

# OFFICIAL YEAR BOOK

OF

## SOUTH AUSTRALIA,

1913.

---

SECOND YEAR OF ISSUE.

---

PREPARED UNDER THE AUTHORITY OF THE COMMISSIONER OF CROWN LANDS

BY

DAVID J. GORDON, M.H.R.

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1913.

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## PREFACE.

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THE general scheme of the first issue of the Official Year Book has been observed in this Second Edition. Each Department interested was given the opportunity of revision, and alterations and extensions were made in a few sections. Several new chapters have been added.

THOMAS DUFFIELD,

*Secretary to Commissioner of Crown Lands and Immigration.*

Adelaide, April, 1913.

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# Official Year Book of South Australia.

1913.

**S**OUTH AUSTRALIA was proclaimed a "Province" under the British Crown by Governor Hindmarsh on December 28th, 1836. Captain Matthew Flinders, by coastal exploration in 1802, and Captain Charles Sturt, by following the Murray to its mouth in 1830, attracted attention in London to the southern shores of the Australian Continent. A committee formed in London in 1831 asked the Imperial authorities for a charter to found a new colony in Australia, but the request was not granted. Three years later, August, 1834, "The South Australian Association," assisted by "The South Australian Company," were successful in obtaining an Act of Parliament "to erect South Australia into a British province, and to provide for the colonisation and government thereof."

The Act of Establishment provided "That no person or persons convicted in any Court of Justice in Great Britain or Ireland, or elsewhere, shall at any time, or under any circumstances, be transported as a convict to any place within the limit hereinbefore described." That provision was never violated.

Trial by jury, free passages for emigrants, land sales to cover initial expenses were the underlying principles of the colonisation of the new province. Captain Hindmarsh, R.N., was gazetted as first Governor of South Australia on February 4th, 1836, and in March of the same year the first vessel sailed from London.

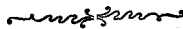
## BOUNDARIES AND AREA.

At the time of the proclamation the boundaries of South Australia were set out as being between the 132nd and 141st degrees of east longitude and between the Southern Ocean and the 26th degree of south latitude. This gave the new province an area of 300,000 square miles. In 1861 80,000 square miles were added by altering the western boundary to the 129th degree of east longitude. Two years later the "Northern Territory" was incorporated by Letters Patent, thus extending the northern boundary to the Indian Ocean.

In 1910 the Northern Territory was transferred to the Commonwealth of Australia, and thus the northern boundary of South Australia was again fixed as the 26th degree of south latitude.

The area of South Australia is 243,244,800 acres.

On January 1st, 1901, the province of South Australia became one of the six original States constituting the Commonwealth of Australia.



## PHYSICAL FEATURES.

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THE Murray flows through the Eastern portion of South Australia. This waterway, and its tributaries, drains half the continent, and the fertilising substances carried by the waters from the semi-tropical area, enriched by luxurious growth, can, by irrigation, be placed upon the valley of the Murray in South Australia with splendid results. This waterway can be made available for irrigating extensive areas of land upon which thousands of persons could find remunerative occupation. The river is navigable for 160 miles from its mouth at all times, and throughout its whole length in South Australia for the greater portion of the year.

### MOUNTAINS.

Twenty-two mountain ranges intersect the State, some attaining the altitude of nearly 4,000ft. During the winter months frost is a frequent visitant of these ranges, and snow occasionally falls on the heights. The annual rainfall in the hills districts varies from 20in. to 30in.

The first of these, the Mount Lofty Range, extends from Cape Jervis to the River Light, and includes the Bluff, Bremer, Bull's Creek, Sellick's Hill, Mount Gould, Barossa, and the Murray Ranges, then continues under the name of Tothill's, Camel's Hump, Bald Hill Range, Brown's Hill Range, Never Never, and Campbell's Ranges to Ulooloo, then to hundred of Hardy, east of Petersburg, as the Porcupine Range. The highest points are Mount Lofty, 2,334ft.; Mount Barker, 1,681ft.; Kaiserstuhl, 1,973ft.; Mount Cone North, 2,601ft.; Razorback, 2,834ft.; Mount Bryan, 3,065ft. above sea level. Its length is about 230 miles, and it has an average width from 15 to 30 miles.

The Flinders Range begins a little north of the River Broughton in latitude 33° 18', passing from 10 to 15 miles east of Spencer's Gulf, and runs northerly to Mount Distance, where it ends, about 30 miles from Lake Blanche. The highest points are Mount Remarkable, 3,178ft.; Mount Brown, 3,200ft.; Mount Arden, 2,750ft.; Mount Serle, 3,060ft.; Mount Benbonyathe, 3,470ft.; Freeling Heights, 3,120ft.; Mount Aleck, 3,700ft.; the highest being St. Mary's Peak, at Wilpena Pound, 3,900ft. above sea level.

Subsidiary ranges are Ragless, Yappala, Elder's, Chace's, Druid. The proximity of the Bunker increases the width of Flinders Range in places to about 50 miles, whilst in narrower places it is only from about five to ten miles wide. It extends for a length of about 260 miles, in sections.

The Hummocks and Barunga Ranges begin at the head of St. Vincent's Gulf and extend northwards for about 50 miles to the River Broughton, and

do not generally exceed two miles in breadth. The highest point is Barn Hill, 1,169ft. above sea level.

The Musgrave Ranges, including the Everard, Tomkinson, Krichauff, Mann, Blyth, and Birksgate Ranges, are situate immediately south of the 26th parallel of latitude, and extend from about 100 to 400 miles west of Oodnadatta, and are about 100 miles wide. The highest points are Mount Woodroffe, 3,786ft. ; Mount Morris, 3,732ft. above sea level.

The Gawler Ranges are a line of hills to the south of Lake Gairdner, extending from the neighborhood of Port Augusta towards Streaky Bay. The highest points are Mounts Miccolo, Double, and Fair View, Nukey Bluff, and Scrubby Peak, none of which exceeds 1,600ft. above sea level. The length of the range is about 200 miles, and breadth from 10 to 20 miles.

Baxter's Range and Middleback Range are small ranges extending southward from the Gawler Ranges, west of Port Augusta, along the west coast of Spencer's Gulf to near Franklin Harbor.

Waroonee and Pualco are detached ranges skirting the Eastern Plains, each about 20 miles long and two miles wide.

Willouran Range, situated south-west of Hergott Springs, is about 30 miles long, north and south, and extends about the same distance westward, the hills becoming disconnected and lower. The highest point is Termination Hill, 1,230ft. above sea level.

Denison Range, to west of Lake Eyre, runs northerly for about 70 miles, and has a width varying from 15 miles at the south end to about five miles at the north.

Stuart Range is situated to the north-west of Lake Torrens, and consists of low detached hills extending for about 60 miles in a north-westerly direction, and is of irregular width, varying from five to 20 miles.

There are a few ranges in the South-East, but none of these have sufficient elevation to be ranked as mountain ranges.

#### GENERAL CHARACTERISTICS OF EACH SYSTEM.

Mount Lofty Range is continuous, rising to height of from 1,000ft. to 2,334ft. above the adjacent plain, intersected by numerous creeks, gullies, and stony spurs ; heavily timbered with stringybark, gum, sheaoak, and wattle. The soil is principally clay mixed with sandstone and slate rubble, with dark alluvial soil in gullies and flats.

Flinders Range, rising to an altitude of nearly 4,000ft., comprises a large portion of the elevated land occupied for pastoral purposes in South Australia. It is a continuous range, consisting of rocky summits and precipitous ravines with numerous spurs and watercourses on the eastern side, and has one general slope on the west. This range is timbered with gum, pine, sandalwood, and acacia. The soil is chiefly brown loam and clay, with sandy and stony patches.



Hummocks Range is a steep high range rising about 2,000ft. above the plain on the eastern side, where there are rough stony spurs and steep gullies; but on the western side less steep and high. This range is timbered with gum, sheoak, and mallee.

Musgrave Ranges, from 2,000ft. to 4,000ft., resemble Flinders Range in extent, altitude, and kind of soil, but are more broken and have fewer water-courses.

Gawler Ranges consist of stony hills from about 200ft. to 1,600ft., small plains of red loam, clay, and sand, with patches of gypsum, the country being timbered with mulga, pine, mallee, and myall.

#### GEOLOGICAL CHARACTERISTICS.

Mount Lofty Range comprises quartzite, grits, and sandstones, felspathic and sandy shales, clay slates, siliceous limestone and marble, mica schist, and conglomerate in strata tilted at a high angle. These are non-fossiliferous, of pre-Cambrian and Cambrian age, and bear evidence of extensive denudation. Overlying these in various places are Tertiary rocks of Eocene age.

The rocks forming Flinders Range are of Ordovician age, similar in most respects to those of Mount Lofty Range, but are higher, steeper, and less denuded, and the patches of Tertiary rocks are of Pliocene age.

Hummocks Range possesses the same geological characteristics as Mount Lofty Range, except that there are no Tertiary rocks.

Musgrave Ranges, including the associated ranges, consist of highly metamorphic rocks intersected by igneous dykes. The varieties of rocks comprise granite, syenite, diorite, dolorite, gneiss, and felspathic and crystalline rocks of various kinds, extensively covered with sand and loam of Pliocene age.

Gawler Ranges are similar geologically to the Musgrave Ranges, except that there is a smaller proportion of metamorphic and igneous rocks, and there are more extensive deposits of Pliocene age.

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## CLIMATE AND RAINFALL.

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**S**OUTH AUSTRALIA enjoys one of the most agreeable and salubrious climates in the world. The State is situated between latitudes 26° and 38° south, and as it is bounded on the southern side by the Southern Ocean, which extends from the West Coast in the Australian Bight for a distance of about 1,500 miles, a considerable portion of the territory may be classed as coastal. During the summer months the heat is at times trying, but owing to the purity and dryness of the atmosphere the high temperatures are not so enervating as lower readings in a moister climate. The clear skies and dry heat of the summer are healthy. Even with a temperature well over 100° in the shade cases of sunstroke are extremely rare, and the heat is seldom so severe as to prevent persons following their ordinary occupations.

The hottest months in the year are December, January, and February, when the temperature away from the coastline frequently exceeds 100° in the shade. November and March are also hot months, but the nights, especially in the former month, are cool and the heat seldom of long duration, rarely reaching 100°, except in the Far North, and, coming in suddenly with a strong northerly wind, is followed by a change to cool or even cold weather. The summer may therefore be regarded as extending from November to March; after that the temperature falls rapidly, seldom exceeding 90° in the shade.

The weather during April and the greater part of May is perfect, and the same remark applies to most of the winter (particularly in the North) and until the end of October. The coldest months are June, July, and August. Over the northern highlands and the Mount Lofty Range the temperature during these months frequently falls below freezing point (32° Fahr.), and frosts, especially during a dry winter, are rather frequent. Snow occasionally falls over the elevated parts of the country, but does not remain on the ground for long. Over the lowlands, more especially along the coastal districts, the range of temperature is not extreme. Nevertheless, the cold is sometimes felt very much during the winter months, because of the contrast it emphasises between the summer temperatures and the genial weather which prevails in other portions of the year. Near the coast the summer heat is greatly reduced by the cool breezes which blow from off the sea, and in settled weather these winds set in regularly each day towards noon. A striking example of the cooling effect of the sea breeze and the influence of the ocean on the

temperature is shown by the records at Robe, on the South-East coast, which are shown in the accompanying table. The climate at this station is undoubtedly the most equable in the State, and it will compare favorably with any other part of the world.

## SUMMER TEMPERATURE IN SOUTH AUSTRALIA (NOVEMBER TO MARCH).

Stations.	NOVEMBER.				DECEMBER.				JANUARY.			
	Mean Max.	Mean Min.	Absolute Highest.	Average No. of Days over 100°.	Mean Max.	Mean Min.	Absolute Highest.	Average No. of Days over 100°.	Mean Max.	Mean Min.	Absolute Highest.	Average No. of Days over 100°.
<del>Adelaide</del> <i>Adelaide</i> William Creek ..... Far North— Lat. 28° 55' S.	91·7	62·8	114·2	7	95·8	67·2	116·4	10	96·6	68·9	119·0	11
Port Augusta ..... Upper North— Lat. 32° 29' S.	84·3	60·0	108·5	3	88·0	63·5	114·2	6	89·4	65·5	114·8	7
Adelaide ..... Central— Lat. 34° 56' S.	78·9	55·4	113·5	1	83·4	58·8	114·2	3	86·6	61·8	116·3	5
Mount Barker ..... Mt. Lofty Range— Lat. 35° 4' S. 1,083ft. above sea level	72·4	47·7	104·3	—	77·1	50·4	106·7	1	79·7	52·9	110·5	2
Port Lincoln ..... West Coast— Lat. 34° 44' S.	72·8	52·8	106·6	—	76·1	55·8	110·2	1	78·2	58·0	111·0	1
Robe..... South-East— Lat. 37° 10' S.	67·3	53·0	95·3	—	70·5	55·0	99·1	—	72·3	56·9	107·0	—

*Mt. G.**Beri  
Keith*

Stations.	FEBRUARY.				MARCH.			
	Mean Max.	Mean Min.	Absolute Highest.	Average No. of Days over 100°.	Mean Max.	Mean Min.	Absolute Highest.	Average No. of Days over 100°.
William Creek ..... Far North— Lat. 28° 55' S.	95·7	69·0	115·0	10	89·0	62·9	110·4	3
Port Augusta ..... Upper North— Lat. 32° 29' S.	90·1	66·1	117·0	6	84·5	61·8	110·9	2
Adelaide ..... Central— Lat. 34° 56' S.	86·0	61·9	113·6	3	80·8	58·9	108·0	1
Mount Barker ..... Mt. Lofty Range— Lat. 35° 4' S. 1,083ft. above sea level	79·7	52·5	105·3	1	74·2	49·7	103·4	—
Port Lincoln ..... West Coast— Lat. 34° 44' S.	78·7	59·0	106·4	1	74·6	56·4	103·0	—
Robe..... South-East— Lat. 37° 10' S.	72·9	56·6	102·3	—	69·6	54·8	96·2	—

## WINTER TEMPERATURE IN SOUTH AUSTRALIA (JUNE TO AUGUST).

Stations.	JUNE.				JULY.				AUGUST.			
	Mean Max.	Mean Min.	Absolute Lowest.	Average No. of Days Under 32°.	Mean Max.	Mean Min.	Absolute Lowest.	Average No. of Days Under 32°.	Mean Max.	Mean Min.	Absolute Lowest.	Average No. of Days Under 32°.
Port Augusta .....	62.9	46.1	33.0	—	61.8	43.4	32.8	—	65.6	45.3	32.0	—
Upper North— Lat. 32° 29' S.												
Yongala .....	53.8	38.7	24.0	4	52.4	36.3	23.8	7	55.8	37.4	24.5	6
Lower North— Lat. 32° 3' S. 1,682ft. above sea level.												
Adelaide .....	60.1	46.6	32.5	—	58.6	44.4	32.0	—	61.9	45.8	32.3	—
Central— Lat. 34° 56' S.												
Mount Parker .....	55.0	41.6	24.4	3	53.6	39.5	25.7	4	56.1	40.5	25.4	3
Mt. Lofty Range— Lat. 35° 4' S. 1,083ft. above sea level.												
Robe .....	56.0	47.8	33.2	—	55.5	46.1	33.3	—	56.7	47.2	34.0	—
South-East— Lat. 37° 10' S.												

B.  
max C.

K. During the hottest months, January and February, the mean maxima temperature at Robe is only 72°·8 and 72°·9 respectively, whilst at Adelaide for a similar period the readings are respectively 86°·6 and 86°·0. With regard to the number of hot days (over 90°), the mean number of days at Robe for the whole summer is only four, whereas Port Lincoln experiences 11 hot days, Mount Barker 25, Adelaide 41, Port Augusta 59, and William Creek 98. The temperature over the highlands, especially the Mount Lofty Range, is much cooler than on the plains, particularly during the nights, which are nearly always cool and pleasant, even during a prolonged spell of heat. At Mount Barker, situated in the Mount Lofty Range, the mean of the night temperatures for January and February is about 9° below the Adelaide records. The above tables give the summer and winter temperatures at representative stations in South Australia, and show the normal and extreme readings experienced, also the average number of days the mercury rises over 100° in the summer, and falls below 32° in the winter.

The prevailing wind at Adelaide in the summer is south-west, blowing off the cool coastal regions into the heated interior, whilst during the winter the direction is reversed, and the wind blows from the north-east, the centre of the continent then being colder than the surrounding ocean.

The following table gives the mean monthly and yearly figures at Adelaide for a large number of meteorological elements, including pressure,

temperature, humidity, and rainfall, the observations in some cases extending over a period of more than 50 years: —

CLIMATOLOGICAL DATA FOR ADELAIDE, S.A.

