

## THE MANUFACTURING INDUSTRY.

The progress of the manufacturing industry in Australasia has been very irregular, even in the most advanced states; and although the tabular statement given below shows an increase of 87,772 hands in the Commonwealth and 26,623 in New Zealand since 1885, about one-tenth of the former number has been added by a change in the tabulation of the statistics in Victoria and New South Wales. The population of the continent was not sufficient to maintain industries on an extensive scale, and even this field was still further limited by intercolonial tariffs. Now that these barriers have been swept away, and the Australian field secured to a certain extent against outside competition, more rapid progress may reasonably be expected in regard to the manufacturing industry.

The greater portion of the manufactories of Australasia may be classified as domestic industries—that is to say, industries naturally arising from the circumstances of the population, or connected with the treatment of perishable products; but there are nevertheless a fair number of firmly established industries of a more complex character. A statement of the number of establishments, and of the hands employed, in Australasia is given below for the years 1885, 1890, 1895, and 1901. The figures for the year last-mentioned were obtained from census returns in the cases of New South Wales, and New Zealand, while for Victoria, Queensland, and Western Australia they represent the usual annual returns. As the returns of South Australia and Tasmania for the year 1901 are not yet available, the information for those states refers to the year 1900 :—

Year.	Establishments.		Hands employed.	
	Commonwealth.	New Zealand.	Commonwealth.	New Zealand.
	No.	No.	No.	No.
1885 .....	8,632	1,946	105,265	22,095
1890 .....	8,903	2,254	133,147	25,633
1895 .....	8,247	2,459	133,631	27,389
1901 .....	10,559	3,668	193,037	48,718

## MANUFACTORIES OF VICTORIA.

Victoria was the state which first displayed activity in the manufacturing industries. In 1885 there were employed in factories, properly so called, 49,297 hands, and in 1889 there were 57,432 hands; but the number fell away to 41,729 in 1893. Since that year there has been an increase to the extent of 24,800 hands. Of the 66,529 workers employed in 1901, 3,827 may be said to have found occupation in connection with domestic industries for the treatment of perishable produce for immediate use; 25,567 in other industries dependent upon the natural resources of the country, and 37,135 in industries the production from which comes into competition with imported goods:—

Year.	Establishments.	Males.	Females.	Total Hands employed.
1885	2,813	41,542	7,755	49,297
1886	2,770	39,453	6,320	45,773
1887	2,854	42,019	7,065	49,084
1888	2,975	47,335	7,153	54,488
1889	3,137	49,105	8,327	57,432
1890	3,104	47,596	8,773	56,369
1891	3,123	43,627	10,786	54,413
1892	2,934	35,726	9,689	45,415
1893	2,659	32,209	9,520	41,729
1894	2,614	32,638	10,681	43,319
1895	2,724	35,406	12,240	47,646
1896	2,809	37,728	12,669	50,397
1897	2,759	38,620	14,030	52,650
1898	2,869	40,631	14,147	54,778
1899	3,027	44,041	16,029	60,070
1900	3,097	45,794	18,413	64,207
1901	3,249	47,059	19,470	66,529

Comparing the number of women employed in the factories of the various States, it will be found that the proportion is largest in Victoria; thus, out of 54,413 hands in 1891, there were 10,786, or 19.82 per cent., females; while in 1901, of 66,529 hands, 19,470, or 29.27 per cent., were females.

The number of factories and industrial establishments of various sizes, with the number of hands employed in each class, during 1901, was as follows :—

Number of Hands employed by each Establishment.	Number of Establishments.	Total number of Hands.
Under 4 hands .....	492	1,606
4 hands .....	337	1,348
5 to 10 hands .....	1,166	8,191
11 to 20 ,, .....	589	8,661
21 to 50 ,, .....	403	12,521
51 to 100 ,, .....	156	10,901
101 hands and upwards .....	106	23,301
Total.....	3,249	66,529

Interesting statistics were obtained in 1891, and again in 1901, of the value of materials used, and of the output by the manufactories of Victoria. The following are the official figures for the two periods :—

1890-1.

	£
Value of output .....	22,227,909
Value of materials used or operated on ...	11,902,089
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Value added in process of treatment or of manufacture .....	£10,325,820

1900.

	£
Value of output .....	16,948,951
Value of materials used or operated on ...	10,104,131
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Value added in process of treatment or of manufacture .....	£6,844,820

This shows that there has been an apparent decline in the value of production of not less than £3,481,000. There are, however, omissions to be allowed for. Taking these into consideration, there is still a difference in favour of 1891 to the extent of about £3,000,000. In the ten years the number of persons employed showed an increase of 7,838—

that is, an increase of 9,640 in the female workers and a decrease of 1,802 in the males. The horse-power employed in the factories of the State increased from 29,174 to 33,410 during the same period. These increases, taken in conjunction with the fact that there has not been any great decline in the value of materials used or operated on, would seem to point to the necessity of considerable caution in dealing with the Victorian official figures. In regard to 1891, it is impossible to review the figures except in regard to a few omissions from the value of materials operated on. Amongst these the more important are the omission of the value of materials used in sawmills, and of the clay and other materials used up by potteries and brickyards. These omissions can be supplied with a fair approximation to the truth. Another important omission is that of the value of fuel. Fuel is of course an important item in the value of materials consumed in production, and in the following figures an estimate of the value of fuel used has been made. The figures for 1900 also require attention. On analysing them, and comparing the results with the extremely comprehensive statistics of New Zealand and New South Wales, it was found that the output of certain large classes of industries was greatly understated; indeed, in some instances the value of the output has been set down at less than the value of materials, wages, and fuel, and in others the margin between the value of materials, labour, &c., and of output, is not sufficient to meet known charges—such as rent or interest, value of workshops and machinery—without taking into account the probable earnings of fixed capital and the profits of the manufacturers. It has been considered necessary to raise the gross output shown in the official figures from £16,948,951 to £18,512,680, and the net output—that is to say, the excess of gross output over the value of materials, fuel, and labour—from £6,844,820 to £7,472,389, or by £627,569. The figures for the two years will then be as follows:—

	1890-1.	1900.
	No.	No.
Number of establishments .. .. .	3,104	3,097
Horse-power .. .. .	29,174	33,410
Persons employed—Males .. .. .	47,596	45,794
Females .. .. .	8,773	18,413
Total .. .. .	56,369	64,207
	£	£
Value of materials treated, including fuel ...	13,077,089	11,040,291
Amount of wages paid .. .. .	0	4,589,412
Total value of output .. .. .	22,227,909	18,512,680
Value added to materials during process of manufacture .. .. .	9,150,820	7,472,389

\* Not ascertained.

## MANUFACTORIES OF NEW SOUTH WALES.

The manufacturing industries of New South Wales do not cover so wide a field as those of Victoria, but they afford employment for almost as many persons. For the year 1901 the two states compare as follows :—

State.	Establishments.	Hands employed.		Total.
		Males.	Females.	
Victoria .....	3,249	47,059	19,470	66,529
New South Wales ...	3,368	54,461	11,674	66,135

In Victoria, therefore, there were employed 7,796 females more than in New South Wales, and 7,402 fewer males. In order to trace the progress of the manufacturing industry in New South Wales during the last eleven years, it is necessary to adjust the figures for the five years 1891-95, since in 1896 a change was made in the scope of the returns by the inclusion of dressmakers and milliners who were not previously counted as factory hands. Certain other small changes were made, the object of which was to secure uniformity with Victoria. Making the necessary adjustments, the figures since 1891 are as follows :—

Year.	Establishments.	Males.	Females.	Total Hands employed.
1891	3,056	43,203	7,676	50,879
1892	2,657	42,909	5,007	47,916
1893	2,428	37,832	4,225	42,057
1894	3,070	41,070	5,432	46,502
1895	2,723	41,546	6,484	48,030
1896	2,928	42,908	6,932	49,840
1897	2,826	44,333	7,106	51,439
1898	2,839	44,673	7,845	52,518
1899	2,912	47,063	8,583	55,646
1900	3,077	50,516	10,263	60,779
1901	3,368	54,461	11,674	66,135

