ 470,183	1,994,724	2,464,907
Total amount of wages paid during year	£ 51,476	358,109	409,585
Value of fuel used	£ 5,280	61,433	66,713
Value of raw material worked up	£ 208,899	2,362,206	2,571,105
Total value of output	£ 354,742	3,653,693	4,008,435
Value added in course of manufacture	£ 145,843	1,291,487	1,437,330

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 fully a third 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 1913.

Items.	1870.	1877.	1886.	1896.	1901.	1909.	1910.	1911.	1912.	1913.
No. of factories	27	50	64	23	12	4	4	4	3	3
„ employees	**	1,065	2,259	1,475	* 695	529	506	469	469	486
Cane crushed tns		*	*			131,083	160,311	167,799	141,274	185,910
Sugar produced										
tons	677	7,537	13,750	28,557	19,519	14,810	20,115	17,299	16,817	22,192
Molasses produced										
...gals.	...	345,543	507,000	2,520,580	1,300,909	1,072,400	918,900	796,440	667,100	966,000

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 1913.

Items.	1868.	1876.	1886.	1896.	1901.	1909.	1910.	1911.	1912.	1913.
No. of factories	10	70	118	63	52	46	49	49	47	48
„ employees	...	*	*	3,796	*	3,848	4,036	4,295	3,891	4,524
„ acres crushed	...	7,245	40,756	66,640	78,160	1,163,569†	1,840,447†	1,534,451†	994,212†	2,085,588†
Sugar produced...tons	...	8,214	59,225	100,774	120,858	134,584	210,756	173,296	113,060	242,837
Molasses produced										
gals.	68,622	416,415	1,784,266	2,195,470	3,679,952	4,763,635	7,329,870	6,451,192	4,988,988	4,263,186

* Not available. † 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.)

18. **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 1913 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 1716 hands was employed during the year 1913. The approximate value of land and buildings was £438,636; of plant and machinery, £982,191; and the total amount of wages paid during the year was £215,288. The value of all materials used in sugar refineries during 1913 was £3,848,008, while the total output represented £4,499,950.

As regards production, the amount of crude sugar used was 242,032 tons, and of refined sugar produced 231,280 tons, valued at £4,489,575.

19. **Breweries.**—(i.) The following table gives particulars of breweries in each State during the year 1913:—

BREWERIES, 1913.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'w'lh.
Number of factories ...	31	26	11	12	16	5	101
employees ...	1,043	987	513	364	501	143	3,551
Actual horse-power of engines employed ...	1,263	2,916	406	898	1,322	125	6,930
Approx. value of land and buildings ...	£ 324,822	£ 383,267	£ 134,216	£ 129,482	£ 186,950	£ 395,450	£ 1,554,187
Approx. value of plant and machinery ...	£ 382,290	£ 351,349	£ 110,314	£ 99,242	£ 187,793	£ 40,607	£ 1,171,595
Total amount of wages paid during year ...	£ 159,227	£ 155,024	£ 67,783	£ 58,601	£ 92,665	£ 19,543	£ 552,843
Value of fuel used ...	£ 23,232	£ 23,387	£ 6,781	£ 8,769	£ 11,545	£ 2,110	£ 75,824
Value of raw material worked up ...	£ 671,157	£ 461,397	£ 160,773	£ 110,784	£ 126,733	£ 37,776	£ 1,568,620
Total value of output ...	£ 1,423,586	£ 1,024,708	£ 466,463	£ 363,725	£ 427,085	£ 111,829	£ 3,817,396
Value added by process of manufacture ...	£ 752,429	£ 563,311	£ 305,690	£ 252,941	£ 300,352	£ 74,053	£ 2,248,776

(ii.) *Production and Materials Used, 1913.* 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 1913:—