LAT. 34° 56' S., LONG. 138° 35' E. HEIGHT ABOVE M.S.L. 140FT.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. Corrected to 32° F. Mh. Sea Level and Standard Gravity from 9 a.m. and 3 p.m. Readings	Wind.				Mean Amount of Evaporation.	No. of Days Lightning.	Mean Amount of Clouds 9 a.m., 3 p.m., and 9 p.m.	No. of Clear Days.
		Greatest Number of Miles in One Day.	Mean Hourly Pressure. (lbs.)	Total Miles.	Prevailing Direction				
No. of years over which observation extends.	55	34	34	34	34	42	40	44	30
January .....	29-914	758 19/99	0-37	8,232	S.W. & S.	8-96	2-3	3-5	7-6
February .....	29-951	691 22/96	0-31	7,007	S.W. & S.	7-30	1-9	3-4	7-1
March .....	30-039	592 12/85	0-26	6,908	S.W. to S.E.	5-77	2-2	4-0	6-6
April .....	30-116	773 10/96	0-24	6,389	S.W. & S.†	3-40	1-6	4-9	3-7
May .....	30-123	760 9/80	0-21	6,282	N.E. to N.	1-98	1-8	5-7	1-7
June .....	30-098	750 12/78	0-27	6,779	N.E. to N.	1-22	2-2	6-2	1-2
July .....	30-133	674 25/82	0-25	6,818	N.E. to N.	1-29	1-6	5-8	1-3
August .....	30-160	773 31/97	0-29	7,351	N.E. to N.‡	1-85	2-2	5-7	1-9
September .....	30-042	720 2/87	0-33	7,513	N.E. & S.W.‡	2-82	2-4	5-2	2-6
October .....	29-997	768 28/98	0-36	8,202	S.W. & N.E.‡	4-73	3-4	4-9	3-7
November .....	29-974	677 2/04	0-36	7,848	W.S.W. to S.	6-57	4-0	4-5	5-5
December .....	29-919	675 12/91	0-36	8,194	W.S.W. to S.	8-40	2-8	3-8	7-1
Year { Totals .....	—	—	—	—	—	54-29	28-4	—	50-0
Year { Averages .....	30-034	—	0-30	7,294	S.W.	—	—	4-8	—
Year { Extremes ..	—	773 *	—	—	—	—	—	—	—

\* 1/04/96; 31/8/97. † With tendency N.E. ‡ With tendency S.W. || Equal.

TEMPERATURE.

Month.	Mean Temperature.			Extreme Shade Temperature.		Greatest Range.	Extreme Temperature.		Sea Water Min. 3ft. Below Surface.
	Mean Max.	Mean Min.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of years over which observation extends.	55	55	55	55	55	55	34	51	38
January .....	86-6	61-8	74-2	116-3 26/58	45-1 21/84	71-2	180-0 18/82	36-5 14/79	70-8
February .....	86-0	61-9	73-9	113-6 12/99	46-4 13/05	67-2	170-5 10/00	36-7 24/78	70-9
March .....	80-8	58-9	69-9	108-0 12/61	44-8 —/57	63-2	174-0 17/83	33-8 27/80	68-2
April .....	73-3	54-6	64-0	98-0 10/66	39-6 15/59	58-4	155-0 1/83	30-3 27/08	64-0
May .....	65-3	50-0	57-7	88-3 5/66	36-9 +	51-4	148-2 12/79	25-9 10/91	59-1
June .....	60-1	46-6	53-4	76-0 23/65	32-5 27/76	43-5	138-8 18/79	24-5 20/79	54-7
July .....	58-6	44-4	51-5	74-0 11/06	32-0 24/08	42-0	134-5 26/60	23-3 25/11	52-2
August .....	61-9	45-8	53-8	85-0 31/11	32-3 17/59	52-7	140-0 31/92	23-5 7/88	53-3
September .....	66-2	47-8	57-0	90-7 23/82	32-7 4/58	58-0	160-5 23/82	26-2 15/08	56-5
October .....	72-4	51-3	61-9	100-5 30/59	36-0 —/57	64-5	158-8 19/82	28-5 7/96	60-7
November .....	78-9	55-4	67-1	113-5 21/65	40-8 2/09	72-7	166-9 20/78	31-5 2/09	65-2
December .....	83-4	58-8	71-1	114-2 14/76	43-0 †	71-2	175-7 7/99	32-5 4/84	68-6
Year { Averages ..	72-8	53-1	62-9	—	—	—	—	—	62-0
Year { Extremes ..	—	—	—	116-3 26/1/58	32-0 24/7/08	84-3	180-0 18/1/82	23-3 25/7/11	—

\* Taken at lighthouse at entrance to Port River. † 26/1895; 24/1904. ‡ 16/1861; 4/1906.

## HUMIDITY, RAINFALL, AND DEW.

Month.	Humidity.				Rainfall.				Dew.	
	Mean 9 a.m.	Highest Mean.	Lowest Mean.	Mean Monthly.	Mean No. of Days Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean Amount of Dew.	Mean No. Days Dew.
No. of years over which observation extends.	44	44	44	73	73	73	73	73	—	40
January .....	36	50	33	0.74	4	4.00 1850	nil *	2.30 2/89	—	4
February .....	42	56	37	0.60	4	2.67 1858	nil †	1.81 5/90	—	5
March .....	47	58	40	1.06	6	4.60 1878	nil ‡	3.50 5/78	—	10
April .....	57	72	44	1.88	9	6.78 1853	0.06 1910	3.15 5/60	—	14
May .....	69	76	58	2.77	14	7.75 1875	0.20 1891	2.47 5/75	—	15
June .....	77	84	70	3.09	16	7.80 1847	0.42 1886	1.45	—	15
July .....	76	87	72	2.66	16	5.38 1855	0.37 1899	1.75 10/65	—	17
August .....	71	77	65	2.51	16	6.24 1852	0.96 1911	2.23 19/51	—	16
September .....	63	72	54	1.94	14	4.61 1840	0.45 1896	1.42 25/93	—	15
October .....	52	67	44	1.75	11	3.83 1870	0.31 1888	2.24 16/08	—	12
November .....	44	57	38	1.13	8	3.55 1851	0.04 1885	1.88 28/58	—	7
December .....	39	50	33	0.93	6	3.98 1861	nil 1904	1.89 29/40	—	4
Year { Totals .....	—	—	—	—	—	—	—	—	—	134
{ Averages .....	54	—	—	21.06	124	—	—	—	—	—
{ Extremes .....	—	87	33	—	—	7.80 6/47	nil †	3.50 5/3/78	—	—

\* 1848, &c. † 1848, &c. ‡ 1859, &c. § January, February, March, and December, various years. || 2/49, 25/84.

A rainfall map is issued by the Meteorological Department giving the average yearly rainfall throughout South Australia. In compiling the map only stations with at least 15 years' records have been used, and this necessarily restricted the number; but, as the selected stations are well distributed and representative, and cover on the average nearly 30 years, it may be fairly assumed that the isohyetal lines drawn on the chart are near the truth, and will not be materially altered by the rainfall of subsequent years; it should be stated, however, that the trend of the 15in. line through the upper portion of the South-East District must be regarded as only an approximation, as but one station (Lameroo, and that with only 11 years' record) was available as a guide.

The main factors which determine the rainfall distribution of the State are the proximity of the Southern Ocean and the long extent of coastline exposed to the free and unrestricted sweep of the westerly trade rains; the rainfall over all the coastal areas is, therefore, essentially a winter one, and practically all available for agricultural purposes, as from 70 per cent. to 90 per cent. of the annual totals in the more settled areas falls during the growing period, April to October.

Though physiographic influence is less marked than in South-Eastern Australia, the effect of elevation is shown by the heavier rainfalls on the eastern sides of Spencer's Gulf and Gulf St. Vincent, and by the northerly extension of the 10-in. isohyetal from Port Augusta to beyond Blinman. The abundant rains on the Mount Lofty Range to the east of Adelaide are a conspicuous example of this, the annual total on the crest of the range reaching to nearly 47in.

CLIMATE AND RAINFALL.

The following table, compiled from the records of 341 stations, shows the mean annual rainfall for each district of South Australia derived from the mean of all the stations in each district with at least 15 years' records:—

District.	Number of Stations with Fifteen Years' Record and over.	Mean Annual Rainfall.	Average Number of Years for Mean.	Variation.
C. Far Northern and North-Western Interior	44	In. 6-83	26	From 12-95in. at Blinman, and 10-45in. at Yardea. to 3-79in. at Kanowana
D. District west of Spencer's Gulf	26	15-64	26	From 26-64in. at Green Patch, to 8-17in. at Pandurra
E. North-East	16	8-45	26	From 10-22in. at Cavenagh, to 7-03in. at Curramona
F. Upper North (Eastern Division)	15	12-07	30	From 17-43in. at Mannanarie to 8-11in. at Barattia
G. Upper North (Western Division)	36	14-31	27	From 27-24in. at Wirrabara Forest, to 7-12in. at Yarley
H. Lower North (Eastern Division)	8	15-65	32	From 22-39in. at Mintaro, to 10-67in. at Mongolata
I. Lower North (Central Division)	30	18-30	31	From 27-54in. at Watervale, to 13-11in. at Port Wakefield, and 14-11in. at Mundooro
J. Lower North (Western Division)	7	14-63	28	From 15-55in. at Bute, to 13-23in. at Port Pirie
K. Yorke's Peninsula	19	16-67	31	From 20-18in. at Maitland, to 13-95in. at Ardrossan
L. Adelaide Plains	21	19-96	30	From 27-68in. at "Stonyfell," to 16-47in. at Stockyard Creek
M. West of Murray Range	18	19-47	29	From 22-23in. at Angaston, to 16-10in. at Stockport
N. Mount Lofty Range (Eastern Division)	25	30-06	30	From 43-24in. at Bridgewater, to 17-33in. at Watalunga (Queen's Own Town), and 17-90in. at Kanmantoo
O. Mount Lofty Range (Western Division)	18	28-87	30	From 46-99in. at Stirling West, to 16-29in. at Cape Jervis
P. Kangaroo Island and South Coast	10	21-92	33	From 26-95in. at Hindmarsh Valley, to 17-91in. at Goolwa
Q. Upper Murray Valley	6	10-19	25	From 11-46in. at Overland Corner, to 8-80in. at Murtho
R. Lower Murray Valley and Murray Flats	20	13-70	27	From 19-71in. at Truro, to 9-28in. at Morgan
S. South-East	22	23-91	31	From 33-48in. at Lake Leake and 32-01in. at Mount Gambier, to 16-62in. at Lameroco
C. E.	Pastoral Interior	From 12-99in. at Blinman, to 3-79in. at Kanowana		
D. and F. to S.	Agricultural Settled Districts	From 46-99in. at Stirling West (Mount Lofty Range), to 7-12in. at Yarley (head of Spencer's Gulf)		
		From 60 stations with an average record of 26 years the mean annual fall = 7-26in.		
		From 281 stations with an average record of 29 years the mean annual fall = 18-93in.		

The chart shows clearly the rapid decrease of the rainfall from the agricultural areas northwards to the interior, where, in the Lake Eyre basin, which is below sea level, the average annual fall—largely made up of capricious summer storms—is under 5in., probably the driest part of the continent.

The area in South Australia enjoying varying quantities of rainfall, as shown on the map, is as follows :—

	Rainfall.	Area in Square Miles. South Australia.
Over 40 inches	.. .. .	64
From 30 to 40 inches	.. .. .	984
“ 25 to 30 “	.. .. .	3,197
“ 20 to 25 “	.. .. .	10,630
“ 15 to 20 “	.. .. .	14,190
“ 10 to 15 “	.. .. .	33,405
Under 10 inches	.. .. .	317,600

#### CLIMATE AND DEATH RATE.

There cannot be any cause for complaint about the climate of a country which has such low death rates as those recorded in the metropolitan area and for the whole State. The death rate per 1,000 of mean population of Adelaide and South Australia is as follows, over a series of years :—

Year.	Adelaide Muni- cipality.	Adelaide and Suburbs.	South Australia Proper.	Year.	Adelaide Muni- cipality.	Adelaide and Suburbs.	South Australia Proper.
1896..	22-81	14-20	11-71	1904	20-38	11-94	10-17
1897..	22-29	14-23	11-54	1905	21-14	11-70	10-14
1898..	26-77	16-44	13-48	1906	21-79	11-91	10-29
1899..	24-21	14-40	12-53	1907	21-71	11-61	9-72
1900..	20-31	12-74	10-65	1908	24-84	11-82	9-72
1901..	22-43	13-13	11-11	1909	24-85	11-75	9-28
1902..	23-82	13-82	11-77	1910	24-62	12-32	9-59
1903..	21-36	12-67	10-71	1911	—	—	9-32



## CONSTITUTION AND PARLIAMENT.

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FOR a few years after the proclamation of the province colonists had no voice in the government. The Act constituting South Australia a British province, passed in 1834 in the reign of King William IV., provided that a constitution should be granted to the inhabitants "as soon as they numbered 50,000 souls." Under this Act a Board of Colonisation Commissioners was appointed in London. This board controlled land sales and emigration, and for a brief period exercised considerable authority in other directions. Until 1851 executive control was vested in the Governor and a council, appointed by His Excellency and dominated by him. After 15 years' experience of indirect management by a board 16,000 miles away, in a period when communication was intermittent, and direct government on the spot was vested in one man responsible only to the Imperial authorities, who knew little of colonial affairs, a measure of self-government was granted. The population at that time consisted of 66,538 persons—37,321 males and 29,217 females.

The Imperial Act authorised the formation of a Legislative Council not exceeding 24 members, one-third of whom were to be nominated by the Governor and two-thirds elected by householders and property owners. The qualification for membership in the first legislature was a freehold property of the annual value of £100, or of the total value of £2,000. This council had distinct limitations, having no power to deal with the land, which remained in the hands of the representative of the Imperial Government. During the next few years political growth was rapid, and in 1853 a Bill constituting a bicameral legislature was passed, but was disallowed. By 1856, however, the pioneers were in possession of a Constitution the essential principles of which remain. In that year the bicameral system of government was introduced, for the Act of 1856 created two Houses—a Legislative Council, consisting of 18 members elected on a property qualification franchise, the whole province voting as one electorate; and a House of Assembly, composed of 36 members, elected on the manhood suffrage basis. On the transfer of the Northern Territory to the Commonwealth in 1910 the two members for that constituency retired. Manhood suffrage obtained from the outset in respect to elections for the House of Assembly, and the only variation was the granting of the vote to women in 1894, which made the franchise for that Chamber adult suffrage. Women vote for both branches of the legislature under the same condition as men. In 1887, the system of payment of members was introduced, under which legislators are paid £200 a year. There are six Ministers, who receive a total allowance of £5,000 a year. The State Parliament is triennial, with annual sessions.

The power of both Houses is co-ordinate, excepting that Bills for appropriating any part of the revenue, or for imposing, altering, or repealing taxation

must originate in the Assembly. An attempt on the part of the Upper Chamber in 1857 to exercise a supposed authority to amend a Money Bill was strenuously and successfully resisted by the Assembly. A great political battle, which shook the little province to its very foundations, took place in the year named over the "Tonnage Duties Repeal Bill," and in order to avoid the repetition of such a struggle it was eventually agreed that the Council should not insist on claiming the right to "amend" Money Bills, but should formulate "suggestions." This device has of late years been adopted with good results in Western Australia and Victoria, and by the Commonwealth.

South Australia has also led the way in several important reforms, having been the first State of the Australian group to enjoy elective Houses, manhood, and subsequently adult, suffrage, for one chamber, voting by ballot, payment of Members, and women's suffrage. It was also the first of the States to adopt the principle of taxation of land values, granting the municipal vote to women, legalising marriage with deceased wife's sister, separating Church from State by abolishing State grants to religion, and passing the Real Property Act. The objects of the Real Property Act are to give security and simplicity to all dealings with land, by providing that the title shall depend upon registration; that all interests shall be capable of appearing or being protected upon the face of the registry, and that a registered title or interest shall never be affected by any claim or charge which is not registered. By this system everyone who acquires any estate or interest in land, upon being registered as owner thereof, obtains a title absolutely secure as against everyone whose claim does not appear upon the registry; and the two elements of simplicity and security as regards the acquisition of land appear to be effectually attained. The Real Property Act of South Australia has been copied by all the Australian States and in other parts of the world.

The South Australian ballot system has been adopted by all the Australian States, and is largely in use in the United States of America. The method of voting is as follows:—Each elector is given a voting paper containing the names of the candidates, with a square set opposite each name. The voter enters a private apartment and puts a cross within the square opposite the name of the favored candidate. The folded paper is handed to the returning officer and he, in the presence of the voter, drops it into a sealed box. Secrecy is thus assured, and no matter how high political feeling may run at election time, there is the utmost decorum within the polling-booth.

South Australia also initiated a very fine system of local self-government by means of Municipal Corporations and District Councils. These bodies, in addition to having control over streets and certain roads, are vested with considerable local authority. In addition to fostering the important principles of self-government, the plan has encouraged self-help among people in remote districts, and has had the effect of lightening the labors of the State legislature regarding matters of local concern, whilst relieving the central government of much detail administration.

South Australia entered the Commonwealth of Australia on January 1st, 1901, as one of the six original States. South Australia was always strongly federal in sentiment, and exercised considerable influence at every stage of federal evolution. At the various conferences and conventions the South Australian representatives stood out prominently for a united Australia. When the Commonwealth Constitution was submitted to the electors of South Australia for approval, 65,990 electors voted for union and 17,053 against. South Australia enjoys the right to elect seven members to the House of Representatives. There is equal representation of all States in the Senate, but membership in the other chamber is regulated by population.

### THE ELECTORAL DEPARTMENT.

The Returning Officer for the State is responsible, under the Minister of the Crown, for the execution of "The Electoral Code, 1908." To prepare and maintain the Electoral Rolls for the Legislative Council and House of Assembly for the State. To receive all claims for registration and applications for transfer, change, alteration, or correction, and to adjust the same. The Returning Officer for the State is the revising officer, and acts as a Court of Revision, from which there is a right of appeal to the nearest local court.

The State has been divided into four Electoral Districts for the purpose of elections for the Legislative Council, having six members to represent the Central District and four members for each of the other districts.

Qualification of an elector for the Legislative Council (18 members) is that a person must be 21 years of age, a natural-born or naturalised subject of His Majesty, and have resided in South Australia six months prior to the registration of his electoral claim, and have been registered on the Electoral Roll for the Legislative Council for the Division in which he resides prior to the application of claim for registration. The applicant must also possess one of the following qualifications:—

1. Occupier of a dwelling-house (or a dwelling-house and premises appurtenant thereto), in respect whereof he is liable for and pays a rent at the rate of not less than Seventeen Pounds per annum. (Any payment by way of rent made by a wife to her husband is not deemed to be payment of rent within the meaning of "The Council Franchise Extension Act, 1907.")
2. Registered proprietor of a Crown lease on which there are improvements to the value of at least Fifty Pounds which are his property.
3. Owner of a freehold estate in possession, either legal or equitable, situate within the State of the clear value of Fifty Pounds above all charges and encumbrances affecting the same.
4. Registered leaseholder in possession situate within the State of the clear annual value of Twenty Pounds with three years to run or with right of purchase.
5. Officiating minister of religion.