Up to the year 1891 there had been a fairly regular increase in the employment afforded by the factories of the state; in the following year, owing to causes already discussed in another part of this volume, there was a decrease in the number of persons employed, and, from 50,879 in 1891, the number had fallen to 42,057 in 1893—the year of the bank failures. In the following years there was a rapid recovery,

so that the employment in 1897 was greater than in 1891, and the year 1901 showed an improvement of 15,256 during the eleven years since 1891, and an increase of 24,078 over the figures of 1893. The value of the output of the factories of the state is obtained with considerable elaboration every ten years, but approximate figures are also obtained every year. The following is a comparison of the returns for 1891 and 1901 under some of the principal headings ; the figures for 1891 have been slightly altered from those previously published, so as to place them on the same basis as the returns for 1901 :—

	1891.	1901.
	No.	No.
No. of Establishments .....	3,056	3,373
Horse-power used .....	28,061	40,823
Persons employed—Males .....	42,728	54,461
Females .....	5,230	11,674
Total .....	47,958	66,135
	£	£
Value of materials treated .....	8,172,383	13,815,100
Value of fuel used .....	431,543	496,615
Amount of wages paid .....	4,272,704	4,943,079
Total value of output .....	16,807,132	24,393,471
Value added to materials during process of manufacture .....	8,203,206	10,081,756

These figures present some very interesting features. The increase in the value of material used was equal to 69·05 per cent., in the value of fuel 15·08 per cent., of wages 15·69 per cent., and in the value added to materials in the process of manufacture or treatment 22·90 per cent. The increase in the added value, compared with the increase in the wages paid, indicates the great change that has taken place in the methods of production—the more extensive use of machinery and the employment of machinery of a better class.

Of the 66,135 workers employed in 1901, 31,109 found employment in connection with industries the products from which come into competition with imported goods, 3,979 were engaged in domestic industries for the treatment of perishable produce required for immediate use, and 31,047 in other industries called into existence by the natural resources of the state

The number of factories and industrial establishments of various sizes, with the number of hands employed in each class during 1901, was as follows:—

Number of Hands employed by each Establishment.	Number of Establishments.	Total number of Hands.
Under 4 hands .....	519	1,282
4 hands.....	361	1,444
5 to 10 hands .....	1,197	8,369
11 to 20 „ .....	628	9,155
21 to 50 „ .....	421	13,176
51 to 100 „ .....	137	9,529
101 hands and upwards .....	105	23,180
Total.....	3,368	66,135

#### MANUFACTORIES OF QUEENSLAND.

In Queensland systematic statistics relating to manufactories have been taken only since 1892. Until the year 1900, no details were available with reference to the employment of males and females, and the numbers for previous years have therefore been estimated. The figures for the last ten years are as follow:—

Year.	Establishments.	Persons employed.		
		Males.	Females.	Total.
1892 .....	1,329	11,529	1,840	13,369
1893 .....	1,391	12,434	2,000	14,434
1894 .....	1,323	13,124	2,100	15,224
1895 .....	1,397	16,128	2,600	18,728
1896 .....	1,332	17,013	2,720	19,733
1897 .....	1,682	19,100	3,060	22,160
1898 .....	1,864	20,830	3,340	24,170
1899 .....	2,172	23,440	3,760	27,200
1900 .....	2,019	23,138	3,766	26,904
1901 .....	2,062	23,431	3,692	27,123

The value of materials used in Queensland industries is £4,718,998, the wages paid £2,283,400, and the value of production £8,704,195; the value added to materials in the process of manufacture is therefore £3,985,197. When the smallness of the population of Queensland and the extent of the importation of manufactured goods are considered, the value of the output of the factories must appear very large, the

annual wages bill being nearly half, and the value added in the processes of manufacture more than half, that set down for Victoria. Queensland has the advantage of the important sugar-refining and meat-preserving industries, the combined output of which amounts to slightly over £3,400,000, or nearly 40 per cent. of the total production of all the manufacturing industries of the State. The figures relating to these two industries are worthy of attention, and are dealt with at some length in another place.

## MANUFACTORIES OF SOUTH AUSTRALIA.

In South Australia returns were obtained from manufactories in 1892, but in the following three years no information was obtained; since 1895, however, the returns have been collected annually. The following are the available figures:—

Year.	Establishments.	Males.	Females.	Total Hands employed.
1892	815	9,642	1,847	11,489
1896	767	10,974	1,811	12,785
1897	768	10,930	2,027	12,957
1898	766	12,296	2,085	14,381
1899	841	12,941	2,214	15,155
1900	1,036	14,800	2,859	17,659

## MANUFACTORIES OF WESTERN AUSTRALIA.

In Western Australia, the manufacturing industry has advanced very rapidly in importance, and the number of hands employed now exceeds eleven thousand. The following are the figures for the last five years:—

Year.	Establishments.	Males.	Females.	Total Hands employed.
1897	413	8,683	408	9,091
1898	485	8,521	613	9,134
1899	476	8,641	766	9,407
1900	507	9,440	880	10,320
1901	537	10,238	1,062	11,300

## MANUFACTORIES OF TASMANIA.

Tasmania has several long-established industries, but the employment afforded has been very limited. The opening up of the mines in the west coast of the island, however, has had a stimulating effect upon the local



industries, as may be seen from the figures given below. Commencing with 1886, when the returns relating to manufactories were first collected, the number of establishments and of hands employed therein were as follows :—

Year.	Establishments.	Males.	Females.	Total Hands employed.
1886	271	2,030	77	2,107
1887	249	1,968	74	2,042
1888	250	2,015	50	2,065
1889	232	2,144	35	2,179
1890	237	2,147	57	2,204
1891	215	2,019	33	2,052
1892	205	1,641	52	1,693
1893	204	1,407	20	1,427
1894	201	1,546	34	1,580
1895	211	1,713	41	1,754
1896	215	2,110	34	2,144
1897	290	3,272	206	3,478
1898	288	3,438	191	3,629
1899	280	3,629	355	3,984
1900	304	3,964	327	4,291

#### MANUFACTORIES OF NEW ZEALAND.

In New Zealand information regarding the manufacturing industry is obtained only at the quinquennial census. The following statement shows the progress made since 1886 :—

Year.	Establishments.	Hands employed.		
		Males.	Females.	Total.
1886	1,946	19,601	2,494	22,095
1891	2,254	22,664	2,969	25,633
1896	2,440	22,945	4,391	27,336
1901	3,668	38,094	10,624	48,718

The foregoing figures show very marked progress during the last five years, and an analysis of the returns shows that this progress has been general amongst all classes of industries. Adjusting the figures for the purpose of comparison with those of New South Wales, Victoria, and Queensland, the following results are obtained :—

	1900.	£
Value of materials operated on, including fuel.....		9,409,787
Wages paid .....		3,511,590
Total output.....		16,339,450
Value added to materials during process of manufacture .....		6,929,663

## VALUE ADDED BY PROCESSES OF MANUFACTURE OR TREATMENT.

The figures relating to the value of production afford material for some interesting comparisons. Taking the four States for which there is complete information, the value of materials used—with which is included fuel—and the output were as follows:—

State.	Value of Materials used.	Value of Output.	Value added in the Processes of Treatment or Manufacture.
	£	£	£
New South Wales.....	14,311,715	24,393,471	10,081,756
Victoria.....	11,040,291	18,512,680	7,472,389
Queensland.....	4,718,998	8,704,195	3,985,197
New Zealand.....	9,409,787	16,339,450	6,929,663

Taken by themselves, neither the value of materials used nor the value of output has any statistical importance—but their difference, represented in the last column as the value added in the processes of treatment or manufacture, is the sum which is shared between labour and capital. In the following statement the term wages represents the amount paid to employees, including managers, clerks, carters, and the like, as well as those who are more directly engaged in the processes of manufacture. The difference between the value added in the processes of treatment, and the amount of wages paid, represents the return on capital, including interest on money invested, rent, insurance, depreciation, &c., and the proprietor's gains from carrying on his business. Dividing the so-called added value into these two parts, the following is the result:—

State.	Added value.	Wages.	Profits, interest, rent, insurance, &c.	Proportion of Wages to total added value.
	£	£	£	per cent.
New South Wales.....	10,081,756	4,943,079	5,138,677	49·0
Victoria.....	7,472,389	4,589,412	2,882,977	61·4
Queensland.....	3,985,197	2,283,400	1,701,797	57·3
New Zealand.....	6,929,663	3,511,590	3,418,073	50·7

It will be seen that the largest proportion of the value added to materials during the process of treatment falls to the Victorian wage-earners, and the least to those of New South Wales. The question is,

however, one that admits of much discussion as to the true meaning of the figures, and further light will be thrown on the subject by a consideration of the details afforded by the Statistical Registers of the various states.