PRODUCTION AND MATERIALS USED IN BREWERIES, 1913.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
ALE AND STOUT BREWED.							
Quantity gallons	23,516,656	20,925,354	6,111,849	5,760,439	5,360,315	1,903,483	63,578,096
Value * ...	£ 1,099,359	£ 1,020,000	£ 466,463	£ 356,367	£ 413,338	£ 111,829	£ 3,467,356
RAW MATERIALS USED.							
Malt ... bush.	809,171	586,375	203,564	143,405	155,147	63,335	1,960,997
Hops ... lbs.	909,116	653,803	294,319	185,186	214,197	101,513	2,358,13
Sugar ... cwt.	104,360	123,073	46,845	31,992	27,559	9,294	343,12
RAW MATERIALS USED PER 1000 GALLONS OF ALE AND STOUT PRODUCED.							
Malt ... bush.	34.41	28.02	33.31	24.88	28.94	33.27	30.84
Hops ... lbs.	38.66	31.24	48.16	32.15	39.96	53.33	37.09
Sugar ... cwt.	4.44	5.88	7.66	5.55	5.14	4.88	5.40

* Exclusive of excise duty.

(iii.) *Development of Breweries, 1908 to 1913.* The following table shows the progress of this industry during the past five years:—

DEVELOPMENT OF BREWERIES FROM 1908 TO 1913.

Items.	1908.	1909.	1910.	1911.	1912.	1913.
Number of factories	134	125	124	121	110	101
.. employees	3,372	3,238	3,333	3,450	3,532	3,551
Actual horse-power of engines used ...	4,236	3,704	4,663	5,008	5,678	6,930
Approx. value of land and buildings £	1,545,629	1,398,283	1,453,696	1,469,449	1,526,629	1,554,187
.. .. plant and machinery £	835,940	817,671	903,521	970,618	1,078,724	1,171,595
Total amount of wages paid	£ 423,688	420,032	445,342	483,393	523,812	552,843
Value of fuel used	£ 56,551	68,963	77,101	69,284	76,906	75,824
.. raw material worked up	£ 1,098,535	1,157,707	1,138,145	1,273,522	1,494,070	1,568,620
.. final output	£ 2,755,589	2,864,923	3,076,736	3,318,937	3,647,850	3,817,396
Value added in process of manufacture £	1,657,054	1,707,216	1,938,591	2,045,415	2,153,780	2,248,776

* Exclusive of Tasmania.

The main feature in the history of the brewing industry, which was established at an early date in Australia, has been the change from the small local brewery in every township of moderate size to the large centralised city brewery. This, however, has not been so much in evidence during the period embraced in the above table, the reduction of the number of establishments during recent years being mainly due to several large amalgamations. The total value of output of breweries in the Commonwealth increased from £2,864,923 in 1909 to £3,817,396 in 1913, equal to 31.7 per cent. during the four years.

20. **Distilleries.**—The subjoined table gives particulars of distilleries in each State during the year 1913. There are no distilleries in either of the States of Western Australia or Tasmania.

DISTILLERIES, 1913.

Particulars.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	C'w'ith.
Number of factories	3	9	3	17	...	...	32
.. employees	21	83	37	85	...	...	225
Actual horse-power of engines employed ...	129	195	52	177	...	...	553
Approximate value of land and buildings £	17,330	92,660	13,903	25,317	...	...	149,210
Approx. value of plant and machinery £	51,782	68,143	17,115	20,598	...	...	157,638
Total amount of wages paid during year £	4,651	11,024	5,574	7,291	...	...	28,540
Value of fuel used	£ 1,305	2,340	2,945	2,358	...	...	8,948
Value of raw materials worked up	£ 26,842	40,662	10,689	60,766	...	...	138,959
Total value of output	£ 51,085	61,727	46,386	89,628	...	...	248,226
Value added in process of manufacture £	24,243	21,065	35,697	28,862	...	...	109,867

Production of Spirits and Materials Used, 1913. The total quantity of brandy distilled in 1913 was 226,668 proof gallons, and of other spirits was 2,641,784 proof gallons. The materials used comprised 328,624 cwt. of molasses and sugar, and 3,200,692 gallons of wine. Particulars for the separate States are not available for publication.

21. **Tobacco, Cigars, and Cigarettes.**—(i.) During the year 1913 there were thirty-six 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, 1913.