6. Head teacher of a college or school who resides in premises belonging to or used in connection with such college or school.
7. Postmaster or postmistress in charge of and resident in a building used as or in connection with a post office.
8. Railway stationmaster who resides in premises belonging to His Majesty's Government of the State.
9. Member of the Police Force in charge of a police station.
10. Occupier of a dwelling-house of the clear annual value of Twenty-five Pounds.

The State has been divided into twelve Electoral Districts for the purpose of elections for the House of Assembly, returning 40 members, viz. :—Adelaide (4), Port Adelaide (3), Torrens (5), Victoria and Albert (3), Alexandra (4), Murray (3), Barossa (3), Woorroora (3), Wallaroo (3), Stanley (3), Burra Burra (3), Flinders (3) = 40 members.

Qualification of an elector for the House of Assembly is that a person must be of the age of 21 years, male or female, married or unmarried, and have lived in the State for six months continuously, and as a natural-born or naturalised subject of the King, and have been registered on the Electoral Roll for the Assembly District in which he resides prior to the issue of the writ.

#### GOVERNOR, EXECUTIVE COUNCIL, MINISTRY, ETC.

##### GOVERNOR.

Bosanquet, G.C.V.O., K.C.B., Admiral Sir Day Hort ; born March, 1843. Appointed Governor January 4th, 1909 ; assumed office, March 29th, 1909.

##### LIEUTENANT-GOVERNOR.

Way, Bart., Chief Justice, P.C., D.C.L., LL.D., The Right Hon. Sir Samuel James ; commission dated October 29th, 1900.

*Administrator.*—A dormant commission, dated October 29th, 1900, empowers the Chief Justice or Senior Judge for the time being to administer the Government in event of death, absence, or incapacity of Governor and Lieut.-Governor.

##### EXECUTIVE COUNCIL.

*President.*—His Excellency the Governor, Admiral Sir Day Hort Bosanquet, G.C.V.O., K.C.B.

Way, Bart., P.C., The Right Hon. Sir Samuel James, Lieut.-Governor and Chief Justice.

Peake, The Hon. Archibald Henry, M.P., Premier, Treasurer, and Minister of Education.

Bice, The Hon. John George, M.L.C., Chief Secretary.

Homburg, The Hon. Hermann, M.P., Attorney-General and Minister of Industry

*Executive Council—continued.*

- Young, The Hon. Frederick William, LL.B., M.P., Commissioner of Crown Lands and Immigration.
- Butler, The Hon. Richard, M.P., Commissioner of Public Works, Minister of Mines, and Minister of Marine.
- Pascoe, The Hon. Thomas, M.L.C., Minister of Agriculture and Irrigation.
- Clerk of the Executive Council.*—Lionel Henry Sholl, C.M.G., I.S.O., J.P., (Under-Secretary and Government Statist).

## MINISTRY.

*(Assumed Office, February 17th, 1912).*

- Bice, The Hon. John George, M.L.C., Chief Secretary.
- Butler, The Hon. Richard, M.P., Commissioner of Public Works, Minister of Mines and Minister of Marine.
- Homburg, The Hon. Hermann, M.P., Attorney-General and Minister of Industry.
- Pascoe, The Hon. Thomas, M.L.C., Minister of Agriculture and Irrigation.
- Peake, The Hon. Archibald Henry, M.P., Premier, Treasurer, and Minister of Education.
- Young, The Hon. Frederick William, LL.B., M.P., Commissioner of Crown Lands and Immigration.

## AGENT-GENERAL IN ENGLAND.

*(85 Gracechurch Street, London, E.C.)*

- Kirkpatrick, The Hon. Andrew Alexander (also Chief Immigration Agent).

## TRADE COMMISSIONER.

- Norton, D.S.O., Major.

## LIST OF MEMBERS, WITH THEIR METROPOLITAN ADDRESSES.

## The Honorables—

- Addison, Arthur Richman (*Northern*), Legislative Council.
- Bice, John George (*Northern*), Legislative Council.
- Cowan, John (*Southern*), Legislative Council.
- Downer, Sir John William, K.C.M.G. (*Southern*), King William Street.
- Duncan, Sir John James, Knight (*Midland*), National Mutual Buildings, King William Street.
- Hannaford, Walter (*Midland*), Legislative Council.
- Howe, James Henderson (*Northern*), Legislative Council.
- Jelly, James (*Central*), Legislative Council.
- Klauer, Ernest Leopold William (*Central*), Legislative Council.
- Lewis, John (*Northern*), King William Street.
- Lucas, Edward (*Midland*), Legislative Council.
- Pascoe, Thomas (*Midland*), Legislative Council.
- Stirling, Sir John Lancelot, K.C.M.G. (*Southern*), Adelaide Club.

*List of Members, with their Metropolitan Addresses—continued.*

## The Honorables—

Styles, Alfred William (*Central*), Legislative Council.  
 Vaughan, John Howard (*Central*), Legislative Council.  
 Von Doussa, Alfred (*Southern*), Legislative Council.  
 Wallis, Frederick Samuel (*Central*), Legislative Council.  
 Wilson, James Phillips (*Central*), Legislative Council.

*President and Chairman of Committees*—Hon. Sir John Lancelot Stirling,  
 K.C.M.G., LL.B.

*Clerk of the Council and Clerk of the Parliament*—Frederick Halcomb, M.A.  
*Clerk-Assistant and Sergeant-at Arms*—James Percy Morice.

## HOUSE OF ASSEMBLY.

(21st Parliament, commencing March 19th, 1912).

## LIST OF MEMBERS, WITH THEIR METROPOLITAN ADDRESSES.

\**New Members.*—Members who have not served in any previous Assembly

\*Angus, William (*Victoria and Albert*), Parliament House.  
 Anstey, Edward Alfred (*Adelaide*), Parliament House.  
 Blacker, William Jas. (*Alexandra*), Parliament House.  
 Blundell, Reginald Pole (*Adelaide*), Parliament House.  
 \*Bodey, George (*Victoria and Albert*), Parliament House.  
 Burgoyne, Thomas (*Flinders*), Parliament House.  
 Butler, The Hon. Richard (*Barossa*), Parliament House.  
 Chesson, Henry (*Port Adelaide*), Parliament House.  
 Cole, William James Cooper (*Stanley*), Parliament House.  
 Coneybeer, Frederick William (*Torrens*), Parliament House.  
 Denny, William Joseph (*Adelaide*), Parliament House.  
 \*Duhst, Oscar Hermann (*Wooroora*), Parliament House.  
 Goode, Clarence (*Stanley*), Parliament House.  
 Green, Thompson (*Port Adelaide*), Parliament House.  
 \*Hague, William (*Barossa*), Parliament House.  
 Heggaton, Percival Thomas (*Alexandra*), Parliament House.  
 \*Herbert, John Frederick (*Wallaroo*), Parliament House.  
 Homburg, The Hon. Hermann (*Murray*), Parliament House.  
 \*Homburg, jun., Robert (*Burra Burra*), Parliament House.  
 \*Hudd, Herbert Sydney (*Torrens*), Parliament House.  
 Jackson, Harry (*Stanley*), Parliament House.  
 James, David (*Wooroora*), Parliament House.  
 McDonald, Alexander (*Alexandra*), Parliament House.  
 MacGillivray, Ivor (*Port Adelaide*), Parliament House.  
 Miller, William (*Burra Burra*), Parliament House.  
 Moseley, James Grey (*Flinders*), Parliament House.  
 O'Loughlin, The Hon. Laurence (*Burra Burra*), Parliament House.  
 \*Parsons, Herbert Angas (*Torrens*), Parliament House.  
 Peake, The Hon. Archibald Henry (*Victoria and Albert*), Parliament House.

*List of Members, with their Metropolitan Addresses—continued.*

- Pflaum, Friedrich Jacob T. (*Murray*), Parliament House.  
 Ponder, William David (*Adelaide*), Parliament House.  
 Ritchie, George (*Alexandra*), Parliament House.  
 Rudall, Samuel Bruce (*Barossa*), Parliament House.  
 Smeaton, Thomas Hyland (*Torrens*), Parliament House.  
 \*Southwood, John Albert (*Wallaroo*), Parliament House.  
 Travers, John (*Flinders*), Parliament House.  
 Vaughan, Crawford (*Torrens*), Parliament House.  
 Verran, The Hon. John (*Wallaroo*), Parliament House.  
 \*Young, Henry D. (*Murray*), Parliament House.  
 Young, The Hon. Frederick William (*Wooroora*), Parliament House.  
*Speaker.*—The Hon. Laurence O'Loughlin.  
*Chairman of Committees.*—Samuel Bruce Rudall.  
*Clerk of Assembly.*—John Cummins Morphett.  
*Clerk-Assistant and Sergeant-at-Arms.*—Alfred Searcy.  
*Office Clerk.*—William Warden Wilby.

## JOINT ESTABLISHMENT.

- Parliamentary Library.*—*Librarian and Clerk Assistant of Legislative Council.*—  
 James Percy Morice ; *Assistant Librarian.*—R. J. G. Freeborn.  
*Officekeeper and Caterer.*—C. W. Lester, with quarters, fuel, light, servants, &c.
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## POPULATION AND VITAL STATISTICS.

THE growth of population has been steady and consistent—in keeping with industrial expansion. The total number of inhabitants in 1840, four years after the proclamation, was 14,600. During the next 10 years there was an increase to 63,700, while in the next decade the population doubled. By 1870 there had been a further increase to 183,797, while in 1880 the figures were 267,573, and in 1890, 314,195. The following shows the estimated mean population of South Australia and metropolitan :—

Year	SOUTH AUSTRALIA PROPER.			METROPOLITAN (ADELAIDE AND SUBURBS).		
	Males.	Females.	Total.	Males.	Females.	Total.
1901 .. .. .	179,704	177,639	357,343	77,755	84,440	162,195
1902 .. .. .	177,529	178,405	355,934	78,764	85,812	164,576
1903 .. .. .	176,254	179,183	355,437	79,756	87,139	166,895
1904 .. .. .	176,586	180,382	356,968	80,875	88,522	169,397
1905 .. .. .	179,182	180,758	359,940	82,035	89,947	171,982
1906 .. .. .	182,334	180,776	363,110	83,121	91,317	174,438
1907 .. .. .	184,864	182,846	367,710	84,256	92,715	176,971
1908 .. .. .	190,524	187,470	377,994	85,504	94,289	179,793
1909 .. .. .	196,553	191,886	388,439	86,868	95,971	182,839
1910 .. .. .	201,344	196,356	397,700	88,237	97,696	185,933
1911 .. .. .	208,923	202,295	411,218	90,915	99,387	190,302

The Census Returns for 1911 gave the total population of the State as 408,558 (207,358 males and 201,200 females).

### BIRTHS.

The Registrar-General in his annual report for 1911 states that the number of births registered was the greatest for 26 years, and that the birth rate was the highest since 1897, while the natural increase from excess of births over deaths was only twice exceeded in the history of the State. The births registered numbered 11,057, being more by 517 than those recorded in 1910, and being the highest number registered in any year since 1886. The birth rate per 1,000 of the population was 26·89, against 26·50 in the previous year, and was the most satisfactory for the last 14 years, while the natural addition to population from the excess of births over deaths was 7,019 against 6,526 in 1910. Of the total births registered in 1911, 5,615 were male births and 5,442 female, the proportion of the former to 100 of the latter being 103·18. In England, according to recent returns, the proportion for the five years ended with 1910 was 103·90. The South Australian ratio for the same period was 104·90, and that of the Commonwealth 105·48.



## DEATHS.

The deaths registered in 1911 numbered 4,038, being more by 24 than those of the previous year, and the highest number recorded in any year since 1902, being above the decennial average by 152. The death rate per 1,000 of the mean population was 9.32, which was less than the rate for the previous year by 0.27, and was, with the exception of that for the year 1909, the lowest on record; and as a reference to the comparative statement near the end of this report will show, South Australia had the second lowest rate of all the countries specified. The average death rate for the last five years was 9.99. The average rates for the same period in the other Australian States were as follows:—Queensland, 10.13; New South Wales, 10.20; Tasmania, 10.62; Western Australia, 10.64; Victoria, 11.79.

Arranged in their respective divisions and numbers, the causes of death in 1911 and the previous year were as follows:—

		1910.	1911.
I.	(A) Epidemic General Diseases .. ..	164	162
	(B) Other General Diseases .. ..	840	815
II. to IX.	Local Diseases .. ..	1,998	1,960
	X. Malformations .. ..	34	42
	XI. Infancy, Diseases Peculiar to .. ..	211	230
	XII. Old Age .. ..	342	400
	XIII. External Causes (Violence, &c.) .. ..	280	263
	XIV. Ill-defined Diseases or Causes.. ..	145	166

## INFANTILE MORTALITY.

The deaths of infants under 1 year of age numbered 669 (370 males and 299 females), against 739 in 1910, and were in the proportion of 6.05 to 100 births registered. From 1885 to 1911 the proportions were as follows:—

1885 .. ..	11.34	1899 .. ..	11.16
1886 .. ..	12.61	1900 .. ..	9.96
1887 .. ..	11.12	1901 .. ..	10.01
1888 .. ..	9.59	1902 .. ..	9.38
1889 .. ..	9.42	1903 .. ..	9.68
1890 .. ..	9.65	1904 .. ..	7.00
1891 .. ..	9.09	1905 .. ..	7.28
1892 .. ..	9.69	1906 .. ..	7.58
1893 .. ..	11.65	1907 .. ..	6.56
1894 .. ..	9.39	1908 .. ..	6.99
1895 .. ..	9.49	1909 .. ..	6.12
1896 .. ..	10.14	1910 .. ..	7.01
1897 .. ..	10.91	1911 .. ..	6.05
1898 .. ..	13.99		

The rate for 1911 is the lowest recorded. That a notable reduction has taken place in recent years is manifest, if the two decennial periods ending with 1901 and 1911 be compared; the average rate for the first 10 years is 10.64, and for the second 7.37, a decrease of 30 per cent.

The following tables show the infantile mortality in Australasia and in various other countries, and it will be seen that as far as can be ascertained from published figures South Australia has the lowest rate in the world :—

### INFANTILE MORTALITY IN AUSTRALASIA.

*Deaths under 1 Year per 100 Births.*

Year.	South Australia.	New Zealand.	Queensland.	New South Wales.	Victoria.	Tasmania.	Western Australia.
1907.....	6.56	8.89	7.72	8.86	7.26	8.28	9.77
1908.....	6.99	6.79	7.03	7.60	8.61	7.52	8.47
1909.....	6.12	6.16	7.19	7.43	7.13	6.49	7.80
1910.....	7.01	7.06	6.31	7.46	7.69	10.17	7.80
1911.....	6.05	5.63	6.55	6.95	6.87	7.37	7.62
<b>Average</b> 1907-1911..	6.55	6.91	6.96	7.66	7.51	7.97	8.29

### INFANTILE MORTALITY IN VARIOUS COUNTRIES.

Russia (European) ..	25.6	England and Wales ..	12.1
Austria .. .. .	21.5	United Kingdom ..	12.6
Roumania .. .. .	21.3	The Netherlands ..	12.6
Hungary .. .. .	20.7	Scotland .. .. .	11.6
German Empire ..	19.3	Denmark .. .. .	11.3
Prussia .. .. .	18.0	Ireland .. .. .	9.5
Spain .. .. .	17.0	Western Australia ..	8.3
Italy .. .. .	16.3	Sweden .. .. .	8.5
Japan .. .. .	15.3	Tasmania .. .. .	8.0
Servia .. .. .	15.0	Victoria .. .. .	7.5
Bulgaria .. .. .	15.0	New South Wales ..	7.7
Belgium .. .. .	14.8	Norway .. .. .	7.4
Ontario, Province of ..	14.2	Queensland .. .. .	7.0
France .. .. .	13.9	New Zealand .. .. .	6.9
Switzerland .. .. .	13.0	South Australia .. ..	6.6

The rates in this table for countries outside Australasia are for the average of the latest five years available.

### MARRIAGES.

The proportion of married persons in South Australia at the time of the census of 1911 was slightly more than one-third of the whole population, as the following statement will show :—

Conjugal Condition.	Number.			Proportion per Cent.		
	Males.	Females.	Total.	Males.	Females.	Total.
Never married	132,342	119,330	251,672	63.82	59.31	61.60
Married .. .. .	69,102	69,385	138,487	33.32	34.48	33.90
Widowed .. .. .	5,627	12,334	17,961	2.71	6.13	4.40
Divorced .. .. .	93	62	155	.05	.03	.04
Not stated .. .. .	194	89	283	—	—	—
<b>Total .. .. .</b>	<b>207,358</b>	<b>201,200</b>	<b>408,558</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

The marriages registered in 1911 numbered 4,036, not only being more by 375 than those celebrated in 1910, but also being the highest number ever recorded in any one year. Since 1903 every year has shown a satisfactory advance in marriages, and the number in 1911 is 79 per cent. higher than that for 1903. The marriage rate (that is, the rate of marriages not of persons married) per 1,000 of the mean population was 9·81 against 8·74 in the previous year, and was the highest rate ever recorded. The South Australian marriage rate for 1911 was the highest in Australasia, New South Wales being next highest with 9·18. The marriages celebrated in the first quarter of the year numbered 926; in the second, 1,091; in the third, 952; and in the fourth, 1,067.

The number of marriages celebrated according to the ceremonies of each religious denomination and the number of civil marriages are shown in the following statement:—Methodist, 1,339; Church of England, 911; Roman Catholic, 385; Baptist, 272; Lutheran, 239; Congregationalist, 225; Presbyterian, 224; Church of Christ, 207; Registrar-General, Deputy Registrar and District Registrars, 127; Salvation Army, 48; Christian Brethren, 25; Officiating Registrars, 18; Seventh Day Adventists, 6; Unitarian, 1; Latter Day Saints, 2; Free Presbyterian, 4; Jewish, 3.