## CLASSES OF INDUSTRY.

The information in regard to industrial establishments is not given by the various statistical departments in precisely the same form, and any summary of the various industries must be looked upon as more or less approximate. The appended classification follows the lines adopted in most of the states :—

Class of Industry.	Commonwealth.		New Zealand.		Australasia.	
	Males.	Females.	Males.	Females.	Males.	Females.
Treating raw material, the product of pastoral pursuits ....	6,257	17	2,093	6	8,350	23
Connected with food and drink, or the preparation thereof ..	20,432	3,704	6,641	653	36,073	4,357
Clothing and textile fabrics .....	15,582	20,049	5,654	8,523	21,236	37,572
Building materials .....	23,534	77	8,098	9	31,632	86
Metal works, machinery, &c ....	37,188	60	6,402	13	43,590	82
Shipbuilding, repairing, &c. ....	2,268	99	393	81	2,661	180
Furniture, bedding, &c. ....	4,426	420	1,332	73	5,303	493
Books, paper, printing, &c. ....	13,558	2,024	2,960	662	16,518	3,536
Vehicles, saddlery, and harness ..	7,855	117	2,197	40	10,052	157
Light, fuel, and heat .....	2,838	71	657	150	3,495	221
Miscellaneous .....	11,015	2,537	1,617	414	12,632	2,951
Total .....	153,953	39,084	38,094	10,024	192,047	49,708

Distributing the total just set down for the Commonwealth amongst the various states the results shown in the following table are obtained. The information in regard to Tasmania is incomplete and it has been necessary to estimate the figures regarding two classes of industries, viz., those relating to furniture, &c., and vehicles, saddlery and harness. No information is available regarding ship-building, &c.; but as this industry has not attained any importance in Tasmania no attempt has been made to ascertain the actual employment afforded therein. The Tasmanian returns appear to be confined to certain leading employments,

and if the minor industries had been included it is probable that the gross number of hands employed would have shown a total of 6,000.

Class of Industry.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.
Treating raw material, the product of pastoral pursuits .....	2,848	1,023	755	534	66	148
Connected with food and drink, or the preparation thereof .....	10,342	10,441	8,020	2,359	1,066	908
Clothing and textile fabrics .....	14,128	20,707	4,383	3,413	1,459	541
Building materials .....	7,239	5,925	3,461	1,640	4,146	1,200
Metal works, machinery, &c. ....	13,888	9,656	4,737	6,150	2,423	358
Shipbuilding, repairing, &c. ....	1,680	170	386	87	44	....
Furniture, bedding, &c. ....	2,140	1,658	597	71	230	150
Books, paper, printing, &c. ....	5,573	5,905	2,191	1,328	896	589
Vehicles, saddlery, and harness ..	2,541	2,686	1,272	700	473	300
Light, fuel, and heat .....	1,291	977	316	132	153	40
Miscellaneous .....	4,465	6,481	1,005	1,205	339	57
Total .....	66,135	66,529	27,123	17,659	11,300	4,291

#### INDUSTRIES TREATING RAW MATERIALS THE PRODUCT OF PASTORAL PURSUITS.

A consideration of the details relating to the various classes of industry discloses some very interesting features. The hands employed in the industries treating raw material, the product of pastoral pursuits, arranged according to the principal groups, were as follow :—

Class of Industry.	Commonwealth.		New Zealand.		Australasia.	
	Males.	Females.	Males.	Females.	Males.	Females.
Boiling-down & Tallow Refineries	270	....	84	....	354	....
Bone Mills, Manures, &c. ....	241	1	47	....	288	1
Glue, Oil, and Grease .....	251	1	5	....	256	1
Tanneries and Fellmongeries ....	5,405	15	1,957	6	7,452	21
Wool-scouring .....						
Total .....	6,257	17	2,093	6	8,350	23

It is difficult to say if the figures for all the states are compiled upon the same basis. In New South Wales and Victoria wool-scouring works on sheep stations are not included, as the hands are employed in such works only during the shearing season, and frequently for not more than a few weeks. In Queensland there are no establishments classed as tallow-refineries, tallow being incidentally extracted in the process of meat-preserving, and the persons engaged therein are included in the latter industry.

The number of hands employed in treating raw material, the product of the pastoral industries, varies greatly from year to year, and, owing to the decrease in the number of live stock depastured, is much less than in former years. The following is a distribution of the total persons employed in the various states of the Commonwealth :—

Class of Industry.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.
Boiling-down & Tallow Refineries	110	92	23	45	....	....
Bone Mills, Manures, &c. ....	55	130	37	....	20	....
Glue, Oil, and Grease.....	165	43	7	20	....	17
Tanneries and Felhuongeries ....	1,059	} 1,658	688 {	341	46	131
Wool-scouring .....	1,450			128	....	....
Total .....	2,848	1,923	755	534	66	143

Tanning, fellmongering, and wool-scouring afford the largest amount of employment amongst industries of this class, and the details show the goods treated or manufactured in tanneries during the latest year available.

State.	Number Tanned.			
	Hides.	Skins.		
		Calf.	Sheep.	Other.
New South Wales .....	433,299	41,565	3,282,600	32,040
Victoria .....	405,206	169,316	585,886	91,050
Queensland.....	189,000	.....	154,178	.....
Western Australia .....	12,852	.....	11,450	.....
Tasmania .....	*148,344	.....	.....	.....
New Zealand .....	178,075	.. ..	272,775	.....

\* Includes skins.

The foregoing information is somewhat imperfect, but will serve to convey some idea of the development of the industry in each state.

The quantity of wool washed in ordinary wool-scouring establishments cannot be stated with exactitude, but the following figures will give some idea of the extent of the industry. The figures represent the weight of clean wool exported from each state or locally consumed, in accordance with the latest annual returns.

	lb.
New South Wales .....	37,773,481
Victoria .....	6,866,383
Queensland .....	18,252,000
South Australia .....	2,736,000
Western Australia .....	436,460
New Zealand .....	25,793,239

#### INDUSTRIES CONNECTED WITH FOOD AND DRINK.

The industries connected with food and drink afford employment for a large number of hands, the distribution into detailed groups being as shown in the following table. The figures for the most part afford their own explanation. Included under the head of cornflour, oatmeal, and arrowroot are, in the case of Victoria, a small number of hands making macaroni, and some starch makers; these last are few in number, and it was not found possible to exclude them from the persons employed in making farinaceous foods, otherwise they could have been classed elsewhere. Owing to an arrangement between the statistical offices of New South Wales and Victoria, factories dealing with milk products have been included in the list of manufactories, although they cannot rightly be considered as such.

Class of Industry.	Commonwealth.		New Zealand.		Australasia.	
	Males.	Females.	Males.	Females.	Males.	Females.
Aerated Waters .....	3,254	161	437	15	3,691	176
Biscuits .....	1,402	680	454	213	1,946	893
Breweries and Maltsters .....	3,016	9	822	5	4,438	14
Condiments, Coffee, Spices .....	625	331	63	15	688	346
Confectionery .....	1,470	747	158	147	1,628	894
Cornflour, Oatmeal, Arrowroot .....	677	216	19	10	696	226
Distilling .....	274	7	.....	.....	274	7
Flour Mills .....	2,525	15	513	2	3,038	17
Ice Making .....	981	5	5	.....	986	5
Jam, Fruit-canning, Pickles, Vinegar .....	2,469	1,309	178	145	2,647	1,454
Meat-preserving, Refrigerating .....	3,706	136	2,554	62	6,260	198
Milk Products (Butter, Cheese, Condensed Milk) .....	3,516	73	1,182	39	4,698	112
Olive Oil .....	14	10	.....	.....	14	10
Sugar Mills .....	3,782	.....	.....	.....	3,782	.....
Sugar Refineries .....	869	5	256	.....	1,125	5
Salt .....	162	.....	.....	.....	162	.....
<b>Total .....</b>	<b>29,432</b>	<b>3,704</b>	<b>6,641</b>	<b>653</b>	<b>36,073</b>	<b>4,357</b>

Distributing the persons shown above as employed in the Commonwealth amongst the various states, the most noticeable point is the strong position of Queensland, due entirely to the development of the sugar and meat-preserving industries.