Items.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	C'w'ith.
Number of factories	12	16	3	3	2	...	36
.. employees	1,497	1,828	103	109	29	...	3,566
Actual horse-power of engines employed ...	602	486	20	10	1	...	1,119
Approx. value of land and buildings £	160,153	175,635	3,565	12,554	1,540	...	353,447
.. .. plant and machinery £	100,298	110,946	8,708	11,300	295	...	231,547
Total amount of wages paid during year £	149,129	202,073	8,660	12,295	1,806	...	373,963
Value of fuel used	£ 919	2,586	207	339	2	...	4,053
Value of raw material worked up	£ 910,713	691,703	28,263	17,712	2,845	...	1,651,226
Total value of output	£ 1,379,048	1,234,107	59,191	34,019	6,998	...	2,713,363
Value added in process of manufacture £	468,335	542,404	30,938	16,307	4,153	...	1,062,137

(ii.) *Quantity of Goods Produced, and Tobacco Leaf Used, 1913.* 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 1913:—

PRODUCTION OF TOBACCO FACTORIES AND QUANTITY OF LEAF USED, 1913.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'w'lth.
QUANTITY (,000 OMITTED).							
Manufact'ed tobacco lbs.	3,886	5,605	230	231	4	...	9,956
Cigars	86	298	...	15	7	...	406
Cigarettes	No. 7,750	25,019	...	1,200	608	...	34,577
	lbs. 2,526	240	...	...	1	...	2,767
	No. 1,107,762	108,383	...	...	466	...	1,211,611
TOBACCO LEAF USED (,000 OMITTED).							
Australian leaf... lbs.	728	255	255	71	1	...	1,310
Imported leaf ... lbs.	5,085	5,114	6	149	14	...	10,368

(iii.) *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 1913 were—manufactured tobacco 1,902,435 lbs., cigars 433,279 lbs., and cigarettes 167,026 lbs., while the quantities manufactured in Australian factories were respectively 9,956,045 lbs., 405,901 lbs., and 2,767,550 lbs. The following tables shew the development of the tobacco industry in the Commonwealth during recent years:—

DEVELOPMENT OF TOBACCO, CIGAR, AND CIGARETTE FACTORIES IN THE COMMONWEALTH, 1908 to 1913.

Items.	1908.	1909.	1910.	1911.	1912.	1913.
Number of factories	33	37	35	33	35	36
Number of employees	4,137	3,991	3,923	3,730	3,484	3,566
Actual horse-power of engines used	785	764	830	1,045	917	1,119
Approx. value of land and buildings	£ 372,133	366,502	379,866	373,895	349,022	353,447
Approx. value of plant and machinery	£ 234,573	241,374	250,351	214,576	227,294	231,547
Total amount of wages paid	£ 276,028	286,638	322,171	346,258	358,081	373,963
Value of fuel used	£ 5,574	4,970	4,535	4,488	4,267	4,053
Value of raw material worked up	£ 1,424,946	1,266,284	1,385,863	1,468,212	1,622,713	1,651,226
Value of final output	£ 2,087,962	1,938,567	2,332,966	2,518,946	2,696,157	2,713,363
Value added in process of manufacture	£ 663,016	672,283	947,123	1,050,734	1,073,444	1,062,137

PRODUCTION.

Tobacco made	lbs.	9,838,115	9,440,167	9,933,087	10,048,396	10,298,241	9,956,045
Cigars	"	274,823	285,390	319,908	356,127	388,906	405,901
Cigarettes	"	1,522,396	1,623,679	1,862,178	2,163,729	2,605,840	2,767,550
Leaf used	"	10,989,809	9,959,650	10,950,775	10,993,024	11,826,658	11,677,099

22. **Woollen, Cotton, and Tweed Mills.**—(i.) The manufacture of woollens and tweeds was established in Australia at an early period in its history, and was under Government control, the first record in New South Wales dating back to 1801, 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 1913, shews that the industry is now well established:—

WOOLLEN, COTTON, AND TWEED MILLS, 1913.