It is a well-known fact that the marriage rate very quickly responds to changes in economic conditions, and the rise or fall in marriage rates, or in the value of exports or imports, is generally regarded as being in some degree indicative of a corresponding change in the prosperity of a country. The following table shows the variations year after year from 1881 to 1911 in such rates and values in South Australia:—

Year.	Marriage Rate per 1,000 of Mean Population.	VALUE PER HEAD OF MEAN POPULATION.		
		Imports Retained for Home Consumption.	Exports of South Australian Produce.	Imports and Exports United.
		£ s. d.	£ s. d.	£ s. d.
1882 .. ..	8·87	19 8 4	14 13 9	34 2 1
1883 .. ..	8·64	16 14 5	11 17 4	28 11 9
1884 .. ..	8·42	14 11 2	17 8 10	32 0 0
1885 .. ..	7·93	13 15 11	14 4 2	28 0 1
1886 .. ..	6·51	10 9 11	9 5 11	19 15 10
1887 .. ..	6·48	10 4 0	10 19 5	21 3 5
1888 .. ..	6·82	10 3 0	15 5 9	25 8 9
1889 .. ..	6·69	10 10 4	11 19 10	22 10 2
1890 .. ..	7·17	12 6 11	14 3 2	26 10 1
1891 .. ..	7·31	13 0 11	14 16 0	27 16 11
1892 .. ..	6·55	8 13 6	9 19 8	18 13 2
1893 .. ..	6·32	8 5 8	9 17 5	18 3 1
1894 .. ..	6·16	6 13 8	9 17 0	16 10 8
1895 .. ..	5·96	5 13 4	10 6 1	15 19 5
1896 .. ..	6·33	8 4 6	9 9 8	17 14 2
1897 .. ..	5·66	7 15 10	7 4 4	15 0 2
1898 .. ..	6·38	5 8 2	7 3 5	12 11 7
1899 .. ..	6·44	6 18 10	11 4 4	18 3 2
1900 .. ..	6·51	10 4 2	10 3 9	20 7 11
1901 .. ..	6·44	9 14 3	11 15 10	21 10 1

## POPULATION AND VITAL STATISTICS.

*Marriage Rate, &c.*—continued.

Year.	Marriage Rate per 1,000 of mean Population.	VALUE PER HEAD OF MEAN POPULATION.		
		Imports Retained for Home Consumption.	Exports of South Australian Produce.	Imports and Exports United.
		£ s d.	£ s d.	£ s d.
1902 .. ..	6.60	8 14 8	13 5 0	21 19 8
1903 .. ..	6.25	9 12 2	14 5 2	23 17 4
1904 .. ..	6.91	12 8 8	15 13 6	28 2 2
1905 .. ..	7.00	13 8 8	16 5 4	29 14 0
1906 .. ..	7.12	13 16 10	19 15 4	33 12 2
1907 .. ..	7.99	18 5 7	22 18 2	41 3 9
1908 .. ..	7.89	15 4 5	21 13 6	36 17 11
1909 .. ..	8.04	18 9 11	21 14 3	40 4 2
1910* .. ..	8.74	14 11 6	25 15 2	40 6 8
1911* .. ..	9.81	15 3 9	24 14 10	39 18 7

\* Owing to the cessation of records of interstate trade only the value of overseas imports and exports can be given for 1910 and 1911.

## MEAN AGE AT MARRIAGE.

Year.	Mean Age of Bridegrooms.	Mean Age of Brides.	Year.	Mean Age of Bridegrooms.	Mean Age of Brides.
1908 ..	28.86	25.44	1910 ..	28.95	25.51
1909 ..	28.46	25.50	1911 ..	28.69	25.34

The following were the average ages in England, some Australian States, and New Zealand in 1909 :—

	Men.	Women.		Men.	Women.
England ..	28.88	26.69	New South Wales	29.11	25.30
Victoria ..	30.33	26.60	Queensland ..	28.80	24.60
New Zealand	30.11	26.40			

Amongst the persons married during the year, nine (four men and five women) described themselves as divorced.

The following figures show the proportion of births to each marriage in South Australia for 25 years, in each instance the births compared being for the year given and the marriages for the year before :—

1886 .. ..	4.46	1900 .. ..	3.87
1887 .. ..	5.34	1901 .. ..	3.78
1888 .. ..	5.17	1902 .. ..	3.71
1889 .. ..	4.83	1903 .. ..	3.42
1890 .. ..	4.90	1904 .. ..	3.87
1891 .. ..	4.66	1905 .. ..	3.34
1892 .. ..	4.42	1906 .. ..	3.30
1893 .. ..	4.90	1907 .. ..	3.30
1894 .. ..	4.81	1908 .. ..	3.04
1895 .. ..	4.87	1909 .. ..	3.10
1896 .. ..	4.72	1910 .. ..	3.08
1897 .. ..	4.72	1911 .. ..	2.89
1898 .. ..	4.42		
1899 .. ..	4.08	Mean .. ..	<u>4.12</u>

It would seem from these figures that 4·12 is the average number of children born in South Australia to each marriage. It will be seen, however, that during the last nine years the proportion has, on the whole, been showing a decidedly downward tendency, though there was a slight improvement in 1904.

The proportions in the other Australian States and New Zealand were as follows :—

Tasmania .. .. . 1910 .. 3·61	New South Wales .. 1910 ... 3·27
Western Australia .. 1910 .. 3·64	New Zealand .. 1910 .. 3·07
Queensland .. 1910 .. 3·33	Victoria .. .. . 1910 .. 3·15

Viewed as a whole, 1911 showed a great improvement with respect to births and natural increase of population. In regard to marriages, it was the best year the State has known, while in reference to its mortality, considering the low death rate and the decline in infantile mortality, it was a very favorable year. In the comparative statement with other countries South Australia shows the sixteenth highest birth rate, the highest marriage rate, the second lowest death rate, and the fourth highest natural increase. If, however, only the Commonwealth, the Australian States, and New Zealand are considered, South Australia shows the sixth highest birth rate, the highest marriage rate, the second lowest death rate, and the fourth highest natural increase.

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## **IMMIGRATION.**

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**A** JUDICIOUS system of immigration has been inaugurated for the purpose of adding to the population of the State. The underlying principle is that there shall be no indiscriminate immigration. The regulations under which immigrants are to be introduced may be divided into two sections, one for nominated persons and the other for selected immigrants. The nomination system is of great value to newly arriving settlers who are thereby able, when satisfied with their new home, to induce relatives and friends to follow them to the State.

Any natural-born or naturalised subject of His Majesty resident in the State may nominate any person for an assisted passage in the form of schedule to be obtained at the Crown Lands and Immigration Office. Nominations are accepted only in respect of persons who come under one or more of the following three classes, and who are under 45 years of age if males, married women, or widows, and under 35 years of age if single women, namely :—

- (a) Persons who are closely related to the nominator :
- (b) Persons who are agricultural or other rural workers and their families :
- (c) Persons whose introduction to the State will not, in the opinion of the Minister, cause congestion in the State in any occupation or trade.

If the nominee is residing in a portion of the British Empire other than the United Kingdom or in the United States of America, the full amount of fare charged by the shipping company or owner must be paid, and the amount of the Government contribution will be paid to the nominator if the nominee on arrival in the State is found to comply with the regulations and satisfies the Minister that it is his intention to reside permanently in the State.

Provision is made for assisted passages being arranged by the Emigration Agent in London without nomination for persons of the following classes, who are selected by the Emigration Agent or other person appointed by the Minister for the purpose, viz. :—

- (a) Agricultural or other rural workers, with their families :
- (b) Domestic helpers :
- (c) Persons whose introduction to the State will not, in the opinion of the Minister, cause congestion in the State in any occupation or trade.

The assisted passage rates payable by persons selected, and in the case of nomination by either the nominator or the nominee, are as follows:—

	£	s.	d.
(a) Under 12 years of age .....	2	0	0
(b) Not under 12 but under 45 years of age—Males .....	7	0	0
(c) Not under 12 but under 45 years of age—Females ....	4	0	0

The payment of the amounts mentioned will entitle the nominees to accommodation in the open berths only, but passages in four-berth or two-berth cabins may be secured on payment of additional amounts of £2 or £3 respectively for adults and £1 or £1 10s. for children.

Provision is made for assisted passages either upon nomination or otherwise being granted to persons residing in any European country other than the United Kingdom, but in such cases the emigrant must pay his own expenses to London and be approved by the Emigration Agent there.

The age limits for selected immigrants are the same as for nominated persons.

An assisted passage is not granted to any person unless he is sober, industrious, of good moral character, in good health, and free from all mental and bodily defects, and is within the ages specified, appears physically to be capable of labor, and has been vaccinated or has had the smallpox; nor unless he states that it is his intention to reside permanently in the State; nor shall a passage be granted to any person in regular receipt of Poor Law relief.

The regulation providing for the selection of any person whose introduction to the State will not cause any congestion in the market is acted upon according to the demand, as to which the Commissioner of Crown Lands and Immigration requires satisfactory information. The Government are particularly anxious to assist immigrants who desire to engage in rural industries, as they are the class required to develop the resources of the State, in preference to those who will increase the city population. Care is taken to limit the supply of agricultural laborers to the demand, and farmers are asked to assist the department in doing so by advising their requirements; but they are not required to sign any guarantee of employment or pay any amount other than the cost of transport of the immigrants from Adelaide to the farms. In the form of application to be signed by the farmers they are asked to state, in addition to other information as regards wages, accommodation, &c., if they can offer permanent employment to suitable men, as the Commissioner expects them to do their part towards settling immigrants by offering them, so far as possible, permanent homes for themselves and families.

*Domestic Helpers.*—Arrangements have also been made for sending out female domestic helpers under 35 years of age, who, in accordance with the schedule of assisted rates, are required to pay £3 towards their passage-money. Girls who are unable to pay that amount before leaving England are granted passages on signing an undertaking to pay the £3 in monthly instalments over a period of six months after their arrival in South Australia. Instructions have been given for the girls to be drawn, as far as possible, from the rural districts, and the Emigration Agent is being assisted in the selection by a lady superintendent from South Australia. There is a large demand for domestic helpers in the State. The wages offered range from 10s. to 20s. per week.

## IMMIGRATION.

The following return shows the total recorded immigration into South Australia (exclusive of the Northern Territory from 1902-1907) in each year :—

Years.	GREAT BRITAIN.			BRITISH COLONIES.		
	Males.	Females.	Totals.	Males.	Females.	Totals.
1902 .. .. .	515	351	866	43,388	27,226	70,614
1903 .. .. .	400	308	708	41,221	28,182	69,403
1904 .. .. .	330	258	588	28,518	14,536	43,054
1905 .. .. .	377	255	632	34,407	17,916	52,323
1906 .. .. .	389	255	644	36,239	21,486	57,725
1907 .. .. .	465	332	797	48,022	26,715	74,737
1908* .. .. .	1,002	462	1,464	45,232	26,927	72,159
1909* .. .. .	1,249	523	1,772	38,443	21,635	60,078
1910* .. .. .	1,699	681	2,380	45,293	26,051	71,344
1911 .. .. .	3,293	1,403	4,696	58,116	30,967	89,083
Totals .. ..	9,719	4,828	14,547	418,879	241,641	660,520

Years.	FOREIGN STATES.			TOTALS.		
	Males.	Females.	Totals.	Males.	Females.	Grand Totals.
1902 .. .. .	299	117	416	44,202	27,694	71,896
1903 .. .. .	248	106	354	41,869	28,596	70,465
1904 .. .. .	286	94	380	29,134	14,888	44,022
1905 .. .. .	302	132	434	35,086	18,303	53,389
1906 .. .. .	299	129	428	36,927	21,870	58,797
1907 .. .. .	407	171	578	48,894	27,218	76,112
1908* .. .. .	507	172	679	46,741	27,561	74,302
1909* .. .. .	751	223	974	40,443	22,381	62,824
1910* .. .. .	1,053	163	1,216	48,045	26,895	74,940
1911 .. .. .	1,709	359	2,068	63,118	32,729	95,847
Totals .. ..	5,861	1,666	7,527	434,459	248,135	682,594

\* Including Northern Territory.



## EMIGRATION.

The following return shows the total recorded emigration from South Australia (exclusive of the Northern Territory from 1901-1907) in each year :—

Years.	GREAT BRITAIN.			BRITISH COLONIES.		
	Males.	Females.	Totals.	Males.	Females.	Totals.
1902 .. .. .	451	317	768	43,857	27,967	71,824
1903 .. .. .	326	244	570	40,797	28,585	69,382
1904 .. .. .	277	170	447	26,597	17,181	43,778
1905 .. .. .	266	169	435	30,343	20,581	50,924
1906 .. .. .	328	287	615	32,400	23,747	56,147
1907 .. .. .	293	214	507	41,891	25,918	67,809
1908* .. .. .	460	239	699	40,478	24,695	65,173
1909* .. .. .	670	285	955	37,065	21,615	58,680
1910* .. .. .	919	266	1,185	40,397	23,407	63,804
1911 .. .. .	1,400	412	1,812	56,667	30,225	86,892
Totals .. ..	5,390	2,603	7,993	390,492	243,921	634,413

Years.	FOREIGN STATES.			TOTALS.		
	Males.	Females.	Totals.	Males.	Females.	Grand Totals.
1902 .. .. .	146	72	218	44,454	28,356	72,810
1903 .. .. .	106	57	163	41,229	28,886	70,115
1904 .. .. .	144	47	191	27,018	17,398	44,416
1905 .. .. .	322	116	438	30,931	20,866	51,797
1906 .. .. .	195	61	256	32,923	24,095	57,018
1907 .. .. .	218	97	315	42,402	26,229	68,631
1908* .. .. .	343	138	481	41,281	25,072	66,353
1909* .. .. .	414	139	553	38,149	22,039	60,188
1910* .. .. .	591	130	721	41,907	23,803	65,710
1911 .. .. .	656	184	840	58,723	30,821	89,544
Totals .. ..	3,135	1,041	4,176	399,017	247,565	646,582

\* Including Northern Territory.

## EXCESS OF IMMIGRANTS.

There has been a net gain of Immigrants of 36,012 for the ten-year period shown above.

## **EDUCATION.**

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### **THE STATE SYSTEM.**

**D**URING the pioneer days there were no public schools, and little attention was devoted to the training of the young. Towards the end of the forties a capitation grant was paid out of the State funds to the few private schools then in existence, but the scheme did not work well. "The pilgrim fathers" had no toleration for anything that looked like "State Aid to Religion." Five years later the Government assumed direct control of primary education, and early in 1852 a Central Board of Education was created—(1) To establish schools, or recognise such schools as were then in existence, in which good secular instruction, based on Christian principles, but free from sectarian difference of belief or opinion, should be imparted. (2) To grant licences to teachers, and to pay them out of State revenues salaries ranging from £40 to £100 per annum in augmentation of the fees paid by the parents of the children. (3) To appoint inspectors, who should visit the schools and make reports to the Central Board on the character of the instruction given; and (4) to recommend the Colonial Government to give grants-in-aid of buildings erected by local subscriptions up to an amount not exceeding £200 per school. The next important step was taken in 1875, when the management of public schools was given to a Council of Education under the presidency of a paid officer. A wise choice was made in selecting for this responsible post Mr. John Anderson Hartley, B.A., B.Sc. (Lond.), at that time head master of Prince Alfred College. Mr. Hartley is regarded as having been the father of the educational system of South Australia. For over 20 years he controlled the destinies of the department, exercising a noble influence on the childlife of the State.

The Council of Education was superseded by direct management with an Inspector-General in January, 1878, and on his death in 1896, the control was vested in a Board of Inspectors. In July, 1902, the Board was abolished and an Inspector-General was again appointed. In 1906 a Director of Education was chosen to command the department.

### **THE PRIMARY SYSTEM.**

Prior to 1891 the State system of primary education was secular and compulsory, but not free. The Act of 1875 was, however, further amended in 1891, and as from January, 1892, this Act provided that "no fee shall be payable by any parent to the Minister or to any teacher of a public school established under the provisions of the Education Act, 1875, for the education of any child in any such school." This Act further provided that

in the case of children between the ages of 9 and 13 years the compulsory distance should be increased from two to three miles. To satisfy the compulsory requirements of the Act, each child in the State between the ages of 7 and 13 years, residing within the compulsory radius, must attend an efficient school for at least 35 days each quarter. Legislation was passed in 1905 by which the compulsory attendance was increased to eight half-days out of every 10 for children living in or within one mile of any corporate town. A new Bill has lately been before Parliament. This consolidated all previous enactments. It raised the age of compulsion to 14 years, and provided that every day should be compulsory, reasonable excuses for absences being provided for.

### TRAINING TEACHERS.

For the benefit of those desirous of devoting their lives to teaching, a Training College was established in 1876. All students were non-resident. In 1900 a new scheme of training was introduced. The Council of the University of Adelaide, having received a large bequest under the will of the late Sir Thomas Elder, made a generous offer to the Minister of Education, by which those in training for teachers would be allowed a two (in some cases a three) years' course of study for the B.A. or B.Sc. Degree, free of cost. It was therefore arranged that candidates after showing a capability to teach (as monitors) should be admitted to the Pupil Teachers' School. Here they studied for two years to pass the Junior and Senior Public Examinations (the latter being the matriculation standard of the University). After this they spent two years teaching in the larger public schools, and then entered the University Training College for another two, and possibly three, years, as stated above. During the term of training students receive a maintenance allowance of from £40 to £80, according to circumstances.