Class of Industry.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.
Aerated Waters .....	1,228	1,061	633	181	312	....
Biscuits .....	845	1,073	254	....	....	....
Breweries and Maltsters .....	1,036	1,270	465	356	401	97
Condiments, Coffee, Spices .....	568	243	79	13	53	....
Confectionery .....	805	768	349	218	77	....
Cornflour, Oatmeal, Arrowroot ..	225	352	261	55	....	....
Distilling .....	10	137	26	108	....	....
Flour Mills .....	889	704	201	515	105	126
Ice Making .....	703	87	75	47	74	....
Jam, Fruit-canning, Pickles, Vinegar .....	740	1,957	217	289	....	575
Meat-preserving, Refrigerating ..	1,127	847	1,670	180	....	18
Milk Products (Butter, Cheese, Condensed Milk) .....	1,012	1,546	703	192	44	92
Olive Oil .....	....	....	....	24	....	....
Sugar Mills .....	695	....	3,087	....	....	....
Sugar Refineries .....	450	324	....	100	....	....
Salt .....	....	72	....	90	....	....
<b>Total .....</b>	<b>10,342</b>	<b>10,441</b>	<b>8,020</b>	<b>2,359</b>	<b>1,066</b>	<b>908</b>

There are many important industries in this class the details of which would prove interesting, but only for a limited number is the necessary information available. The most important of these is perhaps the meat-preserving and refrigerating industry, and the following table will give some idea of its development in the various States.

The figures show the latest annual output, those for New South Wales are exclusive of 1,264,743 lb. of tongues preserved during the year.

State.	Sheep and lambs, frozen.	Beef, frozen and chilled.	Rabbits frozen.	Meat Preserved.		
				Beef.	Mutton.	Rabbits.
	carcases.	lb.	No.	lb.	lb.	lb.
New South Wales	963,614	8,138,144	°	5,703,701	7,678,960	.....
Victoria .....	417,721	1,119,115	3,980,460	370,048	270,704	2,945,936
Queensland .....	64,121	90,053,829	.....	29,905,920	2,827,247	.....
New Zealand.....	3,348,123	34,285,328	6,040,047	7,867,440		.....

\* Value £6,233.

The sugar industry has attained considerable dimensions in New South Wales and Queensland. Some details of the industry are given below, but more extended information is given on this subject in the chapter dealing with "Agriculture."

State.	Sugar cane crushed.	Sugar manufactured.	Molasses manufactured.
New South Wales.....	tons. 201,373	tons. 19,518	gallons. 1,300,909
Queensland.....	1,180,091	120,858	3,679,952

Detailed information regarding flour-mills is available for each state excepting South Australia, and the following items have been selected as being of most value in showing the progress made.

State.	Wheat ground.	Other grain ground.	Flour made.
	bushels.	bushels.	tons.
New South Wales.....	9,368,654	35,247	191,504
Victoria.....	8,387,323	81,658	169,739
Queensland.....	1,244,305	53,257	26,093
Western Australia.....	494,193	.....	10,297
Tasmania.....	1,093,871	126,227	22,000
New Zealand.....	4,004,789	762,340	83,017

Breweries afford a large amount of employment, and those of Victoria have attained the most importance and have the largest annual output, as the following figures show.

State.	Beer and Porter made.	Materials used—		
		Sugar.	Malt.	Hops.
	gallons.	cwt.	bushels.	lb.
New South Wales.....	13,253,600	78,540	532,930	665,345
Victoria.....	16,557,236	113,600	608,148	649,812
Queensland.....	5,325,314	.....	.....	.....
Western Australia.....	4,015,490	24,092	152,852	252,310
Tasmania.....	1,622,807	.....	.....	.....
New Zealand.....	7,379,581	21,647	455,035	562,245



## CLOTHING AND TEXTILE FABRICS.

Industries connected with the manufacture of clothing and textile fabrics afford more employment than any other class. The females employed largely outnumber the males, and the excess would be still greater if persons working in their own homes, or in dwelling-houses not classed as factories, had been included. The following table shows the number of males and females employed in this class of industry :—

Class of Industry.	Commonwealth.		New Zealand.		Australasia.	
	Males.	Females.	Males.	Females.	Males.	Females.
Boots and Shoes .....	8,726	3,436	1,906	790	10,632	4,226
Clothing other than Dressmaking and Millinery .....	4,647	14,388	1,199	3,772	5,846	18,160
Dressmaking and Millinery .....	154	8,064	23	2,365	177	11,529
Flax Mills .....	.....	.....	1,698	.....	1,698	.....
Furriers .....	33	49	.....	.....	33	49
Hats and Caps .....	642	890	37	80	679	970
Woolen Mills .....	1,158	600	769	924	1,927	1,524
Water-proof Clothing and Oil Skins	189	685	22	92	211	777
Others .....	33	337	.....	.....	33	337
Total .....	15,582	29,049	5,654	8,523	21,236	37,572

Victoria shows the greatest development in these industries, and employs more hands than any other state in almost every branch of them. The only exceptions are waterproof clothing, where New South Wales employs more hands, and textiles, in which it is surpassed by New Zealand. The colony last named has 1,693 hands employed in woollen mills compared with 1,075 in Victoria and 234 in New South Wales. New Zealand has also 1,698 hands in flax mills; in no other state has the flax industry been established. The following table shows the distribution of employment in the various states of the Commonwealth :—

Class of Industry.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.
Boots and Shoes .....	3,979	4,871	1,401	1,195	352	364
Clothing other than Dressmaking and Millinery .....	5,993	8,454	1,782	} 2,041 {	765	.....
Dressmaking and Millinery .....	2,587	4,038	951		342	.....
Furriers .....	33	49	.....	.....	.....	.....
Hats and Caps .....	330	1,048	97	57	.....	.....
Woolen Mills .....	234	1,075	152	120	.....	177
Water-proof Clothing and Oil Skins	602	272	.....	.....	.....	.....
Others .....	370	.....	.....	.....	.....	.....
Total .....	14,128	20,707	4,383	3,413	1,459	541

There are important boot and shoe factories in each of the states, and the output is attaining considerable proportions, as will be seen from the following figures :—

State.	Articles manufactured.			Value of Output.
	Boots and Shoes.	Slippers.	Uppers.	
	pairs.	pairs.	pairs.	£
New South Wales .....	2,821,724	512,584	72,662	692,253
Victoria .....	3,125,799	92,174	18,639	.....
Queensland .....	510,670	.....	27,746	265,001
Western Australia .....	264,768	.....	10,700	.....
Tasmania .....	*216,960	.....	.....	73,627
New Zealand.....	1,161,873	104,583	166,027	529,254

\* Includes uppers.

The manufacture of textile fabrics is one of the most important industries of New Zealand, and the woollen mills in that colony employ more hands than those in the Commonwealth. The following information shows the output from woollen mills in the various states :—

State.	Wool used.	Articles manufactured.				Value of Output.
		Tweed and Cloth.	Flannel.	Blankets.	Shawls and Rugs.	
	lb.	yds.	yds.	pairs.	No.	
New South Wales ...	685,240	525,020	3,428	5,000	900	57,039
Victoria .....	3,408,526	818,975	2,229,617	49,302	4,600	.....
Tasmania .....	727,000	.....	.....	.....	.....	31,800
New Zealand.....	3,257,319	1,445,867	1,191,234	49,523	26,806	359,352

#### BUILDING MATERIALS.

The grouping of industries under the heading preparation and manufacture of building materials is attended with some difficulty, especially when an attempt is made to give detailed information. The following table shows the employment afforded by these industries in the Commonwealth and New Zealand :—