Items.	N.S.W. †	Vic.	Q'ld.	S.A.	W.A.	Tas.	C'wth. †
Number of factories	5	10	1	2	...	4	22
" employees	776	1,790	125	172	...	227	3,090
Actual horse-power of engines employed ...	1,549	2,346	135	212	...	116	4,358
Approx. value of land and buildings ...	£ 118,575	141,307	9,639	8,945	...	20,850	290,305
" plant and machinery ...	£ 170,693	263,363	20,913	23,040	...	38,650	516,659
Total amount of wages paid during year ...	£ 71,352	125,691	8,172	10,543	...	14,760	231,018
Value of fuel used	£ 5,672	13,061	*	*	...	1,080	21,778
Value of raw material worked up	£ 156,364	264,229	*	*	...	19,310	475,637
Total value of output	£ 289,725	513,252	*	*	...	44,593	925,602
Value added in process of manufacture ...	£ 133,362	249,023	*	*	...	25,283	449,965

* As there is only one factory in Queensland and two in South Australia, particulars of output, etc., are not disclosed; the amounts, however, are included in the totals for the Commonwealth. † Excluding 13 establishments for the manufacture of hosiery and knitted goods previously included.

(i.) *Progress of Industry, 1908 to 1913.* The progress of woollen and tweed manufactories in the Commonwealth during the last five years is shewn in the following table:—

DEVELOPMENT OF WOOLLEN, COTTON, AND TWEED MILLS IN AUSTRALIA
FROM 1908 to 1913.

Items.	1908.	1909.	1910.	1911.	1912.	1913.
Number of factories	21	24	25	32	32	† 22
" employees	2,717	2,965	3,030	3,200	3,379	3,090
Actual horse-power of engines used	2,977	3,522	3,243	3,444	3,692	4,358
Approx. value of land and buildings ...	£ 204,096	222,928	249,787	283,115	307,049	299,306
" plant and machinery ...	£ 370,847	423,772	436,921	478,859	497,827	516,659
Total amount of wages paid	£ 142,773	155,675	172,394	203,194	232,561	231,018
Value of fuel used	£ *16,215	18,892	20,033	20,863	22,709	21,778
Value of raw material worked up	£ *277,219	303,283	347,226	447,829	468,728	475,637
Value of final output	£ *517,636	596,665	693,297	860,789	930,485	925,602
Value added in process of manufacture ...	£ *240,417	293,382	346,071	412,360	461,757	449,965

* Exclusive of Tasmania. † Excluding 13 establishments for the manufacture of hosiery and knitted goods previously included in New South Wales returns.

(iii.) *Quantity and Value of Production, 1913.* 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 in the Commonwealth during 1913 was over 2,750,000 yards. In New South Wales 1,312,363 yards of tweed and cloth, in Victoria 1,017,766 yards, and in Tasmania 20,486 yards were manufactured. The production of flannel in the Commonwealth in 1913 amounted to over 5,565,000 yards, while blankets, shawls, and rugs to the number of about 880,000 were manufactured.

No cotton spinning or weaving or linen weaving is carried on in Australia. Cotton ginning has been carried on intermittently 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 350.

23. **Boots and Shoes.**—(i.) Among the manufactories 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 1913:—

BOOT AND SHOE FACTORIES, 1913.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lth.
Number of factories	105	162	31	26	11	11	346
" employees	4,262	6,951	1,055	755	207	226	13,456
Actual horse-power of engines employed	989	1,350	226	173	32	53	2,823
Approx. value of land and buildings £	244,770	239,486	41,603	74,523	14,210	15,195	629,787
" plant and machinery £	158,916	187,087	40,044	26,105	8,090	9,752	429,994
Total amt. of wages paid during year £	332,223	578,503	89,309	68,827	18,412	17,384	1,154,658
Value of fuel used	£ 5,818	9,779	857	1,109	354	156	18,073
Value of raw material worked up	£ 734,744	1,230,725	147,689	119,894	42,383	32,759	2,308,194
Total value of output	£ 1,284,489	2,094,866	286,609	213,315	69,429	55,778	4,004,486
Value added in process of manufacture £	549,745	864,141	138,920	93,421	27,046	23,019	1,696,292

(ii.) *Progress of Industry, 1908 to 1913.* The progress of the industry in the last five years is shewn in the following table :—

DEVELOPMENT OF BOOT AND SHOE FACTORIES IN THE COMMONWEALTH,
1908 to 1913.