### PRESENT CONDITIONS.

The State primary schools are of two kinds—public schools, under fully-trained teachers, and provisional schools, taught by partially-trained teachers. The latter, however, are required to undergo a special examination, and to serve in a special school for six months. The public schools are divided into nine classes, and the salaries of head male teachers range from £135 in a Class VIII. school, with an average attendance of 20 to 40, to £475 per annum in a Class IA. school, with an average attendance of 800 or over.

The salaries of head female teachers range from £112 to £160. A lady cannot be appointed as head teacher to a school in any class above VIII.

The salaries of male assistants begin at £120 and rise by annual increments to £210. Chief assistants receive further yearly increments to a maximum of £240. Female assistants' salaries, beginning at £100, rise to £156, with a maximum of £200 for chief assistants.

The course of study and the standard of examination are exactly the same in both public and provisional schools. A strict supervision is kept upon the daily working of the schools by means of a staff of inspectors. Districts

are allotted, and the inspectors pay periodical visits, subjecting the classes to a critical examination and allotting merit marks which affect both teachers and scholars.

The curriculum is of an elastic character to permit of some display of individuality on the part of teachers. The regulations fix the course of instruction; but while the main line of subjects is defined in order to secure uniformity of work in all grades of primary schools, variation is permitted under the approval of the district inspectors. Head teachers also exercise discretion within the limits of the general organisation, but greater freedom is allowed in the teaching of such subjects as elementary science, horticulture, agriculture, and other various kinds of manual work. The following is a summary of the curriculum:—1. English—Clear and distinct articulation, correct speech, reading, writing, spelling, oral and written composition, grammar, poetry. 2. Mathematics—Arithmetic, mensuration, algebra, geometry. 3. Civics and Morals—History, conduct, citizenship. 4. Handwork—Drawing, brushwork, “Kindergarten” exercises, modelling in clay, cardboard, &c., and needlework. 5. Music and Physical Culture—Singing, breathing, physical exercises, drill. 6. Nature Knowledge—Observation lessons, nature study (whenever possible allied with gardening), geography, elementary science (in Classes V. and VI.)

#### PHYSICAL CULTURE.

Considerable attention is devoted to physical culture. Drill and physical exercises are part of the curriculum. Swimming is taught by experts. To the accompaniment of their own drum and fife bands the State school children can “march past” or engage in military manœuvring with the accuracy and precision of well-trained soldiers. Sewing, drawing, and vocal music are taught in all State schools. In the larger centres instruction in cookery and household management is given to the girls, and the boys are trained in the various branches of manual work.

#### OBSERVATION SCHOOL.

To assist in the training of teachers an Observation School has been established in Adelaide. This is an elementary school which carries on the ordinary work of the public schools; but it has been provided with a special staff, both as regards numbers and efficiency.

The work of training of teachers carried on in this establishment has two phases—(a) that connected with the pupil teacher system and the students of the University Training College; (b) the special training during short periods of young people who are to take charge of the small rural (provisional) schools.

(a) The pupil teachers who are studying at the Adelaide High School attend at the Observation School twice a week to observe the methods of teaching in use, and to receive from the head master instruction in the art of teaching. The students at the University Training College also spend

certain periods of the year at the school. They take the classes and show their capacity as teachers, under the supervision of the regular staff of the school, and in the presence of inspectors specially detailed for this work.

(b) The provisional teachers who pass through the Observation School are of two types. There are some whose education is accepted as sufficient for the work which has to be done in the small country school, but who have little or no knowledge of how to manage to carry on such a school effectively. These young people are allowed to attend until they can satisfy the head master that they are able to teach the classes, keep the records, and manage a school of this type.

A model country school has been erected in the grounds of the Observation School, and it is worked under conditions which approximate as nearly as possible to those of the schools to which the trainee will be sent. An expert and experienced teacher is the head of this little establishment, and supervises the work of each one who goes there. Every trainee for a provisional school is required to spend at least a fortnight in this little school.

The second class of provisional teachers is probably not quite so well equipped in the matter of scholarship on entry, and these young people are required to spend six months in the school. They are taught in classes in the special subjects they will have to teach when they leave, in addition to passing through the practical branches of the work just outlined. At the close of the term they undergo an examination, and if successful they are placed in schools for one year on probation, after which, if they study and succeed as teachers, the way lies open to any position in the service.

A maintenance allowance of 15s. per week for women, and £1 per week for men, enables them to carry out their studies during this six months. In return they bind themselves to work for two years in any position to which they may be appointed.

STATISTICS SHOWING PROGRESS OF PRIMARY EDUCATION FROM JANUARY 1ST, 1901, TO DECEMBER 31ST, 1912.

Year.	Number of Schools.	Number of Teachers.	Number of Children Instructed.	Average Attendances.	Net Cost to State.
					£
1901 .. ..	706	1,331	63,183	43,789	149,795
1902 .. ..	716	1,351	62,962	42,690	149,393
1903 .. ..	715	1,320	61,977	42,752	145,626
1904 .. ..	715	1,332	60,879	42,234	146,031
1905 .. ..	722	1,420	59,026	41,807	149,183
1906 .. ..	708	1,426	57,270	40,489	150,542
1907 .. ..	707	1,389	54,560	37,861	150,157
1908 .. ..	690	1,438	54,157	38,193	152,950
1909 .. ..	722	1,411	53,748	38,255	156,622
1910 .. ..	*713	1,429	52,929	37,549	167,426
1911 .. ..	*717	1,325	53,494	37,427	184,033
1912 .. ..	*749	1,584	55,498	38,988	196,143

*Statistics Showing Progress of Primary Education from January 1st 1901, to December 31st, 1912.—continued.*

Year.	Cost to Parents. Fees.	Total Cost.	Cost per Child Instructed.	Cost per Child in Average Attendance.
		£	4 s. d.	£ s. d.
1901 .. ..	—	149,795	2 7 4 $\frac{3}{4}$	3 8 5
1902 .. ..	—	149,393	2 7 5 $\frac{1}{4}$	3 9 11
1903 .. ..	—	145,626	2 7 0	3 8 1 $\frac{1}{2}$
1904 .. ..	—	146,031	2 7 11 $\frac{1}{2}$	3 9 1 $\frac{3}{4}$
1905 .. ..	—	149,183	2 10 6 $\frac{1}{2}$	3 11 4 $\frac{1}{4}$
1906 .. ..	—	150,542	2 12 6 $\frac{3}{4}$	3 14 4 $\frac{1}{4}$
1907 .. ..	—	150,157	2 15 0 $\frac{1}{2}$	† 3 19 3 $\frac{3}{4}$
1908 .. ..	—	152,950	2 16 5 $\frac{3}{4}$	4 0 1
1909 .. ..	—	156,622	2 18 3 $\frac{1}{4}$	† 4 1 10 $\frac{1}{2}$
1910 .. ..	—	167,426	3 3 3 $\frac{1}{4}$	4 9 1
1911 .. ..	—	184,033	3 8 9 $\frac{3}{4}$	4 18 4
1912 .. ..	—	196,143	3 10 8 $\frac{1}{4}$	5 0 7 $\frac{1}{2}$

\* Not including High Schools.

† In these years an epidemic of measles caused the average attendance to be very low.

### SCHOOLS IN OPERATION.

The number of schools in operation during the years 1911 and 1912 is shown in the following table:—

		1911.	1912.
High School (Adelaide) .. ..	.. ..	1	1
District High Schools .. ..	.. ..	18	18
Public Schools .. ..	.. ..	283	288
Provisional Schools .. ..	.. ..	412	439
Half-time Schools .. ..	.. ..	22	22
		—	—
Totals .. ..	.. ..	<u>736</u>	<u>768</u>

### SCHOOL ATTENDANCE.

The total number of children taught in schools under the Department during the year 1912 was 61,481. Deducting from this total the number of those who attended more than one school during that period, viz., 5,983, the number of individual pupils in attendance is seen to be 55,498. This represents an increase of 2,004 on the number under instruction during 1911. The daily average attendance for the year in all schools was 38,988, an increase of 1,561 on the record of the previous year. The most satisfactory attendance was registered in the month of March, when the average reached 85.6 per cent. of the enrolment.

Owing to the prevalence of infectious diseases, the attendance fluctuated somewhat during the year, reaching its lowest limit in December, when the daily average attendance was only 72.7 per cent. of the number on the rolls.

From the annual statistics furnished by the teachers the following returns have been compiled :—

	Gross Number under Instruction during 1912.	Number who Attended More than One School during 1912.	Net Number of Children Instructed during 1912.	Net Number Instructed during 1911.	Increase.	Decrease.
Public schools ..	51,602	5,184	46,418	44,405	2,013	—
Provisional schools	9,879	799	9,080	9,089	—	9
Totals ..	61,481	5,983	55,498	53,494	2,013	9

The average *daily* attendance was—in public schools 33,364, and in provisional schools 5,624, making a total of 38,988.

The following table gives the ages of the children on the registers of the Primary Schools for the year 1912 :—

Quarters.	Under 7.	7 to 13.	13 and over.	Totals.
March .. .. .	7,396	39,152	4,187	50,735
June .. .. .	7,147	39,236	4,617	51,000
September .. .	8,366	38,388	4,727	51,481
December .. .	6,994	39,192	4,578	50,764

The ages of the children on the registers of the Secondary Schools for 1912 are shown in the following table :—

Quarters.	Under 13.	13 and over.	Totals.
March .. .. .	316	1,682	1,998
June .. .. .	233	1,630	1,863
September .. .	447	1,898	2,345
December .. .	448	2,019	2,467

### COMPULSORY CLAUSES OF THE ACT.

The following table shows the proportion of children who complied with the requirements of the Education Acts by attending thirty-five days in the quarter, and also the proportion of unsatisfactory cases. It should not be

forgotten that the number of children subject to compulsion is not the same as the number in attendance between the ages of 7 and 13. A child may live beyond the compulsory distance from the school; he may be exempted on the ground of ill-health; or he may have obtained the Inspector's certificate, which frees him from the liability to attend school:—

	1911.			
	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.
Children in attendance, subject to compulsion .. .. .	33,347	33,459	33,301	32,581
Attended 35 days .. per cent.	81·07	83·39	78·36	72·59
Satisfactory reasons given for not attending .. .. . per cent.	17·80	15·90	21·33	26·52
Cases of neglect .. .. . per cent.	1·13	0·70	0·37	0·89

	1912.			
	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.
Children in attendance, subject to compulsion .. .. .	33,658	34,432	34,398	34,087
Attended 35 days .. per cent.	80·92	87·22	87·15	82·95
Satisfactory reasons given for not attending .. .. . per cent.	18·09	12·28	12·42	16·29
Cases of neglect .. .. . per cent.	0·99	0·50	0·43	0·76

### DOMESTIC SUBJECTS FOR GIRLS.

The reconstruction and furnishing of the Domestic Arts Centre at Norwood was completed during the year 1910, and the work for which the institution has been provided is now proceeding. Though the building is not on a large scale, ample provision has been made for giving instruction in cookery, laundry work, household management, and hygiene. It contains a large cookery-room (with provision for class teaching, demonstration, and practice), dining-room, model bedroom, and kitchen, in addition to quarters for the mistress in charge.

A number of teachers are at present undergoing a course of training to fit them for taking charge of centres in various parts of the State. Girls from the Norwood High School (which receives pupils from all the eastern suburbs) now receive regular instruction in subjects which must prove of great value to them in later years. In South Australia we have been somewhat tardy in recognizing the importance to the community of teaching our girls those things which they need if they are to become capable home-makers, but a promising beginning has been made at Norwood. It is intended to extend and develop this important branch of our work as rapidly as possible, and to extend its benefits as widely as circumstances will permit.



SCHOOLS IN NEW SETTLEMENTS.

Of late, considerable trouble has been experienced in providing school accommodation for the children of settlers in newly-opened areas. In some places the Department has tried to meet the difficulty by providing large tents as temporary substitutes for schools. Although they have been made as comfortable as possible, the tents have not proved to be altogether satisfactory. Owing to sudden changes in temperature, strong winds, and dust storms, the tents are very often uncomfortable, and school work is carried on under difficulties. An attempt is to be made to provide temporary schools of a more satisfactory nature, which can be quickly constructed and erected where required, and easily removed to another locality when necessary. This step, it is hoped, will remove one of the very serious disadvantages which settlers in outlying districts have suffered in the past.

TEACHERS.

The following table shows the number of teachers of all classes employed at the close of the two years 1911 and 1912:—

Rank.	1911.			1912.		
	Male.	Female.	Total.	Male.	Female.	Total.
Head Masters .. .. .	} 224	29	253	13	—	13
Head Mistress .. .. .				—	1	1
Head Teachers .. .. .				226	31	257
Chief Assistants .. .. .	} 23	11	34	13	19	32
Assistant in charge D.H.S. ..				18	1	19
Ass'tants Primary Schools ..	} 52	233	285	33	197	230
Ass'tants Secondary Schools ..				26	36	62
Acting Assistants .. .. .	6	77	83	4	86	90
Provisional Ass'tants .. .. .	9	65	74	6	95	101
Pupil Teachers .. .. .	16	53	69	18	48	66
Senior Monitors .. .. .	} 21	66	87	—	11	11
Monitors .. .. .				23	91	114
Provisional Teachers .. .. .	56	343	399	62	375	437
<i>Locum tenens</i> for Head Teachers ..	21	11	32	21	5	26
<i>Locum tenens</i> for Provisional Teachers .. .. .	—	7	7	—	14	14
Teachers of Needlework (employed part time only) .. .. .	428	895	1,323	463	1,010	1,473
	—	84	84	—	111	111
Grand totals .. .. .	428	979	1,407	463	1,121	1,584

INSPECTION.

During the year, 699 schools were fully examined in detail by the Inspectors. The total number of children presented was 42,541, against 38,114 in 1911.

Out of 5,354 children examined in the Fourth Class, 2,303 succeeded in passing the standard fixed by the Education Act for exemption from further attendance at school; and out of 3,958 children examined in the Fifth Class, 1,904 obtained certificates.

It is the practice to classify the schools in six divisions, according to the results of the examination, after due allowance has been made for exceptional circumstances. The following is the result:—

	Public.		Provisional.	
	1911.	1912.	1911.	1912.
Number of schools .. .. .	282	283	408	416
	Per cent.	Per cent.	Per cent.	Per cent.
Class A .. .. .	25·88	28·62	6·12	5·53
“ B .. .. .	30·85	34·28	15·93	17·07
“ C .. .. .	23·05	20·14	25·00	25·00
“ D .. .. .	12·05	10·95	22·30	20·92
“ E .. .. .	4·61	4·59	14·95	13·07
“ F .. .. .	2·84	1·07	6·86	8·89

Thirty-eight schools were not classified.

### SCHOLARSHIPS.

Under existing regulations provision is made for the following scholarships:—

(A) Eight Public Exhibitions (four for boys and four for girls), open to any girls and boys who have been *bona fide* residents of the State of South Australia for at least two years immediately preceding the 31st of December of the year in which the competitive examination is held. They are tenable for three years at any approved school or college, and provide free tuition and books, with an allowance of £22 per annum in those cases where the home of the candidate is distant from the school at which he or she elects to attend.

(B) Forty Exhibitions, tenable for three years at the Adelaide High School or any District High School, are offered for competition among children of 13 years of age who have been attending a primary school under Government control. A maintenance allowance of £22 per annum is given in addition to free tuition. The examination for deciding these scholarships is the Fifth Class standard of the public schools, with the addition of a small textbook on Health and Hygiene.

These scholarships are intended to help those children, whose homes are distant from a District High School, to obtain the advantages offered by those schools.

(C) Senior Exhibitions.—There are eight of these (each worth £40 per annum), tenable for two years at the Adelaide High School. They are open to all pupils attending any High School under Government control, four each worth £20 per annum, open to pupils attending the Adelaide High and

Suburban District High Schools, and are awarded on the results of the Senior Public Examination. The winners are afforded an opportunity to prepare for the competition for Government Bursaries, which provide a course of four years' duration at the University.

(D) Government Bursaries.—Ten of these are offered annually. Five are reserved for pupils of the Adelaide High School. The remaining five are open for competition amongst any young people who have been resident in South Australia for at least one year prior to the deciding examination. The Bursaries are tenable at the Adelaide University for four years, and admit successful candidates to the Schools of Arts, Science, Medicine, or Law. They carry an annual value of £25.

FINANCE.

Comparison of the expenditure on Primary Schools for 1911 with that of 1912 shows an increase during the latter year of £12,451. This is accounted for mainly by the increases of salaries to public and provisional teachers, and the introduction of the system of training of provisional teacher candidates.

Upon secondary education the expenditure amounted to £22,578 13s. 2d., which includes the cost of maintenance of the School of Art, the Adelaide High School, eighteen District High Schools, as well as the cost of scholarships. This is an increase of £5,754 1s. 11d.

Sites, buildings, improvements, and repairs show an increase of £5,274 6s. 9d.