Class of Industry.	Commonwealth.		New Zealand.		Australasia.	
	Males.	Females.	Males.	Females.	Males.	Females.
Asphalt .....	53	.....	.....	.....	53	.....
Bricks, pottery, earthenware .....	4,893	43	538	.....	5,731	43
Joinery .....	2,888	8	5	.....	2,893	8
Lime, plaster, and cement .....	666	1	184	.....	850	1
Paints and varnishes .....	93	3	31	.....	129	3
Saw-mills .....	13,946	17	6,805	7	20,751	24
Stone-dressing, polishing, modelling and monumental works..	763	5	81	.....	849	5
Wood-turning and carving .....	222	.....	154	2	376	2
Total .....	23,534	77	8,008	9	31,632	86

There appears to be only one establishment in Australasia preparing crude asphalt for industrial purposes, this establishment is at Sydney. There are many so-called asphalt works, that is, works preparing coal tar, sand, and screenings for pavement purposes, but these have been excluded from the returns. The hands employed making earthenware and pottery can be given for only two of the states New South Wales, 150, and South Australia, 76. For the other states these industries are included with brickmaking, and have been so grouped in the accompanying table. The figures relating to saw-mills and joinery appear slightly misleading; but this is due to the fact that the returns for the different states are not compiled on the same basis. In Queensland, Western Australia, and Tasmania the joiners are included with workers in saw-mills, and in New South Wales a number of them are also included with the saw-mill employees. Under the heading of stone-dressing, polishing, modelling and monumental works, the chief employment in all the states is the preparation of tombstones—an industry which might well be omitted from a tabulation of manufactures and works.

Class of Industry.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.
Asphalt .....	53	.....	.....	.....	.....	.....
Bricks, pottery, earthenware ....	1,973	1,582	369	395	370	247
Joinery .....	519	1,928	.....	449	.....	.....
Lime, plaster, and cement .....	276	265	45	81	.....	.....
Paints and varnishes .....	18	43	.....	10	30	.....
Saw-mills .....	4,088	1,621	2,946	629	3,726	953
Stone-dressing, polishing, modelling and monumental works..	229	381	82	61	20	.....
Wood-turning and carving .....	83	105	19	15	.....	.....
<b>Total .....</b>	<b>7,239</b>	<b>5,925</b>	<b>3,461</b>	<b>1,640</b>	<b>4,146</b>	<b>1,200</b>

There is no uniformity in the details published by the various states regarding saw-mills; but the latest information available as to the quantity of timber roughly sawn is given below.

Timber sawn in saw-mills.  
feet.

New South Wales .....	168,440,000
Victoria .....	46,495,885
Queensland .....	140,443,099
Western Australia .....	122,511,605
New Zealand .....	261,583,518

The manufacture of pottery is generally associated with brick-making, and in the following table the products of brickyards and potteries are shown together.

State.	Number of bricks and fire-bricks made.	Value of—	
		Pipes and tiles made.	Pottery, &c., made.
		£	£
New South Wales.....	159,254,000	45,743	36,312
Victoria .....	84,898,000	55,751	19,870
Queensland.....	15,752,146	13,491	
Western Australia .....	30,160,162	.....	.....
Tasmania .....	11,375,598	.....	3,275
New Zealand .....	41,290,316	27,335	7,475

METALS, MACHINERY, &c.

Works connected with the treatment of metals, manufacture of machinery, agricultural implements, and railway rolling stock form a large and growing class of industry. The grouping given below is not by any means satisfactory. Persons engaged in the various processes connected with the extraction of gold from gold-bearing stone are in a sense just as much entitled to be classified in the following tables as those concerned in the reduction of silver, lead, or copper ores. The determination of what constitutes an establishment classifiable as a work or factory is by no means clear. As regards works for the extraction of metals from their ores, the determining factor seems to be the degree of intricacy involved in the process of reduction; and whereas a quartz battery would not be called a factory or work, an establishment using a cyanide plant might be so classified. The distinction is not very logical, but as it has long obtained in these states it is retained here. For the number of persons employed in connection with the extraction of gold, the reader should turn to the chapter on "Mining."

Class of Industry.	Commonwealth.		New Zealand.		Australasia.	
	Males.	Females.	Males.	Females.	Males.	Females.
Agricultural Implements .....	1,451	8	584	2	2,035	10
Brass and copper smelting .....	828	2	.....	.....	828	2
Galvanized iron, sheet iron, tin-smithing.....	1,723	4	597	1	2,320	5
Ironworking, engineering, foundries, &c. ....	17,992	22	3,304	10	21,386	32
Lead works .....	74	1	.....	.....	74	1
Railway carriages, rolling stock manufacture, and repairs....	7,651	22	1,026	.....	9,277	22
Smelting.....	6,313	.....	.....	.....	6,313	.....
Wireworking.....	417	2	.....	.....	417	2
Others.....	739	8	201	.....	940	8
Total .....	37,188	69	6,402	13	43,590	8

In considering this and the subsequent tables, several difficulties in making comparisons will be met with. In Queensland, for example, all metal works, except smelting, are grouped in the one line, which is also the case in several of the other states. In Queensland and Tasmania no hands are shown as being employed in the manufacture and repairs of rolling stock; this, of course, is incorrect, for though little manufacturing may be carried on, all the states make their own repairs. In Victoria 1,629 hands are shown as employed in railway carriage and rolling stock manufacture and repairs as compared with 3,889 in New South Wales. The employment afforded in railway workshops is chiefly in the nature of repairs, but locomotives, passenger carriages, and goods waggons are built in each state. In New South Wales the wages paid in railway workshops amounted in 1900 to £390,284, and in Victoria to £253,218; the repairs in the former state are therefore on a much more extensive scale than in the latter. The number of hands set down as employed in the manufacture of agricultural implements in New South Wales is only 92, few establishments devoting themselves entirely to this business, the manufacture of implements being usually associated with ironworking generally. New South Wales and South Australia possess smelting works on a large scale, affording employment to 3,008 hands in the first-named state, and to 2,443 in the latter. The chief smelting works of New South Wales are situated at Cockle Creek, near Newcastle, and at Dapto, in close proximity to the coal-fields. The chief ores treated are copper, tin, silver, and lead, partly the production of the state itself, and partly of Tasmania, South Australia, Western Australia, Queensland, and New Caledonia. The smelting works of South Australia are situated at Port Pirie, and deal with silver and lead ore from Broken Hill. The number of hands employed in each state is shown in the following table:—

Class of Industry.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.
Agricultural Implements .....	92	1,057	.....	264	46	.....
Brass and copper smelting .....	332	469	.....	29	.....	.....
Galvanized iron, sheet iron, tin-smithing .....	710	752	.....	265	.....	.....
Ironworking, engineering, foundries, &c. ....	5,319	5,132	3,934	1,339	1,432	358
Lead works .....	23	52	.....	.....	.....	.....
Railway carriages, rolling stock manufacture, and repairs .....	3,889	1,629	.....	1,205	950	.....
Smelting .....	3,008	59	803	2,443	.....	.....
Wireworking .....	268	151	.....	.....	.....	.....
Others .....	247	355	.....	145	.....	.....
<b>Total .....</b>	<b>13,888</b>	<b>9,656</b>	<b>4,737</b>	<b>6,190</b>	<b>2,428</b>	<b>358.</b>

#### SHIP-BUILDING, REPAIRING, &c.

The industries depending upon shipping have not attained large dimensions in any of the states, and as regards ship-building itself, the use of iron instead of wood for the frames and hulls of vessels has

injuriously affected a promising industry, as the woods of Australia are eminently fitted for ship-building purposes. The following is a statement of the persons employed :—

Class of Industry.	Commonwealth.		New Zealand.		Australasia.	
	Males.	Females.	Males.	Females.	Males.	Females.
Docks and ships .....	1,384	.....	32	.....	1,416	.....
Sails, tents, and tarpaulins .....	136	99	150	81	286	180
Ship and boat building and repairs .....	748	.....	211	.....	950	.....
Total .....	2,268	99	303	81	2,661	180

In industries connected with ship-building and repairing, New South Wales has a far larger number of hands employed than has any other state. The chief part of the business is in connection with the docking and repairing of ships, although there are several establishments engaged exclusively in ship and boat building.

Class of Industry.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania
Docks and ships .....	1,280	104	.....	.....	.....	.....
Sails, tents, and tarpaulins .....	184	51	.....	.....	.....	.....
Ship and boat building and repairs .....	216	15	386	87	44	.....
Total .....	1,680	170	386	87	44	.....