Items.	1908.	1909.	1910.	1911.	1912.	1913.
Number of factories	328	315	337	341	332	346
Number of employees	13,606	14,023	13,810	13,772	13,341	13,456
Actual horse-power of engines used	1,889	2,008	2,248	2,405	2,646	2,823
Approx. value of land and buildings £	464,314	500,518	527,805	565,735	598,659	629,787
Approx. value of plant and machinery £	324,331	337,734	360,818	389,879	398,014	429,994
Total amount of wages paid	£ 348,212	900,812	968,375	1,096,575	1,144,455	1,146,658
Value of fuel used	£ *13,215	14,051	14,699	16,792	17,244	18,073
Value of raw material worked up ...	£ *1,677,735	1,804,444	2,000,704	2,151,101	2,184,750	2,308,194
Value of final output	£ *2,921,831	3,112,212	3,396,172	3,713,948	3,819,371	4,004,486
Value added in process of manufacture £	*1,244,096	1,307,768	1,395,468	1,562,847	1,634,621	1,696,292

Although the average number of employees in boot and shoe factories shews a slight decline during the past five years, yet a substantial and consistent advance in the value of output is in evidence during the same period. This is doubtless attributable to the increase in mechanical power employed, and the introduction of improved plant and machinery, the value of which was £439,994 in 1913, as compared with £324,331 in 1908.

(iii.) *Value and Quantity of Production, 1913.* The number and value of boots, shoes and slippers made at factories in each State during the year 1913 are shewn in the following table :—

PRODUCTION OF BOOT AND SHOE FACTORIES, 1913.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'w'lth.
QUANTITY (,000 OMITTED).							
Boots and shoes ... pairs	3,639	5,013	742	637	189	160	10,380
Slippers ... pairs	310	255	48	22	...	1	636
Uppers* ... pairs	53	37	8	18	3	2	121
VALUE.							
Boots and shoes	£ 1,208,216	2,042,700	269,968	197,562	63,727	53,105	3,835,278
Slippers	£ 28,415	26,000	3,108	3,013	...	50	60,586
Uppers*	£ 14,301	9,150	2,429	3,021	591	685	30,177

* Made for other than factory use.

24. **Clothing (Tailoring and Slop) Factories.**—The importance of this industry in the several States and in the Commonwealth as a whole is shewn in the following table:—

CLOTHING (TAILORING AND SLOP) FACTORIES, 1913.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wth.
Number of factories	445	506	147	132	69	43	1,342
" employees	11,566	10,602	4,093	2,699	1,287	718	30,965
Actual horse-power of engines employed	436	386	237	85	51	6	1,201
Approx. value of land and buildings	£ 1,057,725	588,722	237,672	196,922	75,715	55,590	2,212,346
" plant and machinery	£ 64,457	64,413	35,848	14,794	9,627	2,613	191,752
Total amount of wages paid during year	£ 859,141	641,611	254,369	166,851	109,024	44,920	2,075,916
Value of fuel used	£ 11,287	12,535	1,543	3,603	1,808	443	31,219
Value of raw material worked up	£ 991,368	1,011,453	328,035	224,031	132,844	44,510	2,732,241
Total value of output	£ 2,242,190	2,037,106	744,967	451,395	285,982	116,479	5,878,119
Value added in process of manufacture	£ 1,250,822	1,025,653	416,932	227,364	153,138	71,969	3,145,878

Progress of Industry, 1908 to 1913. The substantial development that has taken place in the tailoring and slop branch of this industry may be accepted as an indication of the general prosperity of the community. The amount of wages paid increased from £1,218,287 in 1908 to £2,075,916 in 1913, or over 70 per cent., while the output, leaving Tasmania out of consideration, increased approximately 54 per cent. during the same period.

DEVELOPMENT OF CLOTHING (TAILORING AND SLOP) FACTORIES IN THE COMMONWEALTH, FROM 1908 TO 1913.