A general statement of the expenditure for 1911 and 1912 is given below—

	1911.		1912.	
	£	s. d.	£	s. d.
I On school premises—				
For sites, new buildings, additions, repairs, furniture, &c. . . . .	35,580	14 5	40,855	1 2
II On maintenance schools, &c.—				
(a) Teachers' salaries and allowances in Primary Schools . . . . .	150,055	19 2	155,289	8 0
(b) Other maintenance expenses in such schools . . . . .	10,717	7 1	13,147	17 6
(c) High Schools and District High Schools—				
Salaries and maintenance expenses . . . . .	12,992	6 6	14,489	5 11
Agricultural High Schools . . . . .	—		—	
(d) Domestic Science Centres . . . . .	622	2 1	1,110	8 11
(e) Evening Continuation Classes . . . . .	33	11 5	888	11 3
(f) Adelaide School of Art . . . . .	1,755	10 10	1,910	14 6
Public Library Board . . . . .	—		732	1 10
Reimbursements for material . . . . .	—		267	6 2
(g) Scholarships . . . . .	1,421	0 5	3,180	4 7
(h) Books and school materials . . . . .	10,678	9 2	13,037	8 1
III. Administration, &c. Including training, salaries paid to students and pupil teachers . . . . .	21,964	14 10	25,793	15 8
IV. Retiring allowances— Aged and infirm teachers . . . . .	800	18 1	1,088	18 11
	<u>£246,522</u>	<u>14 10</u>	<u>£271,791</u>	<u>2 6</u>

## GRANTS TO EDUCATIONAL INSTITUTIONS.

The following were the grants paid to institutions outside of the Education Department during 1911 and 1912 :—

	1911.			1912.		
	£	s.	d.	£	s.	d.
Adelaide University .. .. .	7,334	3	2	25,337	8	5
Adelaide School of Mines .. .. .	7,636	6	8	7,218	16	8
“ “ Expenditure on buildings..	—			29	7	4
Port Pirie, School of Mines .. .. .	750	0	0	750	0	0
“ Removal of buildings, re-erection, pointing, &c. .. .. .	—			—		
Gawler School of Mines .. .. .	500	0	0	500	0	0
Kapunda School of Mines .. .. .	300	0	0	300	0	0
Moonta School of Mines .. .. .	700	3	0	700	0	0
Mount Gambier School of Mines .. .. .	350	0	0	350	0	0
Institute Association of S.A. .. .. .	6,328	18	3	6,563	4	6
Public Library, Museum, and Art Gallery .. .. .	8,106	4	8	8,528	14	0
“ “ Buildings, &c. .. .. .	—			3,460	10	9
Kindergarten grants .. .. .	—			262	10	0
Catherine Helen Spence and Thomas Price Scholarships—Endowment .. .. .	—			4,000	0	0
	<u>£32,005</u>	<u>12</u>	<u>9</u>	<u>£58,000</u>	<u>11</u>	<u>8</u>

## TRAINING OF PUBLIC SCHOOL TEACHERS.

The training course for public school teachers at present extends over a period of from six to eight years. Boys and girls of good character, mental vigor, and physical health, who are at least 14 years of age, and who show satisfactory promise of teaching ability, are admitted to the Adelaide High School for a training period of three years. Most of this time is devoted to the acquirement of a sound general education; but courses in the principles of instruction and class management are likewise given, and opportunities are afforded for practice in actual teaching.

During the next two years the young people are engaged in teaching work in public schools (usually the schools from which they came before entering the High School). They are thus enabled to acquire very fair skill and a direct knowledge of the basal problems of education. At the end of this period the pupil teachers are eligible for admission to the University Training College, provided that they have passed the University Senior Public Examination in at least five subjects.

The Training College courses have been planned with a view to developing in the students a broader and more cultured outlook upon life generally, but likewise a deeper insight into educational problems, and greater skill in the technique of teaching itself. The close connection of the Training College with the University enables the students to attend a variety of lectures in Arts and in Science. The acquisition of professional knowledge is provided for by courses of lectures on school management generally, and on methods of instruction in all ordinary school subjects. In addition, opportunities are afforded in city and suburban schools for practice in actual teaching.

There are distinct courses of training to prepare teachers for the work in infant and primary schools. Each of these extends over one year. Additional courses are provided for those who will become teachers in high schools.

The course leading to the infant teachers' certificate is open to those students who show special aptitude for dealing with very young children. The course includes instruction in the following subjects:—One or more University subjects (including education), English literature, psychology, hygiene, physical culture, drawing, modelling, and brushwork, music (instrumental and vocal), elocution, nature study, civics, sewing, and infant and lower primary school management and methods of instruction (theory and practice).

The alternative course, leading to the primary teachers' certificate, is similar to the above, except that the lectures on class management and instruction and the actual teaching have reference to the work of primary schools.

Students who have completed their primary teachers' course, and have shown special ability both as students and as teachers, are granted a second, and in special cases a third, year of training. During this time they devote the greater part of their time to University studies in order to acquire the deeper knowledge of special subjects (classics, science, commerce, &c.) required for high school work; but instruction in school management and practice in teaching are continued. These students are thus able to complete a considerable part of the work required for the University diploma in education.

#### THE ADELAIDE HIGH SCHOOL.

The Adelaide High School had 721 pupils on its roll for the year 1912. Of this number, 97 were young student teachers, 319 were improving their general education prior to beginning work, 205 were studying for the University Public Examinations, while 100 were taking a commercial course to prepare them for business pursuits. It is intended to provide a course of instruction in domestic subjects for the girls as soon as rooms can be made ready for the purpose.

In the University Public Examinations for 1912 the following results were obtained:—

Primary .. .. .	65 certificates awarded
Junior .. .. .	61 “ “
Senior .. .. .	44 “ “
Junior Commercial .. .. .	6 “ “

Forty-four students passed the Higher Public Examination in from one to five subjects, seven passed the Civil Service Examination, and four the Commonwealth Public Service Examination.

## DISTRICT HIGH SCHOOLS.

The following table shows the District High Schools open during 1912, the attendance of pupils, and the number of teachers in each school :—

Name of School.	Students under 14.	14 to 15.	15 to 16.	16 to 17.	17 and under	Total.	No. of Teachers.
Adelaide .. .. .	229	157	123	101	111	721	25
Blumberg .. .. .	19	9	1	2	1	32	1
Gawler .. .. .	47	20	14	2	2	85	2
Gladstone .. .. .	25	13	11	4	—	53	2
Jamestown .. .. .	23	10	14	2	—	49	2
Hindmarsh .. .. .	223	34	13	1	—	271	5
Kapunda .. .. .	18	19	17	8	3	65	2
LeFevre's Peninsula .. .. .	147	53	22	8	1	231	5
Moonta .. .. .	37	19	8	3	1	68	2
Mount Barker .. .. .	11	22	19	17	5	74	2
Mount Gambier .. .. .	55	28	29	6	—	118	3
Naracoorte .. .. .	27	15	21	11	5	79	2
Norwood .. .. .	90	97	50	17	5	259	7
Petersburg .. .. .	29	26	11	5	1	72	2
Port Pirie .. .. .	46	43	16	12	7	124	4
Quorn .. .. .	19	15	9	8	4	55	1
Unley .. .. .	150	87	40	8	1	286	6
Victor Harbor .. .. .	24	12	5	2	6	49	2
Wallaroo Mines .. .. .	41	26	11	3	3	84	3
	1,260	705	434	220	156	2,775	78

## THE ADELAIDE SCHOOL OF ART.

The number of students in attendance during 1911 and 1912 was as follows :—

	1911.			1912.		
	First Term.	Second Term.	Third Term.	First Term.	Second Term.	Third Term.
Day .. .. .	630	692	664	659	666	648
Evening .. .. .	175	174	173	160	153	149
Day and Evening Students at Port Adelaide Branch School of Art .. .. .	30	33	41	33	38	31
	835	899	878	852	857	828

## PENNY SAVINGS BANKS.

The number of schools in which Penny Savings Banks have been established now stands at 245, an increase of 57 for the year.

During 1912, 3,168 accounts were opened, 1,827 were closed, giving an increase in the number of depositors of 1,341.

The amount paid in for the year was £3,966 19s. 5d. Repayments amounting to £2,515 11s. 11d. were made, so that the deposit account was enriched by £1,451 7s. 6d. and interest credited £130 6s. during the past twelve months.

The first deposits were received in May, 1908. Since that time 10,216 accounts have been opened, and the total amount at credit of depositors at the present time is £8,681 10s. 7d.

### THE UNIVERSITY OF ADELAIDE.

The University of Adelaide was established by Act of Parliament in 1874, and Royal Letters Patent were granted in 1881.

This University was the first in Australia to provide a commercial course. Candidates may obtain the Diploma of Associate in Commerce of the University of Adelaide by attending lectures and passing examinations in—

Business practice, accountancy, commercial law, economics and commercial history, banking and exchange, and commercial geography and technology.

No entrance examination is required, lectures are all given in the evening, and the course takes at least four years.

Since 1906, examinations have been held jointly by the Universities of Melbourne and Adelaide, the only two in Australia which have Chairs of Music. The Universities of Queensland and Tasmania joined the federation during 1911, and in future these examinations will be held under the auspices of the four Universities. It is probable that the University of New Zealand will also join at an early date. It is felt that the Universities, whose standard is unquestionably high, should have sole control of the public examinations in music for the extension of musical education within the Commonwealth rather than the Associated Board of the Royal Academy and Royal College of Music; Trinity College, London; the London College of Music; and similar institutions who send out examiners each year.

### GOVERNING BODIES.

The Act of Incorporation provides that the Council, which is the Executive, shall consist of 20 members. The Chancellor and Vice-Chancellor are elected by the Council. The latter is elected from its own members. The Chancellor, if not a member of the Council at the time of his election, becomes a member during his term of office, and for such period the Council consists of 21 members. The Chancellor holds office for five years, the Vice-Chancellor for three years. Members of Council hold office for four years. At the expiration of each year the five members of Council who have been longest in office retire, but are eligible for re-election. Not more than four ministers of religion may be members of the Council at the same time. An amendment was made in the Act by the Legislature at the end of 1911,

and provision made for Parliamentary representation on the Council by the appointment of five additional members, three from the House of Assembly and two from the Legislative Council, who shall hold office during the life of the Parliament by which they were elected. The Council have power to appoint and dismiss all professors, lecturers, examiners, officers, and servants of the University, and have the entire management and superintendence over the affairs, concerns, and property thereof, subject to the statutes and regulations of the University. The Council also have power to make and alter statutes and regulations. These, however, must be approved by the Senate, and by the Governor of the State in his Executive Council. The Council meet at least once a month.

The Senate consists of all masters and doctors, and all other graduates of three years' standing. The Warden (or Chairman) is elected annually by the Senate from its own members. The Senate is the constituency which elects the members of Council. It also has the power of approval or rejection of all statutes and regulations. It meets at least three times a year. There are various committees, faculties, and boards which advise the Council in regard to the details of work in connection with the University and the several schools. There is also a Board of Discipline, which deals with the conduct of students.

The academic year covers nine months, but between March and December there are two vacations of a fortnight each. The first term begins on the second Tuesday in March, and the third term ends on the second Tuesday in December. For the Elder Conservatorium four terms are provided, and the academic year begins the last week in February. The teaching staff of the University consists of 10 professors and 30 lecturers. In the School of Music there are a professor and 11 teachers of special subjects in connection with the Conservatorium.

Before admission, all students must have attained the age of 16 years. Those who intend to graduate must pass the Senior Public (entrance) Examination, and must be formally matriculated. Non-graduating students may attend lectures without complying with either of the above-mentioned conditions. Attendance at lectures is required, but the Council have power, in special cases, to grant partial exemption.

#### TRAINING TEACHERS.

An important development of the University movement in South Australia is the training of school teachers. The Chancellor of the University (the Right Hon. Sir Samuel J. Way, Bart., Chief Justice of South Australia), in a public utterance, claimed that there was no other country in the world in which the University provided for candidates in elementary school teacher-ship a free, a compulsory, and a liberal education. The University aims, said its Chancellor, at giving a "complete academical and professional and special training to all the candidates of the teaching profession in Adelaide free of charge, and without adding a sixpence to the burdens of the taxpayers. There was no event in the history of education in South Australia of more far-reaching importance" than the arrangement which had been concluded



for training school teachers. "It secured to every teacher in South Australia, to every one of that important Public Service, the social status to which they were entitled. It secured to them a professional training of a high class, and some of the benefits of the endowments of the University of Adelaide. He knew of no other University in the world that attempted anything of the kind." A large number of valuable scholarships and exhibitions are made available every year. The University of Adelaide is affiliated to the Universities of Oxford and Cambridge.

### THE SCHOOL OF MINES.

South Australia is greatly blessed in its School of Mines and Industries—an institution which in everything but name is a high-grade technical college. It is the largest and most efficient training establishment of its kind in Australia. The actual work of the school began on March 14th, 1889. On that day 26 students were enrolled, and the curriculum contained 11 subjects. Success was immediate, and at the time of the formal opening of the institution by the Governor (Lord Kintore) three months later the most sanguine expectations of the officials had been more than realised. The necessity for increased accommodation was felt for many years. The Government had decided to place on the Estimates the sum of £10,000 for a new building, but the princely generosity of Mr. George Brookman, who gave £15,000, prompted them to at once proceed with the erection of premises more commensurate with requirements. The cost of the new building, apart from that of the site, was over £37,000. The Council was soon able to congratulate itself on the possession of a building in every way second to none in the Australian States. On the occasion of the opening ceremony of this magnificent structure the following letter, addressed to the President (Sir Langdon Bonython) by Lord Tennyson (the Governor-General), was read:—

Commonwealth of Australia. Governor-General, Marble Hill, Adelaide, February 23rd, 1903. Dear Sir Langdon—I congratulate the Government and you on the opening of the fine building where is to be housed your excellent School of Mines, of which you have been so many years the leading spirit. I am glad to learn that you are working hand in hand with the University of Adelaide, and I have much pleasure in testifying again to the very valuable service your school performs for Australia. It is certainly one of the best of its kind that I know, and many of the men trained here are to be found in all parts of the world holding good positions. Yet Australia is, generally speaking, a long way behind in the race of technical handicrafts and industries. For instance, when I have visited agricultural shows throughout this continent everywhere I have found the stump-jumpers and strippers of which the South Australians are justly proud; but, be it observed, most of the other implements and agricultural machinery are made in Canada and America. In order to keep pace with the times Australia will have to bestir herself, to welcome fresh ideas and inventions, to encourage the introduction of new and improved methods, to place no artificial restrictions—to the detriment of production and trade—on the output of commodities and manufactures;

and, above all, she must multiply her technical schools and better her technical education. It is, more than anything else, the training (in the workshop) of those directing scientific industries, as well as of the workers themselves, which makes a great industrial community. By adopting such means, with the aid of practical enthusiasts like your Lieutenant-Governor, Mr. Brookman, and yourself, Australia will, I feel sure, be able eventually to develop her wonderful resources, and to attain to her rightful position among the industrial and commercial peoples.—Yours truly (signed), TENNYSON.” The reproach that Australia is a laggard among nations in the matter of “technical handicraft and industries” is rapidly being removed by such institutions as the South Australian School of Mines. In December, 1907, an important addition to the equipment of the school was made, when new metallurgical and chemical laboratories were made available for students. The new building—named the Bonython Building, after the President of the School, who contributed £1,500 towards its cost, which totalled £5,400—now comprises the finest laboratories in the Commonwealth. In another direction, early in the present year, the facilities for study were improved by the addition of the Angas Wool Laboratory. Wool-classing is an important subject taught at the school. The President (Sir Langdon Bonython), who has devoted many years of splendid service to the institution, said on the occasion of the opening of the laboratory that he was told, and had no reason at all to doubt the statement, that the operations of these wool classes directly and indirectly had added to the wealth of South Australia in hard cash a sum far larger than the total expenditure from its origin to the present time on the Adelaide School of Mines and Industries. This was in the highest degree satisfactory, and was a wonderful tribute to the value of technical education. It is not so difficult to understand the position when the statement made some years ago is remembered that “the wool of 250,000 sheep had passed through the hands of School of Mines students this year, and wool experts estimate that by reason of better classing the wool has yielded to the producer fully £6,000 more than would otherwise have been received.”

#### AGRICULTURAL COLLEGE.

Technical education on the agricultural side has received considerable attention. In addition to a well-equipped Agricultural College, situated at Roseworthy, 30 miles north of Adelaide, there are Agricultural Bureaux scattered throughout the State, whilst secondary agricultural instruction is obtainable at many of the public schools. Upon the establishment of the institution its objects were stated to be—(1) To train young men for the practice of agriculture, horticulture, and viticulture; (2) to conduct experiments with a view to the advancement of the rural industries in South Australia. Professor Custance, the first principal, was in charge from 1881 until 1886. He was succeeded by Professor Lowrie, M.A., B.Sc., who arrived in February, 1888, and retained the position until September, 1901. Professor J. D. Towar, M.S., succeeded him in May, 1902, and held the position of Principal to June, 1904. In August 1904, Professor A. J. Perkins, at the time

Secretary for Agriculture and Departmental Professor of Viticulture, was appointed Principal. He had been connected previously with the institution since 1892. In 1911 Professor Lowrie returned to the State to take up the position of Director of Agriculture. Six scholarships are offered annually, the State being divided into so many districts for the purpose. For several years the course of instruction at the College covered two years; but soon after his arrival Professor Lowrie pointed out that this term was too short, and urged that it should be extended to three years. The recommendation was adopted as from the beginning of 1893. The curriculum is as follows:—

First year—Mathematics, anatomy, book-keeping, agriculture, chemistry, meteorology, heat, electricity, and botany. Second year—Mathematics, physiology, chemistry, agriculture, viticulture, fruit culture, mechanics, surveying, and wool-classing. Third year—Chemistry, agriculture, veterinary science, viticulture, œnology, surveying, mechanics, physiology, and wool-classing. Students who desire to attend only two years are required to pass an entrance examination equivalent to the sessional examination at the end of the first year. The fees were originally fixed at £50 per annum, but in 1888 they were reduced to £30. Students are admitted for a six months' course in dairying or poultry. Special attention is devoted at the Agricultural College to "diversified farming," and valuable experiments are conducted in live-stock breeding—more particularly the production of lambs suitable for export. The scope of experiment work in agriculture has, within recent years, been extended considerably. It embraces everything likely to prove of advantage to Lower North farming. New buildings have been erected for accommodation of students and teaching purposes, and a well-equipped dairy has been established in connection with the college.

#### PUBLIC LIBRARY, MUSEUM, AND ART GALLERY.

This institution is situated on North Terrace, about 10 minutes' walk due east from the Adelaide Railway Station. It is governed by a board consisting of 14 members, five of whom are appointed by the Government, and nine of whom are elected as follows:—Three by the Institutes Association of South Australia, two by the Adelaide University, and one each by the Adelaide Circulating Library, the Royal Society of South Australia, the Royal Geographical Society of Australasia (S.A. Branch), and the South Australian Society of Arts.