#### FURNITURE, BEDDING, &c.

As Australia and New Zealand produce various kinds of wood admirably adapted to the requirements of the furniture trades, it can hardly be said that the industry has attained a development equal to its opportunities. As showing the possibilities of the industry, it may be mentioned that the value of furniture imported into the Commonwealth during 1900 was £266,700, and of bedding, flock, and upholstery, £65,800; while the value of furniture, bedding, flock, and upholstery imported into New Zealand was £45,450. The employment afforded by the industry was :—

Class of Industry.	Commonwealth.		New Zealand.		Australasia.	
	Males.	Females.	Males.	Females.	Males.	Females.
Bedding, flock, upholstery .....	769	238	64	1	833	239
Billiard-tables .....	31	.....	7	.....	38	.....
Furniture .....	3,416	86	1,248	67	4,659	153
Picture-frames .....	144	94	19	3	163	97
Window-blinds .....	66	2	49	2	115	4
Total .....	4,426	420	1,882	73	5,808	493

The manufacture of furniture, bedding, &c., in the Commonwealth affords employment to 4,846 persons, of whom 2,140 are in New South Wales and 1,658 in Victoria. No information is published as to the number employed in Tasmania, but, from inquiries made, it is estimated that 150 persons find employment in this industry. The distribution in the various states is as follows :--

Class of Industry.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.
Bedding, flock, upholstery .....	481	361	138	27	.....	.....
Billiard-tables .....	31	.....	.....	.....	.....	.....
Furniture .....	1,501	1,162	459	.....	230	150
Picture-frames .....	100	94	.....	44	.....	.....
Window-blinds .....	27	41	.....	.....	.....	.....
Total .....	2,140	1,658	597	71	230	150

#### BOOKS, PAPER, PRINTING, &c.

The different industries connected with printing, bookbinding, paper-making, &c., afford work to 20,104 persons. The great bulk of these are employed in the various processes of printing, actual manufacturers being comparatively few in number. Australia and New Zealand produce many excellent paper-making materials; nevertheless, only 288 persons are employed in paper-making, and a large proportion of the output of the mills consists of ordinary brown or wrapping papers.

Class of Industry.	Commonwealth.		New Zealand.		Australasia.	
	Males.	Females.	Males.	Females.	Males.	Females.
Electrotyping and stereotyping ..	69	10	.....	.....	69	10
Paper bags, boxes, &c. ....	331	478	24	57	355	535
Paper .....	157	37	79	19	236	56
Photo-engraving .....	43	15	.....	.....	43	15
Printing and bookbinding .....	12,942	2,381	2,852	586	15,794	2,967
Printing materials .....	16	3	5	.....	21	3
Total .....	13,558	2,924	2,960	662	16,518	3,586

There are several difficulties in the way of making comparisons regarding these industries. Under the heading of electrotyping and stereotyping and photo-engraving no persons are set down in any state but New South Wales. As this cannot be the case, it must be presumed that persons employed in these pursuits in the other states are included with printing, bookbinding, &c. Under the head of printing are included the composing and mechanical staff of the newspaper offices—persons whom it takes a very wide definition to bring in under

the term "manufacturers." The following table shows the employment afforded in the various states :—

Class of Industry.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.
Electrotyping and stereotyping ..	79	.....	.....	.....	.....	.....
Paper bags, boxes, &c. ....	235	241	77	188	18	.....
Paper .....	.....	194	.....	.....	.....	.....
Photo-engraving .....	58	.....	.....	.....	.....	.....
Printing and bookbinding .....	5,151	5,455	2,114	1,136	873	589
Printing materials .....	.....	15	.....	4	.....	.....
Total .....	5,573	5,905	2,191	1,328	896	589

## VEHICLES, SADDLERY, AND HARNESS.

In connection with the manufacture and repair of vehicles, saddlery, harness, &c., there are 10,209 hands employed. The great bulk of the work done in connection with coaches and waggons is repairing; but there are establishments in all the states where vehicles of all classes are manufactured.

Class of Industry.	Commonwealth.		New Zealand.		Australasia.	
	Males.	Females.	Males.	Females.	Males.	Females.
Bicycles .....	332	50	378	17	710	67
Coaches and waggons .....	5,354	9	1,185	.....	6,539	9
Perambulators .....	45	6	.....	.....	45	6
Saddlery and harness, whips, &c... .	2,058	52	634	23	2,722	75
Spokes .....	36	.....	.....	.....	36	.....
Total .....	7,855	117	2,197	40	10,052	157

It will be seen that the employment afforded by these industries is proportionately largest in the states where communication over long distances is still effected by means of coaches and waggons. No hands are set down in the statistics of Tasmania as employed in these industries. It is probable there must be at least 300 so employed, and this figure appears in the following table :—

Class of Industry.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.
Bicycles .....	52	194	.....	106	30	.....
Coaches and waggons .....	1,777	1,974	636	406	320	250
Perambulators .....	24	27	.....	.....	.....	.....
Saddlery and harness, whips, &c... .	652	491	636	188	123	50
Spokes .....	36	.....	.....	.....	.....	.....
Total .....	2,541	2,086	1,272	700	473	300



INDUSTRIES CONNECTED WITH THE PRODUCTION OF LIGHT,  
FUEL, AND HEAT.

Industries connected with the production of fuel, heat, and light do not afford employment to many hands. The following table shows 3,716 hands, of whom 2,331 are employed in gas-works, 797 in electric-lighting works, 319 in coke-making, and 269 in manufacturing matches. Gas-supply gives employment to far more persons than the table shows—possibly to twice as many—but the additional hands are not employed in gas making, but in laying down pipes and other work connected with gas supply.

Industry.	Commonwealth.		New Zealand.		Australasia.	
	Males.	Females.	Males.	Females.	Males.	Females.
Coke .....	319	.....	.....	.....	319	.....
Electric light .....	740	5	52	.....	792	5
Gas .....	1,759	.....	568	4	2,327	4
Matches .....	20	66	37	146	57	212
Total .....	2,838	71	657	150	3,495	221

Only in New South Wales is the number of hands employed in each industry specified. The coke-workers in Victoria are included with hands employed in gas-works, and coke workers and hands employed in electric-lighting are grouped together in Queensland. The number of hands employed in manufacturing candles is not included in the following table. The soap and candle industries are usually worked together, so that it is not possible to separate the hands employed, which are accordingly classified under the heading of soap and candle workers, in the last group of the series.

Industry.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.
Coke .....	319	.....	.....	.....	.....	.....
Electric light.....	322	266	58	.....	99	.....
Gas .....	650	625	258	132	54	40
Matches .....	.....	86	.....	.....	.....	.....
Total .....	1,291	977	316	132	153	40

In view of the magnitude attained by gas-works in the various states, the following particulars as to the quantity of coal used and gas made during 1901, may prove interesting:—

State.	Coal used.	Cubic feet of gas produced.
	tons.	
New South Wales .....	182,301	2,138,630,688
Victoria .....	153,455	1,567,649,380
Queensland .....	36,527	305,012,860
Western Australia.....	.....	56,774,370
Tasmania.....	.....	96,637,500
New Zealand .....	.....	786,531,150

## MISCELLANEOUS INDUSTRIES.

Under the heading of miscellaneous are grouped a very large number of manufactures, many of them small, but some of them of considerable importance; amongst the latter may be mentioned—tobacco manufactures, employing 3,017 hands; chaff-cutting and corn-crushing, 1,845 hands; chemical, drug, and patent medicine factories, 1,147 hands; glass-works, 1,108 hands; rope-works, 902 hands; and soap and candle works, 1,763 hands. Further particulars regarding these and the other industries included in the list will be found in the Statistical Registers of the various states.