Items.	1908.	1909.	1910.	1911.	1912.	1913.
Number of factories	945	1,004	1,111	1,182	1,238	1,342
" employees	23,337	24,811	27,451	30,549	31,068	30,965
Actual horse-power of engines used	643	741	851	1,020	1,206	1,201
Approx. value of land and buildings	£ 1,361,759	1,637,795	1,778,985	1,931,274	2,155,643	2,212,346
" plant and machinery	£ 128,038	131,004	143,793	160,935	173,706	191,752
Total amount of wages paid	£ 1,218,287	1,369,138	1,589,636	1,854,135	2,010,779	2,075,916
Value of fuel used	£ *19,781	22,602	24,985	28,561	29,550	31,219
" raw material worked up	£ *1,794,412	2,097,483	2,304,362	2,610,348	2,696,987	2,732,241
" final output	£ *3,675,719	4,280,162	4,805,629	5,486,388	5,807,431	5,878,119
Value added in process of manufacture	£ *1,881,307	2,162,679	2,501,267	2,876,040	3,110,444	3,145,878

* Exclusive of Tasmania.

25. **Dressmaking and Millinery.**—Particulars of dressmaking and millinery establishments for the year 1913 are given in the following table:—

DRESSMAKING AND MILLINERY ESTABLISHMENTS, 1913.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. A.	Tas.	C'w'ltth.
Number of factories	302	496	61	57	55	24	995
" employees	4,930	9,671	1,460	897	843	416	18,217
Actual horse-power of engines employed	70	231	49	6	14	6	376
Approx. value of land and buildings	£ 370,821	413,311	43,880	56,810	36,040	18,210	939,072
" plant and machinery	£ 16,796	43,541	3,773	2,506	4,702	939	72,257
Total amount of wages paid during year	£ 210,238	410,671	57,873	34,094	43,945	15,927	772,748
Value of fuel used	£ 1,395	6,513	109	434	567	220	9,238
Value of raw material worked up	£ 274,766	775,716	88,959	60,999	62,075	24,535	1,287,050
Total value of output	£ 606,065	1,436,334	177,742	114,438	113,316	44,210	2,492,105
Value added by process of manufacture	£ 331,299	660,618	88,783	53,439	51,241	19,675	1,205,055

Progress of Industry, 1908 to 1913. The development of dressmaking and millinery establishments in the Commonwealth during the past five years is shewn in the following table:—

**DEVELOPMENT OF DRESSMAKING AND MILLINERY IN THE COMMONWEALTH
FROM 1908 to 1913.**

Items.	1908.	1909.	1910.	1911.	1912.	1913.
Number of factories	983	1,009	1,056	1,050	994	995
" employees	16,140	16,324	18,040	18,803	18,476	18,217
Actual horse-power of engines used	157	157	264	319	371	376
Approx. value of land and buildings	£ 706,709	735,528	811,464	879,098	878,231	939,072
" plant and machinery	£ 48,991	57,752	60,937	67,307	74,466	72,257
Total amount of wages paid	£ 473,440	508,501	600,484	695,319	748,222	772,748
Value of fuel used	£ *6,860	7,076	8,185	8,722	9,143	9,238
Value of raw material worked up	£ *849,610	932,509	1,065,979	1,161,260	1,249,930	1,287,050
Value of final output	£ *1,601,250	1,752,037	2,046,931	2,280,553	2,429,315	2,492,105
Value added in process of manufacture	£ *751,640	819,528	980,952	1,119,293	1,179,385	1,205,055

* Exclusive of Tasmania.

The above table shews the amount of wages paid to have increased over 63 per cent. during the last five years, and the final output of the Commonwealth, exclusive of Tasmania, to have increased 60 per cent. during the same period.

26. 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 1913. The returns include establishments for the manufacture of wheels, spokes, etc.

COACH AND WAGON BUILDING WORKS, 1913.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'with.
Number of factories	264	314	93	100	41	24	836
" employees	2,775	2,941	789	896	357	213	7,971
Actual horse-power of engines employed	1,049	565	248	452	169	86	2,569
Approx. value of land and buildings	£ 339,605	250,312	69,233	123,887	49,180	21,700	853,917
" plant and machinery	£ 84,752	63,088	22,368	28,147	13,440	4,972	216,767
Total amount of wages paid during year	£ 262,800	241,709	67,530	80,040	40,014	16,289	708,382
Value of fuel used	£ 9,839	8,590	1,320	3,183	2,261	615	25,811
Value of raw material worked up	£ 287,575	269,153	58,639	77,958	44,193	18,134	735,652
Total value of output	£ 672,421	654,929	179,833	207,217	107,339	43,897	1,365,636
Value added in process of manufacture	£ 404,846	385,776	121,194	129,259	63,146	25,763	1,129,984