The buildings in which the different collections are housed, comprise—The Institute building, in which a copy of every South Australian newspaper and leading extra-State and oversea newspapers are filed. Here, also, is the fine Yorkgate Library, which is the property of the Royal Geographical Society, but is accessible to the public under certain conditions. The societies affiliated with the institution, viz., the Royal Society of South Australia, the Royal Geographical Society of Australasia (S.A. Branch), the South Australian Society of Arts, and the Astronomical Society of South Australia are housed in this building, as also is the Adelaide Circulating Library. The last named is entirely separate and distinct from the Public Library, but its

subscribers elect one of the members of the Board of Governors of the Public Library, Museum, and Art Gallery of South Australia. In the Institute Building is a lecture-room capable of seating over 300 people, and an episcopes and projection lantern—the only instruments of their kind in Australia—which are there available, cause the room to be much sought after for lecture purposes. In this room is a collection of water-color paintings of Australian wild flowers.

The Public Library Building, first occupied in 1884, is a fine freestone building, containing about 75,000 volumes, covering all branches of literature, excepting law and medicine; the Supreme Court and the University Libraries are expected to respond to the wants of the professions as regards such literature. The library is visited annually by over 100,000 people.

The Natural History Museum Building is visited annually by over 80,000 people, and is becoming increasingly popular. Its Australian ethnological collection is said to be the finest in the world, and the early completion of the eastern wing of the Public Library block will afford an opportunity for exhibiting these things more satisfactorily than is at present possible. The only specimen in existence of the skeleton of the *Diprotodon australis* is in this museum.

The Art Gallery building contains a well-selected collection of pictures of modern masters, and generally surprises the connoisseur who visits it. The gallery is at present being equipped with electric light, and it is proposed to throw it open to the public at night time as an experiment.

At present the collection of ceramic ware, which contains many fine examples, is exhibited in the Art Gallery. This interferes with the satisfactory inspection of some of the paintings, but the ceramic ware will be removed to the new building at an early date, where it will be exhibited as a portion of a new department, which is to be known as the Art Museum.

In the Art Museum will be also exhibited historical portraits, prints and engravings, coins and medals, archaeological specimens; most of which it has been impossible to exhibit before owing to lack of suitable space. Some of these collections are exceptionally good—notably, the coins and medals, and the prints and engravings.

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## LAND LAWS AND SETTLEMENT.

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IN the Imperial Act which authorised the establishment of South Australia as a British Crown colony, the price of public lands was fixed at £1 per acre. Owing to the difficulty experienced in raising the prescribed sum of £35,000 from the sale of lands—£20,000 was to be invested in Government securities in order that the mother country should bear no financial risk in the founding of the new province—the minimum was subsequently reduced to 12s. per acre. Under the modified scheme 437 lots of land, comprising a total of 58,995 acres, were granted under preliminary land orders, which also entitled the holder to a town acre, and these realised £35,397. There were also sold at the same price 20 country sections of 80 acres each, which brought the total territorial revenue up to £36,357. The minimum price of land in South Australia was thereupon raised to £1 per acre. Regulations made at the time provided that every applicant for land, in order to entitle himself to a grant, should pay a certain sum into a fund to be employed in bringing out laborers. Persons paying cash for 4,000 acres had the right to call for the survey of any compact area not exceeding in extent 16,000 acres. Under these provisions, up to December 22nd, 1837, in addition to the area already stated, 3,300 acres of country lands at £1 per acre, and 591 town acre lots for £3,594 had been alienated. In 1838, 48,000, and in 1839, 170,841 acres were disposed of, which made the total area sold up to January 1st, 1840, 283,507 acres for which £262,240 was realised. Land continued to be dealt with under the original regulations until 1843, when the first local Act was passed. The land laws have undergone frequent alterations since then, and several volumes would be required to review the process of evolution found necessary to meet the changing conditions. The initial mistake made was in seeking to transplant English methods of land tenure to a new country. Much mischief also resulted from the attempt to apply the same laws to lands varying in quality and subject to different climates. The difficulties of colonisation were indefinitely multiplied by these and other legislative and administrative errors. It was only after years of bitter experience and fluctuating fortunes that the vast territory which forms the State of South Australia came to be better understood. The flockmaster pushed his way back from the sea-board, testing the climate and the productive capacity of the soil as he went. The farmer followed with his plough, never heeding the warnings uttered by the squatter, or such an authority as the late Mr. Goyder, for many years Surveyor-General. This officer personally surveyed and inspected large

areas, and, being a man of keen observation, noted the suddenness with which the country changed from large trees and rich grasses to stunted scrub and bare hills or vast plains of saltbush, bluebush, cotton-bush, and other herbage. He fixed what has since been known as Goyder's line of rainfall—a theoretical division which has proved to be singularly correct. The ancient theory, however, that rain "follows the plough" was firmly believed, and the agriculturist set his face northwards with a determination which was admirable. For some time land legislation was dictated by a popular demand for broad acres.

### OCCUPATION OF CROWN LANDS.

The upset price of country lands was fixed at £1 an acre, and as the financial wants of the province increased every effort was made to push on with the sale of land in order to bring in revenue. It was shortly after the first flush of excitement over the Victorian goldfields had subsided and the stream of population had begun to flow towards South Australia that settlement began to increase. In 1853, 213,221 acres were sold for £291,660, and from that time onward the acreage under cultivation rapidly expanded. In 1854 it stood at 129,692 acres. Five years later the cultivated area had increased to 361,884 acres, and in 1865 it was 660,569 acres. In 1869 an Act was passed providing for selection after survey in declared areas, the selector being allowed a certain number of years in which to pay his purchase-money. He was compelled in the meantime to pay interest at a moderate rate and to comply with conditions of residence and improvement. Reforms followed in quick succession; so rapid, indeed, that the land legislation of the country was confusing even to those whose duty it was to administer the laws. Every new Parliament made an attempt to improve on the land laws, and whole Acts were bodily repealed, or special clauses were amended and patchwork legislation was resorted to. The chaotic condition of the land laws, after such lightning changes, made a consolidating measure imperatively necessary, and in 1878 the Crown Lands Consolidation Act came into operation. The area alienated from the Crown in fee simple, including completed purchases, at that time totalled 4,970,940 acres, realising £6,362,059, and the area held on credit after deducting revoked and abandoned selections and completed purchases was 2,509,606 acres, on which the sum of £3,534,576 was agreed to be paid. The population then stood at 236,000, and the area under cultivation at 1,828,000 acres, giving an average area of about 31 acres sold or selected land for each person, of which area seven and three-quarter acres were under cultivation. Crown lands continued to be alienated for some years, until a resolution was carried in Parliament stopping the sale of public lands and adopting exclusively a system of leasing. This method, however, has since been partially abandoned.

LANDS SOLD AND LEASED.

The appended table discloses at a glance the area of Crown lands sold and leased as on October 1st, 1912—

	Acres.	Acres.
Alienated in fee simple .. .. .	10,065,156	
Free grants .. .. .	122,604	
	<hr/>	
	10,187,760	
Less repurchased for closer settlement and home- stead block .. .. .	581,068	
	<hr/>	9,606,692
Transferred to closer settlement—		
Freehold .. .. .	581,068	
Leasehold .. .. .	43,053	
	<hr/>	624,121
Dedicated for public purposes (Forest lands and commonage) .. .. .	Renmark	177,655
Held under deferred payment system .. .. .		1,772,368
Leased under right of purchase leases .. .. .		2,924,596
Leased under perpetual leases .. .. .		15,139,108
Leased under miscellaneous leases .. .. .		1,295,377
Leased under pastoral leases .. .. .		96,072,850
Freshwater lakes .. .. .		224,000
Saltwater lakes .. .. .		7,680,000
Unleased vacant lands .. .. .		107,729,033
		<hr/>
Total area of State .. .. .		<u>243,244,800</u>

LANDS REPURCHASED FOR CLOSER SETTLEMENT AND  
HOMESTEAD BLOCKS.

Area, 624,121 acres. Purchase-money paid, £1,917,460 9s. 10d.

These lands have been sold or are held as under—

	Acres.
Alienated by completion of purchase .. .. .	54,814
Held under deferred payment system .. .. .	440,307
Held under perpetual leases .. .. .	53,036
Lands in course of being dealt with .. .. .	75,914
	<hr/>
Total area repurchased for closer settlement .. .. .	<u>624,121</u>

HOW CROWN LANDS MAY BE OBTAINED.

The subdivision of Crown lands is conducted by the Land Board, composed of three members. So soon as surveys are completed the Board fixes the price at which each block is to be offered, and, when approved by the Commissioner, full particulars of area and price of each block, and description of soil and herbage, are published in the *Gazette* for not less than four weeks, and notice is advertised in the newspapers. Placards describing the localities where the land offered is situated, and giving other particulars, are sent to every post office, railway station, and institute throughout the State. Plans of the land, and particulars of sizes of blocks, and prices and descriptions of

soil and herbage are forwarded free of charge on application to the Surveyor-General's Office, Adelaide. These applications may be made personally or through the post. Applications must be made for one or more blocks while advertised, and must be accompanied by 20 per cent. of the annual rent if perpetual lease is applied for, or a half-year's instalment if desired on a covenant to purchase. The applicant has the choice whether he will take a lease or an agreement to purchase, except for repurchased lands, which are offered on agreement to purchase only. As early as possible after the date fixed for receiving applications the Board meets, takes the evidence of applicants, and allots the blocks to each applicant who, in the opinion of the Board, should have the block. Preference is given to applicants who will reside on the land applied for. Other considerations that assist the Board to a decision are the ability, through means and experience, to utilise and improve the land applied for, and the number in family that would become settled on the land. To save applicants the expense of travelling to the city to attend the Board meeting, a member of the Board usually proceeds, before the allotment, to the locality where the land offered is situated, and takes evidence of local applicants. The allotment completed, the names of the successful applicants are published, when, in the case of leases, the balance of first year's rent and lease fee must be paid within a month, and the lease is forthwith prepared for execution. The deposits paid by unsuccessful applicants are returned. For those who have applied for covenant to purchase, an agreement is at once prepared for execution. The purchase-money and interest are payable by instalments in advance, as already stated. Successful applicants for perpetual leases are required to pay one-fifth of the annual rent for the first year, one-third for the second year, and two-thirds for the third year, after which the full annual rental is payable. The Land Board decides the area of land which is to be cleared and rendered available for cultivation in each block, and the successful applicants are required to clear not less than one-eighth of this area during the first two years, and not less than one-eighth of the area specified as suitable for cultivation in each succeeding year until three-quarters of the whole area has been cleared and rendered available for cultivation. Agreements and leases are liable to forfeiture if payments due thereunder are six months in arrear and remain unpaid for three months after same have been demanded, or for breach of any of the other covenants or conditions.

No lease or agreement of Crown lands can be granted to any person the unimproved value of which would exceed £5,000, or so that the lessee or purchaser would hold any lands under any tenure except pastoral leases, the aggregate unimproved value of which would exceed £5,000, except where the land is suitable only for pastoral purposes, the carrying capacity of which, with all other lands held by the lessee or purchaser under any tenure, would not exceed 5,000 sheep; and if the land is outside Goyder's line of rainfall the limit shall be increased to the carrying capacity of 10,000 sheep.

Any blocks not allotted on the date fixed may be applied for and may be allotted on receipt of application. Any lands reverting to the Crown by



effluxion of time of lease, or through forfeiture, are revalued and re-offered. In place of forfeiture of any lease or agreement the holder's interest therein may be sold by auction by the Commissioner's orders, the proceeds to pay all arrears on the land and expenses of sale. If any balance remains, the outgoing holder may be paid for substantial improvements made by him on the land that increased the capital value. Any purchase-money the outgoing holder may have paid on the land sold may also be reimbursed to him if the proceeds of sale admit, except the first instalment of purchase-money. If the holding is not sold when offered, the Commissioner may transfer it, on application being made. All land disposed of under perpetual lease or agreement to purchase is subject to land tax. Holders of leases or agreements are not entitled to the minerals on the land held by them, and mining leases may be granted over such lands, the lessee, of course, having equal right with others to such leases. Holders of mining right over lands held under lease or agreement must pay the holder thereof compensation for damages sustained by virtue of such mining rights. Any holder of a lease or agreement may sublet his holding for three years, with the consent of the Commissioner, after he has held same for six years. Interest at the rate of 5 per cent. is charged on arrears due under leases or agreements. If over two months in arrears the Commissioner may recover same in court, and if six months in arrear, after notice the lease or agreement may be cancelled and the land revert to the Crown. Each person holding agreement to purchase repurchased land must spend in substantial improvements on his block, during each year for the first five years, a sum equal to £3 for every £100 of his purchase-money. Should any repurchased land remain unallotted over a year after being offered, they may be offered on miscellaneous lease on terms fixed by the Board, or, if the Board so recommends and the Commissioner approves, they may be sold by public auction, a reserve being fixed by the Board. Terms, 25 per cent. of the purchase-money in cash, balance in five yearly instalments bearing interest at 4 per cent. per annum. Any amount in arrear on repurchased lands may, with interest at 5 per cent., be sued for in court by the Receiver of Rents.

Any leaseholder wishing to abandon the land may apply to surrender his lease, if the rent is paid three months in advance, and when such surrender has been accepted by the Governor, the lessee is released from further responsibility with respect to the said land; but no surrender is accepted when any portion of a loan granted is unpaid. Persons holding lands used for grazing or cultivation under previous Acts may apply to surrender for a lease or agreement under present Act. If the application is approved the Board then fixes the rent or purchase-money at which a perpetual lease or agreement to purchase can be obtained. The lessee must, within three months of notification of price, accept or refuse the terms offered, or he may appeal within three months against the price fixed, in which case the Board reconsiders the case. Within three months of the final decision the lessee must accept or refuse the new terms.

A mortgaged lease or agreement must have the consent of the mortgagee before surrender. If he consents the transaction will be completed, but if not the holding must remain as before. The widow or widower, or next of kin of intestate holders, or the executors, may surrender without probate or letters of administration being taken out if the Commissioner is satisfied that—(1) The applicant is entitled to prove the will, or to letters of administration ; (2) the whole value of the estate does not exceed £200 ; (3) the debts and funeral expenses and succession duties (if any) of the deceased have been paid, and that his will (if any) has been filed in the Supreme Court. Leases and agreements may be transferred after being held for five years, subject to the recommendation of the Board and the approval of the Commissioner, but not so as to let any person acquire more land than is allowed to be held, as already stated ; and all rents or instalments due must be paid, except in dry areas, where terms can be arranged.

### CLOSER SETTLEMENT.

In 1898, in order to meet the growing demand for land, an Act was passed providing for the purchase of freehold lands for closer settlement. These were to be let on perpetual lease at a fixed rental of not less than 4 per cent. on the amount paid for purchase-money, together with any expenses incurred in connection with the purchase and offer. Subsequent legislation, however, altered this, and now repurchased lands must be taken up on agreement to purchase, and may be held up to £4,000 worth of unimproved value, and £5,000 worth improved and grazing blocks, and up to £8,000 in certain parts of the South-East. Payments are made half-yearly in advance (the first 10 payments consist of interest only at 4 per cent. per annum on the purchase-money for the land and improvements and then 60 equal half-yearly payments of purchase-money and interest). Purchase may be completed by paying the balance of the purchase-money after holding the land nine years, if the conditions have been fully complied with. Any amount of £50 or any multiple thereof may also be paid in reduction of the balance of the purchase-money. Holders of agreements in certain parts of the South-East are allowed to surrender them for perpetual leases.

The total area repurchased for closer settlement to the end of June 30th, 1912, was 601,446 acres, and a purchase-money of £1,825,465 was paid. In addition 18,022 acres of freehold and leasehold land had been repurchased for reclamation, &c., at a cost of £63,979, making a grand total of 619,468 acres purchased for £1,889,444. Of the above area 539,097 acres had been allotted to 1,911 persons, the average holding being about 282 acres. The holders of 191 blocks, aggregating in area 51,705 acres, had obtained the titles for their holdings, having paid £86,237 for the land and £14,708 13s. 6d. for the improvements on the land at the time of allotment. The settlement of the closer settlement repurchased lands has been highly successful, with the exception of some of the estates in the South-East, where, owing to the excessive rainfall during the years 1909 and 1910, the growth of cereals was almost a total failure in many instances, while land in some cases was

submerged for a considerable period to such an extent that the usual number of stock could not be depastured on it. Prior to the Government repurchasing the estates for closer settlement it is doubtful whether the population on the land exceeded 500 persons, while the stock on the whole area at the time of purchase numbered about 346,000 sheep and about 3,900 horses and cattle. On June 30th, 1912, the population of the repurchased lands still held under agreement and lease from the Crown was 4,990 (including children), and the stock numbered 121,000 sheep and about 17,150 cattle and horses, while the area under cultivation for cereals, hay, &c., was 73,594 acres, which returned 720,300 bush. of grain and about 19,800 tons of hay. About 618 acres in the estates are under cultivation for gardens and orchards. If the population, stock, area cultivated, &c., on the lands of which the holders have completed purchase were added to these figures the totals would be considerably greater. It will be interesting to know that the total value of the improvements effected by the successful applicants on the land repurchased exceeds £325,000. The success of the closer settlement system is shown by the excellent manner in which payments are made by the holders of these lands. The annual payment for rent, instalments, and interest amounts to £80,023 19s. 2d., while the arrears on June 30th, 1912, last were only £5,131. Almost the whole of this amount was due on the Kybybolite, Binnum, Hynam, Yallum, and Mount Schank Estates in the South-East.

#### HOMESTEAD BLOCKS.

Any Crown lands and lands which may be acquired by purchase or exchange, may be offered on the same terms as ordinary lands, not exceeding £100 worth in each block. These are for residences, and must be resided on at least nine months in every year by the lessee or the purchaser, or his wife, or a member of his family. The holder may have his lease or agreement indorsed "Protected Homestead Block." The effect is that no subsequent encumbrance on the land by the holder will be valid, nor shall the block be liable to seizure for debt, except for rates and taxes, nor, unless so willed, will it become assets for payment of debts after the death of the holder. If a holder is unable to continue in occupation of his block he may, on the recommendation of the Land Board, and with the Commissioner's consent, assign or sublet it.