Class of Industry.	Commonwealth.		New Zealand.		Australasia.	
	Males.	Females.	Males.	Females.	Males.	Females.
Baskets and wickerware, mats and matting .....	214	34	116	10	330	53
Boxes and packing cases .....	157	.....	.....	.....	157	.....
Brooms and brushes .....	412	93	86	42	498	135
Catgut and sausage-skins .....	31	.....	98	.....	129	.....
Chaff-cutting and corn-crushing .....	1,558	21	265	1	1,823	22
Chemicals, drugs, and patent medicines.....	832	186	96	33	928	219
Cooperage .....	506	2	137	1	643	3
Cutlery .....	62	2	2	.....	64	2
Dye works .....	63	68	23	23	91	91
Electro-plating .....	51	.....	11	.....	62	.....
Fancy leather .....	181	32	.....	.....	181	32
Glass (including bottles) .....	897	5	9	.....	876	5
Glass (ornamental) .....	218	2	7	.....	225	2
Jewellery (manufacturing) .....	717	24	.....	.....	717	24
Lamps .....	27	27	.....	.....	27	27
Pianos and organs .....	240	12	11	.....	251	12
Portmanteaux .....	85	12	19	3	104	15
Rope, fishing-lines, and twine.....	533	177	192	.....	725	177
Rubber goods .....	35	.....	3	.....	38	.....
Soap and candles.....	1,464	67	224	8	1,688	75
Surgical and other scientific instruments.....	80	20	.....	.....	80	20
Tobacco, cigars, and cigarettes .....	1,632	1,347	12	26	1,644	1,373
Umbrellas .....	62	189	.....	.....	82	189
Other industries .....	968	217	301	258	1,269	475
<b>Tota .....</b>	<b>11,015</b>	<b>2,537</b>	<b>1,617</b>	<b>414</b>	<b>12,632</b>	<b>2,951</b>

The incorporation of so many diverse trades in one class is not satisfactory, but the use of a general grouping of this kind could only have been avoided by minute sub-divisions of less utility than the table here presented. It will be observed that for many industries no employment is shown for Tasmania. It is hardly to be supposed that such is the case, but the statistics of the island do not furnish any details, probably owing to the fact that the returns were not collected.

Class of Industry.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.
Baskets and wickerware, mats and matting .....	94	76	11	67	.....	.....
Boxes and packing cases .....	157	.....	.....	.....	.....	.....
Brooms and brushes .....	164	233	108	.....	.....	.....
Catgut and sausage-skins .....	.....	31	.....	.....	.....	.....
Chaff-cutting and corn-crushing ..	326	970	.....	283	.....	.....
Chemicals, drugs, and patent medicines .....	404	481	.....	110	23	.....
Cooperage .....	261	109	82	56	.....	.....
Cutlery .....	15	49	.....	.....	.....	.....
Dye works .....	41	76	.....	14	.....	.....
Electro-plating .....	51	.....	.....	.....	.....	.....
Fancy leather .....	117	96	.....	.....	.....	.....
Glass (including bottles) .....	350	467	.....	55	.....	.....
Glass (ornamental) .....	126	94	.....	.....	.....	.....
Jewellery (manufacturing) .....	114	512	.....	75	40	.....
Lamps .....	54	.....	.....	.....	.....	.....
Pianos and organs .....	226	26	.....	.....	.....	.....
Portmanteaux .....	.....	54	43	.....	.....	.....
Rope, fishing-lines, and twine .....	189	454	39	28	.....	.....
Rubber goods .....	35	.....	.....	.....	.....	.....
Soap and candles .....	533	504	154	216	67	57
Surgical and other scientific instruments .....	69	31	.....	.....	.....	.....
Tobacco, cigars, and cigarettes ..	1,030	1,374	240	242	93	.....
Umbrellas .....	41	230	.....	.....	.....	.....
Other industries .....	68	614	323	59	116	.....
Total .....	4,465	6,481	1,005	1,205	339	57

The greatest employment in this class is afforded by tobacco factories, and particulars regarding the quantity of tobacco, cigars, and cigarettes made will be found in the chapter on "Food Supply and Cost of Living." Another important industry is soap and candle-making; the following table shows the quantity of soap and candles manufactured in each state during 1901 :—

State.	Soap manufactured.	Candles manufactured.
	cwts.	lbs.
New South Wales .....	233,700	3,897,468
Victoria .....	132,031	5,299,056
Queensland .....	63,409	.....
Western Australia.....	20,315	1,584,292
Tasmania .....	19,400	887,040
New Zealand .....	92,321	2,989,280

The relative development of the industries of the states may be measured by the information shown in the following table, in which the industries are arranged in three classes, viz.:—First, those connected with the treatment of perishable products for domestic consumption; second, those dependent upon the natural resources of the country; and, third, those the production of which comes into competition with imported goods :—

State.	Employed in domestic industries for the treatment of perishable products for immediate use.		Employed in industries dependent upon the natural resources of the country.		Employed in industries the production from which comes into competition with imported goods.	
	Males.	Females.	Males.	Females.	Males.	Females.
New South Wales..	3,912	67	26,237	4,810	24,312	6,797
Victoria .....	3,771	56	17,970	7,597	25,318	11,817
Queensland .....	1,786	90	11,065	1,677	10,580	1,925
South Australia ...	755	21	8,158	261	5,887	2,577
Western Australia.	817	14	6,080	772	3,341	276
Tasmania .....	189	.....	2,429	72	1,346	255
Commonwealth..	11,230	248	71,939	15,189	70,784	23,647
New Zealand .....	2,446	59	20,155	4,496	15,493	6,069
Australasia .....	13,676	307	92,094	19,685	86,277	29,716

#### PLANT EMPLOYED IN MANUFACTORIES.

The character of the industry chiefly determines the horse-power required and the value of the plant. Thus, in the clothing industries, the average number of persons per 100 horse-power is 892; in industries.

connected with the preparation of food and drink, the average is only 61. The value of the plant, compared with the horse-power, also varies greatly as between the different industries. In industries associated with building materials, the value of plant is only about £71 per horse-power; in furniture trades, £90; while in gas-making it is about £1,610. The following is a statement of the amount of horse-power and value of plant employed in the various groups of industries, according to the classification used in the foregoing pages:—

Class of Industry.	Commonwealth.		New Zealand.	
	Horse-power.	Value of plant.	Horse-power.	Value of plant.
	No.	£	No.	£
Treating raw material, the product of pastoral pursuits .....	5,100	563,696	1,737	97,458
Connected with food and drink, or the preparation thereof .....	50,670	7,123,600	14,728	1,030,812
Clothing and textile fabrics .....	3,642	693,338	3,137	300,153
Building materials .....	23,939	1,934,562	10,123	483,652
Metal works, machinery, &c. ....	18,526	3,068,670	2,778	316,527
Shipbuilding, repairing, &c. ....	1,352	317,069	484	209,878
Furniture, bedding, &c. ....	807	76,579	464	28,249
Books, paper, printing, &c. ....	4,080	1,581,197	1,762	351,958
Vehicles, saddlery, and harness .....	608	144,156	226	38,868
Light, fuel, and heat .....	13,740	1,977,378	2,419	871,653
Miscellaneous .....	6,642	1,073,039	2,031	203,313
Total .....	129,106	18,553,284	39,939	3,962,521

Similar information for each state of the Commonwealth is given below:

## HORSE POWER.

Class of Industry.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.
	No.	No.	No.	No.	No.	No.
Treating raw material, the product of pastoral pursuits .....	2,177	1,306	913	410	137	157
Connected with food and drink, or the preparation thereof .....	13,486	10,788	20,265	4,294	1,274	563
Clothing and textile fabrics .....	680	2,366	194	249	33	120
Building materials .....	7,443	4,753	4,798	1,132	4,148	1,665
Metalworks, machinery, &c. ....	8,107	4,321	1,983	3,030	882	203
Shipbuilding, repairing, &c. ....	922	209	129	92	.....	.....
Furniture, bedding, &c. ....	258	396	88	25	15	25
Books, paper, printing, &c. ....	1,243	1,746	527	279	241	44
Vehicles, saddlery, and harness .....	150	221	60	101	56	20
Light, fuel, and heat .....	4,570	5,386	1,699	36	1,949	100
Miscellaneous .....	1,787	3,056	394	1,145	148	111
Total .....	40,823	34,548	31,050	10,794	8,883	3,008

## VALUE OF PLANT.

Class of Industry.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.
	£	£	£	£	£	£
Treating raw material, the product of pastoral pursuits . . . .	265,133	155,770	86,103	47,730	4,250	4,710
Connected with food and drink, or the preparation thereof . . . . .	1,884,342	1,349,230	3,017,229	602,316	136,033	84,450
Clothing and textile fabrics . . . . .	150,380	371,250	68,447	57,110	13,251	33,000
Building materials . . . . .	469,235	319,400	350,816	100,641	561,270	133,200
Metal works, machinery, &c. . . . .	1,227,701	804,490	392,887	464,078	149,064	30,450
Shipbuilding, repairing, &c. . . . .	197,321	53,970	43,826	20,802	1,150	.....
Furniture, bedding, &c. . . . .	20,336	33,880	11,562	1,987	1,364	2,500
Books, paper, printing, &c. . . . .	510 856	605,260	212,413	117,348	113,320	22,000
Vehicles, saddlery, and harness . . . . .	32,908	45,920	20,968	23,779	15,591	5,000
Light, fuel, and heat . . . . .	712,356	648,220	477,071	4,669	133,062	2,000
Miscellaneous . . . . .	299,827	454,790	79,822	192,840	25,780	19,980
Total . . . . .	5,770,295	4,847,130	4,761,134	1,633,300	1,204,135	337,290

The average value of plant per horse-power of machinery employed ranges from £99 in the case of New Zealand to £153 for Queensland, the average for Australasia being £133. A mere statement of values, however, has no special meaning since the difference in the figures is compatible with two opposite conditions—either the same plant is put to greatest use in the case of New Zealand, or it is of superior character in the case of Queensland.