27. 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 1913:—

**FACTORIES FOR FURNITURE AND CABINET MAKING AND BILLIARD TABLE
MAKING, 1913.**

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'with.
Number of factories	173	193	70	38	26	15	515
" employees	2,844	2,116	1,085	1,024	387	291	7,747
Actual horse-power of engines employed	1,347	702	642	851	227	98	3,867
Approx. value of land and buildings	£ 346,756	251,585	86,993	74,998	44,728	25,567	830,627
" plant and machinery	£ 53,444	40,417	33,749	34,635	12,669	5,037	179,951
Total amount of wages paid during year	£ 321,687	214,221	106,484	103,370	51,247	23,765	822,774
Value of fuel used	£ 5,239	3,030	2,191	2,590	1,359	492	14,901
Value of raw material used	£ 314,432	257,449	106,326	94,331	65,678	20,171	858,387
Total value of output	£ 762,364	569,411	264,171	224,884	131,227	56,622	2,008,679
Value added in process of manufacture	£ 447,932	311,962	157,845	130,553	65,549	36,451	1,150,292

28. **Electric Light and Power Works.**—Particulars of the electric light and power works of the Commonwealth in the year 1913 are given in the subjoined table. In 1908 there were 138 establishments employing 1823 hands whose salaries and wages amounted to £239,410: in 1913 these had increased to 209 establishments, 3046 hands, salaries and wages £447,299, while the value of output in the Commonwealth, exclusive of Tasmania, had increased during the five years from £1,077,441 to £2,150,579.

ELECTRIC LIGHT AND POWER WORKS, 1913.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wlth.
Number of factories	115	51	7	4	19	13	209
" employees	1,118	860	197	403	256	212	3,046
Actual horse-power of engines employed	75,824	26,212	11,772	12,420	19,132	5,569	150,929
Approx. value of land and buildings	£ 520,095	263,023	31,578	124,315	79,217	9,375	1,028,203
" plant and machinery	£ 1,391,007	1,165,020	108,435	618,445	453,499	211,393	3,947,849
Total amount of wages paid during year	£ 170,745	114,874	28,045	57,539	49,717	26,379	447,299
Value of fuel used	£ 219,080	60,161	25,226	32,776	84,725	51,496	475,464
Total value of output	£ 1,266,801	400,192	98,499	128,401	256,686	142,140	2,292,719

* Including manufacture of electric apparatus.

29. **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, 1913.

Items.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wlth.
Number of factories	65	47	17	5	4	3	141
" employees	1,814	1,973	568	417	113	150	5,035
Actual horse-power of engines employed	3,501	986	174	255	132	33	5,081
Approx. value of land and buildings	£ 553,549	476,320	146,938	11,612	33,859	31,710	1,253,988
" plant and machinery	£ 1,303,607	1,308,170	509,580	391,384	76,130	156,220	3,745,091
Total amount of wages paid during year	£ 253,049	302,354	78,463	57,198	19,542	15,929	726,555
Value of fuel used	£ 70,388	160	3,822	1,920	3,730	1,706	81,726
Value of raw material used	£ 423,240	285,939	37,965	50,804	15,079	15,039	828,066
Total value of output	£ 1,244,246	935,910	238,560	183,669	49,482	53,412	2,705,279
Value added in process of manufacture	£ 821,006	649,971	200,595	132,865	34,403	38,373	1,877,213

* 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 1913:—

PRODUCTION OF GAS AND COKE WORKS, 1913.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wlth.
QUANTITY.							
Gas made ... 1000 cub. ft.	5,536,139	3,480,180	723,920	567,066	124,897	178,866	10,611,068
Coke tons	508,592	176,810	48,904	19,823	5,939	7,987	768,055
VALUE.							
Gas £	824,073	837,910	190,165	136,629	33,385	43,341	2,065,703
Coke £	318,833	98,000	36,194	22,750	11,084	6,523	493,384
COAL USED.							
Coal tons	809,504	294,541	93,742	49,167	10,871	14,161	1,271,986