## VALUE OF PRODUCTION OF MANUFACTORIES.

The gross value of articles produced in manufacturing establishments during 1900, and the value added to materials in the process of treatment can be readily obtained. For New South Wales, Victoria, and New Zealand the information collected at the census is available, and in the other states, where no direct information has been published, there is ample material for the preparation of satisfactory estimates. The production from butter, cheese, and bacon factories and creameries has been excluded from consideration, as it has already been included under the pastoral and dairying industries. The total value of the output from the factories in each state, the value of materials treated and fuel used, the amount of wages paid, and the value added to

materials, fuel, and wages in the process of treatment during 1900, were as follows:—

State.	Value of Materials Treated.	Value of Fuel Used.	Amount of Wages Paid.	Profits of Business, Rent, Insurance, &c.	Total Value of Output.
	£	£	£	£	£
New South Wales.....	13,815,000	497,000	4,943,000	5,139,000	24,394,000
Victoria .....	10,752,000	289,000	4,689,000	2,883,000	18,513,000
Queensland.....	4,588,000	131,000	2,283,000	1,702,000	8,704,000
South Australia .....	3,997,000	152,000	1,390,000	1,592,000	7,131,000
Western Australia .....	1,983,000	83,000	1,176,000	846,000	4,088,000
Tasmania .. .....	753,000	25,000	325,000	323,000	1,426,000
Commonwealth .....	35,888,000	1,177,000	14,706,000	12,485,000	64,256,000
New Zealand .....	9,167,000	243,000	3,512,000	3,418,000	16,340,000
Australasia.....	45,055,000	1,420,000	18,218,000	15,903,000	80,596,000

A striking feature of the information given in this table is the large amount expended on fuel in New South Wales and South Australia, caused by the great consumption of fuel in the smelting works of those states.

The value added in the process of manufacture has been divided so as to show the amount shared amongst the workers and the value which accrued to the proprietors, out of which rent, insurance, depreciation, &c., had to be paid, the balance representing profits on the business. The proportion received by the proprietors varied considerably in the several states, and this will best be seen by considering the percentage added to the value of materials and fuel, and the wages paid.

State.	Percentage added to Cost of Materials, Fuel, and Wages.
New South Wales .....	26·7
Victoria .. .....	18·4
Queensland .....	24·3
South Australia .. ..	28·7
Western Australia.....	26·1
Tasmania.....	29·3
New Zealand .....	26·5

It would appear from the above that in Victoria the amount which accrued to the proprietors represented only 18·4 per cent. on the cost of materials, fuel, and labour as against 29·3 per cent. in Tasmania. As the latter state is not of great importance in regard to its manufacturing, it is hardly necessary to challenge its position; but the Victorian figures demand consideration in spite of the fact that a

liberal allowance has been made for values not included in the census returns. They differ widely from those of New Zealand and New South Wales. It is hardly to be imagined that the manufacturers in Victoria are satisfied with smaller earnings on their investments than those of other states, and the figures relating to that State are therefore presented with considerable diffidence.

The total value of the output from the manufactories of Australasia during 1900 was £80,596,000, of which £46,475,000 represents the value of materials and fuel used, and the balance, £34,121,000, the value added in the process of treatment. This sum is the real value of production from the manufacturing industries, and the following table shows the distribution of the amount in the various industries:—

Class of Industry.	Value of Production.	
	Commonwealth.	New Zealand.
Treating raw material, the product of pastoral pursuits .....	£ 958,700	£ 495,496
Connected with food and drink, or the preparation thereof .....	6,914,517	2,117,049
Clothing and textile fabrics .....	3,172,767	1,099,115
Building materials .....	3,161,137	861,730
Metal works, machinery, &c. ....	5,752,637	817,444
Shipbuilding, repairing, &c. ....	235,738	51,326
Furniture, bedding, &c. ....	538,369	160,287
Books, paper, printing, &c. ....	2,657,900	556,112
Vehicles, saddlery, and harness ..	1,156,944	233,372
Light, fuel, and heat .....	1,763,671	214,734
Miscellaneous .....		322,883
<b>Total .....</b>	<b>27,191,342</b>	<b>6,929,603</b>

The value of production from establishments connected with the preparation of food and drink was the largest, and amounted to £9,031,566. The following table shows the distribution of the total value of £27,191,342 amongst the various states of the Commonwealth:—

Class of Industry.	Value of Production.					
	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.
Treating raw material, the product of pastoral pursuits .....	£ 435,794	£ 252,601	£ 86,221	£ 118,000	£ 26,000	£ 40,000
Connected with food and drink, or the preparation thereof .....	2,835,076	1,575,285	1,863,156	668,000	306,000	167,000
Clothing and textile fabrics .....	1,042,413	1,332,318	320,036	301,000	130,000	47,000
Building materials .....	952,137	805,174	445,826	200,000	533,000	170,000
Metal works, machinery, &c. ....	2,479,458	1,101,408	524,771	1,102,000	487,000	58,000
Shipbuilding, repairing, &c. ....	167,300	28,888	24,550	12,000	3,000	.....
Furniture, bedding, &c. ....	220,434	200,339	63,596	9,000	29,000	16,000
Books, paper, printing, &c. ....	950,771	883,938	321,191	218,000	192,000	92,000
Vehicles, saddlery, and harness ..	266,016	321,192	109,745	89,000	64,000	29,000
Light, fuel, and heat .....	577,363	289,442	101,139	30,000	143,000	16,000
Miscellaneous .....	654,994	681,714	124,963	235,000	54,000	13,000
<b>Total .....</b>	<b>10,081,756</b>	<b>7,472,389</b>	<b>3,985,197</b>	<b>2,982,000</b>	<b>2,022,000</b>	<b>643,000</b>



The value of production from manufactories was largest in New South Wales, where it amounted to £10,081,756, being more than £2,600,000 in excess of the figures shown for Victoria, which, however, are open to grave question. In New Zealand the value was £6,929,663, and in Queensland, £3,985,197; but as a mere statement of the total affords but little idea of the relative production in the various states, the following table has been prepared showing the value of production from the manufacturing industries per head of the population in each state:—

State.	Value of Production from Manufactories.	Value per head of Population.
	£	£ s. d.
New South Wales .....	10,081,756	7 8 11
Victoria .....	7,472,389	6 5 3
Queensland .....	3,985,197	8 2 7
South Australia .....	2,982,000	8 5 6
Western Australia.....	2,022,000	11 10 3
Tasmania .....	648,000	3 15 1
Commonwealth .....	27,191,342	7 5 2
New Zealand .....	6,929,663	9 1 6
Australasia .....	34,121,005	7 11 4

The above table shows that, in proportion to population, Western Australia holds the premier position; but this is due to the higher prices obtained for the products rather than from any great development of the manufacturing industries. New Zealand stands second, and this position is ample evidence of the great expansion which has occurred in the manufacturing industries of that colony during the last few years. Attention has already been directed to the position of Victoria, and it is difficult to believe that the average production per head of population in that state can be £2 16s. 3d. less than in New Zealand, as the published figures seem to indicate.