Advances up to £50 may be made by the Commissioner to any homestead block holder who has complied with the conditions of his lease or agreement, to assist in erecting permanent buildings on the blocks, and other improvements that permanently increase the capital value thereof, such as clearing the land, fencing same, erecting or making thereon permanent water improvements, such as dams, wells, watercourses, windmills, &c. The advances do not exceed half the cost to the blocker of the improvements then in good repair on the land. Advances must be repaid, with interest at 4 per cent. per annum, by 20 equal instalments, beginning 12 months from date of advance. The whole amount may, however, be repaid at any earlier date. Failure to repay renders the holding liable to cancellation. Grant of the land cannot issue till advance is repaid. The Commissioner may, in case of hardship, extend

the time for payment, deferred payments bearing interest at 5 per cent. per annum. No buildings are to be removed, nor other improvements destroyed or injured, while any portion of an advance remains unpaid; nor would any subsequent mortgage or other encumbrance be valid till the whole advance is repaid. All buildings must be insured.

There appears to be comparatively little demand for homestead blocks at present. During 1911-12 only about 1,247 acres were allotted under 71 agreements and leases. The total area held on June 30th, 1912, under 1,856 leases and agreements, was 29,162 acres, and from the inception of the system up to the same date purchase had been completed of about 29,342 acres, at a purchase-money of about £68,426. It is probable that a considerable number of the holdings over which titles have been issued have since changed hands, and are now included in larger areas than when held by the original lessees.

#### RECLAIMED SWAMP LANDS.

These are subdivided and offered on perpetual lease in the same manner as other lands are offered. Each lessee may hold not more than 50 acres of reclaimed land, and also not more than 50 of irrigable and reclaimed land in the aggregate, and, in addition, any area of other lands as may be determined by the Land Board. Before the land is offered, pumping machinery must be erected and irrigation works and channels constructed, and appliances for supplying water to the land. When leases are granted of not less than two-thirds of the blocks in any irrigation area, an Irrigation Board may be appointed to have the control and management of the irrigation area. Pending the appointment of the board the Commissioner may supply water to lessees of the area at such rates and upon such terms as he determines. The board, when appointed, is provided with funds for supplying appliances and water for irrigating the blocks leased. This money has to be repaid in 20 yearly instalments, commencing after five years from the date of advance, interest at 4 per cent. to be added.

The board, consisting of five members, holds office for 12 months, after which the Governor appoints one and the ratepayers elect the others, every ratepayer being eligible. One-half the elected board retire annually, but may be re-elected. The duties of the board are the making, cleansing, and repairing of channelling and providing water for irrigating the land, and to carry out works for the betterment of the irrigation area, and to secure the health, comfort, and convenience of the lessees. The boards are authorised to levy rates, to be paid by the lessees. Lessees may obtain advances to assist them in erecting permanent buildings and making permanent improvements on their land, and for grubbing and fencing the land, and making drains, dams, wells, tanks, &c., of a permanent nature. The lease may be forfeited for breach of any of the conditions, or the lessee's interest in the lease may be sold. Lessees are not to remove, destroy, or injure any improvements on their holdings while any advance remains unpaid. The rent must not be less than 4 per cent. per annum on the cost of reclaiming and the unimproved value

of the land. During the first year only one-quarter of the annual rent need be paid, one-half during the second year, three-quarters during the third year; afterwards the whole annual rent must be paid yearly. Any of these lands remaining unallotted for a year may be let at reduced rental, or on miscellaneous lease.

Already more than 1,000 acres of swamp lands have been reclaimed in the neighborhood of Murray Bridge, and a large area is in course of reclamation about 15 miles higher up the river. In connection with the swamp lands, adjoining higher lands are purchased wherever necessary and disposed of to lessees of swamp blocks for residential purposes.

#### PRICE OF LAND.

The price of agricultural land varies considerably according to locality, class of soil, and average rainfall. Good farming land, with a reliable rainfall and improved, is in great demand at prices from £4 to £20 per acre, and occasionally higher; Crown lands, principally scrubby, from 2s. 6d. to £2 per acre; land repurchased and allotted for closer settlement averages about £3 8s. per acre, the price varying from £1 up to £100 per acre. The rentals vary for Crown lands from 2 per cent. to 4 per cent. on purchase-money. For garden land in gullies and hill slopes of the Mount Lofty Ranges, where there is a good rainfall, prices vary from £5 to £100 or more per acre. Grazing or pastoral leases are at rentals from the Crown of from about 1s. 6d. to £2 per square mile. Dairying land for dairying purposes, *i.e.*, in most cases land on which lucerne could be grown, varies from £20 to £100 an acre, and with rentals at from £1 to £10 an acre. In some instances, as at the Reedbeds, about five miles west of Adelaide, rentals are as high as £15 per acre. The prices for good grazing land suitable for dairy cattle are much the same as those for agricultural purposes.

#### ADVANCES TO SETTLERS.

With a view to assist new settlers on the land, Parliament in 1908 passed an Act authorising the Government to make advances to holders of a lease or of an agreement to purchase Crown lands. In 1911 irrigation and repurchased lands were included. Now the Board appointed to administer the funds may make advances for—(a) Ring-barking, clearing (including rolling down and logging), grubbing, fencing, draining, erecting, or making permanent water improvements, boring for water, or erecting permanent buildings, or purchase of stock; or (b) discharging any mortgage already existing on holding, on the security of—(a) leases of Crown lands; (b) agreements with covenant to purchase Crown lands; or (c) such other security as the board may desire. Advances may be made by instalments, if necessary, at the discretion of the board, of amounts not exceeding in the aggregate £850 to any one settler. The sum of £650 may be advanced for effecting further improvements and to pay off existing mortgages, and £200 for the purchase of stock. The first £400 is advanced on the fair estimated aggregate value of the settler's lease or agreement, and any improvements already

made on the holding and those in course of being effected thereon. Any loan beyond £400 does not exceed 15s. in the pound of the fair estimated value of the improvements already made, or for paying off a mortgage. Advances to holders of reclaimed lands must not exceed £600. The board in every instance may refuse further advances if the money is not properly spent. For the first five years the borrower is required to pay interest only at the rate of 4 per cent., if paid within 14 days of due date, after which 5 per cent. is charged. From the sixth year the loan is repayable, with interest, in 50 equal half-yearly instalments. No advance is made to discharge an existing mortgage of an amount exceeding 15s. in the pound of the fair estimated value of the improvements already made on the holding. Applications may be for sums of £50, or any multiple thereof, not exceeding £850. Each application must be accompanied by a valuation fee of £1 for any amount applied for up to £100; £2 for any sum above £100 and not exceeding £200; £3 for any sum above £200 and not exceeding £300; £4 for any sum above £300 and not exceeding £400; £5 for any sum between £400 and £500 and £6 for any sum between £500 and £600; and £1 for each £100 or fraction of £100 up to £850. No refund of fee is allowed if an inspection of the security has been made.

Mortgages are prepared free of charge, but borrowers are required to pay the statutory charges in connection with their registration, transfer, or discharge. These are—(a) Registration of mortgage, 10s.; (b) registration of transfer or discharge of mortgage, 5s. The leases or agreements, as the case may be, together with the above fees, must be in the possession of the board before a mortgage can be prepared, or fees will, at the option of the board, be added to the mortgage debt. Intending borrowers are requested to note that applications should, in every instance, be lodged prior to commencement of work, and moneys are then paid over in progress payments as the work proceeds. The title of any land on which advances are outstanding is retained by the Board until the amount advanced is repaid. Any breach by the settler of any terms of the mortgage renders the holding liable to cancellation, or the land may be sold if any payment is three months in arrear. The settler is required to keep in good tenantable repair all buildings and other improvements on the land, or the Board may effect repair at the cost of the settler. Inspectors may view and report on improvements at any time.

During the financial year ended June 30th, 1912, 546 formal applications for loans were received by the Board, of which 285 were approved for the sum of £44,788. The total amount advanced under the Act on that date was £65,915 9s. 11d. Under the more liberal conditions provided for, as a result of the passing of the latest amending Act, the applications for loans are already largely increased.

#### VERMIN-PROOF FENCING.

Loans are granted under Vermin Acts for the erection of vermin-proof fencing by vermin boards; for the purchase of vermin-proof fencing materials

by lessees within vermin-fenced districts not included in district councils; and upon the cost of wire netting and barbed wire for erection by lessees on the boundaries of their leases outside district councils and vermin-fenced districts. Loans are also granted to landholders through district councils and wire-netting trusts for the purchase of wire netting for protecting agricultural holdings. These loans are repayable in 20 years, with interest on the outstanding balance from time to time remaining unpaid at the rate of 4 per cent. per annum.

### PASTORAL LANDS.

In no other direction have greater changes been made in the land laws than in the treatment of pastoral country outside of hundreds. The Pastoral Act of 1904, which deals with Crown lands that do not come within the scope of the Crown Lands Act of 1903, is administered under the Commissioner of Crown Lands by a Board appointed by the Governor, consisting of three members—the Surveyor-General as chairman, another civil servant, and a person selected from outside the service. The Board holds office 12 months, the members being eligible for reappointment. The Board meets when required. No member can be interested in any application dealt with by the Board, and any act done contrary to this restriction is null and void. The Board's duties are to recommend the area, rent, and term of lease of land, and to allot same. Valuations may be made by one member and confirmed by the board; evidence of applicants may be also taken by one member. The Board may require the attendance of applicants and other persons for evidence, and may require the production of documents.

In fixing size of blocks regard is paid to natural features, so as to utilise improvements and waters to each block as equally as possible. The amount to be paid for any improvement is fixed, distinguishing between amounts payable to the Crown and to the outgoing lessee. Notice of land available is published in the *Gazette*, showing area, situation, term, rent of each block, price to be paid for improvements (if any) and to whom payable, and cost of valuing such improvements. Any land not applied for within a month of notice may be reoffered at reduced prices, and so on at intervals of three months until applied for; but if improvements belong to the outgoing lessee the price is not reduced, except for depreciation, until the rent has been reduced 50 per cent., after which rent and price for improvements are reduced proportionately, after notice to the outgoing lessee of intention to reduce. The outgoing lessee may appeal to the Tenants' Relief Board to fix the rent and price for improvements. This board may fix any price it thinks fit without further appeal.

Each application must be accompanied by a quarter of a year's rent and 5 per cent. of price payable for improvements, or 10 per cent. when the improvements do not belong to the Crown. Land reoffered on expiry of lease may be applied for by previous lessee. Names of persons to whom blocks are allotted, and particulars are published, and deposits made by unsuccessful applicants are returned. Balance of first year's rent and lease fee must be

paid within a month after allotment. A lease does not entitle the holder to mine, or remove timber from the holding, but to use the surface of the land for pastoral purposes or any other purpose approved by the Commissioner. The term of lease is 42 years unless the land is likely to be required for closer settlement, when the term is 21 years—42-year leases are subject to revaluation of rent for the latter 21 years. Before reoffering land previously leased a report must be furnished whether such land, owing to the nature of the soil, rainfall, proximity to sea or railway, is suitable for division; if not, it may be again offered on 42 years' lease. The area available for pastoral occupation is about 90 million acres. In determining the rent in all cases the Board must have regard to the land's carrying capacity for stock, its value for other purposes, its proximity and facility of approach to railway, port, river, and market. In revaluations no increased rent is imposed for improvements made by the lessee. Revaluations must be made not less than six months before expiry of the first term of 21 years. If lessee appeals against revaluation, the question is determined by arbitrators—one appointed by the Commissioner and one by the lessee.

Within 12 months before the expiry of a lease all improvements on the land must be valued and their position indicated on a plan. Unless already improved up to £3, every lessee is required to expend in improvements on the land a sum fixed by the board, not exceeding 10s. per mile per annum, until at least £3 per mile has been so expended. Improvements must be valued at their worth to an incoming lessee, and the outgoing lessee is paid therefor accordingly. If value of improvements is not agreed within nine months before expiry of lease it is settled by arbitration, as before stated. The outgoing lessee receives from the incoming the value of improvements made or purchased by him on the land let. Improvements on land not offered within six months after expiry of lease must be paid by the Commissioner to the outgoing lessee. Payments for improvements belonging to the Crown may be made by annual instalments, extending, if desired, over 21 or 42 years, according to the term of lease, lessee meanwhile keeping such improvements in repair. Improvements must consist of wells, reservoirs, tanks, dams of a permanent character available for sheep or cattle which increase the carrying capacity of the run, machinery and appliances for raising or distributing water, troughs or substantial buildings, vermin-proof or other fences, huts or sheds erected for residence, shearing, or other purposes required in connection with livestock. The cost of valuation on expiry, other than by the board, must be paid by the incoming lessee. A lessee must not destroy or injure improvements while any money is owing on them, but he need not repair any improvements of no value to him if he makes others in lieu thereof to the satisfaction of the Commissioner. A lessee is not entitled on resumption to payment for improvements made after the first 10 years of his lease unless he previously gives particulars of such intended improvements, or, when not practicable to give notice before erection, he must do so with all reasonable dispatch.



Any run may be resumed for public works, sites for town or cemetery, for mining, or for park lands on a month's notice, or for intense culture, after the first 10 years of the term, after a year's notice. Land resumed for intense culture, but not so used for two years after resumption, may revert to the lease from which it was taken upon repayment of any compensation paid when the land was resumed. The lessee is entitled to compensation for loss or depreciation in value of his lease caused by such resumption, and for improvements. In case of dispute it is settled by an arbitrator appointed by each party. Lands resumed for mining, and not longer required for that purpose, may be again taken by the lessee from whom it was resumed. Payment for improvements, or compensation on resumption, must be made within six months of the expiry of lease, or resumption, if the lessee has then given up possession.

A lessee must, if required by the Commissioner, allow a miner on the leased land a reasonable quantity of water for mining and domestic purposes from any well or dam on the run, on payment by the miner of fair compensation, the amount to be decided by the Commissioner in case of dispute. The quantity of water so taken is not to deprive the station owner of water necessary for his stock, domestic, and general purposes. Any lessee may apply to surrender his lease unless within a proclaimed vermin district, but no surrender will take effect until accepted by the Governor. After surrender is accepted a lease of the land for the unexpired term may, if requested, be granted to any person named by the retiring lessee, on approval of the Commissioner. When a lease expires or is resumed, and the lessee holds land contiguous thereto, he may surrender it if the lease is within 12 months of expiry; he will then be entitled to payment for improvements the same as if the lease had expired upon the re-lease or sale of the land. A lessee holding several blocks under leases expiring at different times may surrender all the leases and take one lease of the whole area, expiring at the average date of expiry of such leases; or, if worked as one run, an extension up to three years may be given with a view to the whole block falling in at the same time.

An outgoing lessee on expiry of lease may occupy land during the interval between expiry of his lease and the reletting of the land, at the same rental as before, or at the same rate, if lower, that the land is relet at. An outgoing lessee may also continue in occupation for 12 months after date of new lease, provided he pays the new rental and performs all the conditions of the new lease. He must keep all improvements in good condition and give the incoming lessee 5 per cent. per annum on the amount paid by him for improvements and compensation for loss or depreciation in value of such improvements. The purchase-money paid by the incoming lessee for improvements the property of the outgoing lessee shall be paid to him when he gives up possession of the land, with interest at 3 per cent. per annum from the time the Commissioner received such purchase-money. Any amount paid to the incoming lessee as compensation for the depreciation of improvements must be spent in replacing or making good such improvements,

unless he has completed the purchase of improvements. Any person before crossing a run with stock must give to the lessee or person in charge the usual notice in writing of date of entry and route to be taken. The stock must take the most direct track, and travel at the rate of at least five miles a day. If travelling for feed, payment must be made to the lessee at the rate of 6d. per 100 sheep and 6d. per 20 cattle for every day or part of a day the stock remain on the run.

The Commissioner, or anyone authorised by him, may enter on any run to sink bores or wells, or construct dams or other water conservation works outside of one mile from any improvements consisting of well, or dam; or building worth £100. If water is so discovered or conserved, an area of one square mile may be resumed for mining purposes, and a lease thereof granted to the discoverer or conserver. Where artesian water is found five square miles may be resumed, but if afterwards proposed to be leased the lessee from whom it was resumed has first right to a lease. If a lessee discovers artesian water on his run at least 10 miles from any other artesian supply or natural permanent spring on his run that yields not less than 5,000galls. per day of water suitable for stock, he is entitled to 100 square miles of land surrounding the well rent free for 10 years for each well so discovered up to four.

Barb wire and netting of all fences, vermin-proofed by a lessee at his own cost, remains his property, to be valued and paid for at the termination of the lease by the incoming lessees, the same as all other improvements. The cost at the nearest port or railway station of barb wire and netting required for vermin-proofing boundary fences may be advanced to the lessee by the Commissioner in certain cases, on the recommendation of the board, after wire and netting to the amount of such cost has been utilised in vermin-proofing boundary fences. These advances bear interest at  $4\frac{1}{2}$  per cent. per annum, principal and interest being repaid in 20 equal annual instalments of £7 13s. 9d. for every £100 advanced. If the lease expires before all these instalments are repaid the balance must be paid on the date of such expiry unless the incoming tenant agrees to pay the same, or the amount may be repaid on six months' notice. An incoming tenant is allowed similar credit. The Commissioner may erect such vermin-proof fences, the cost being repayable, with interest, as described above, provided that a plan showing situation and description of fence and the country to be benefited, names of lessees, and the proportion of cost to be charged to each, is first laid before Parliament and a copy sent to all the persons proposed to be rated, and afterwards resolutions are passed in Parliament approving the erection of the fence. No transfer or absolute surrender of lands in a vermin district is to be allowed until all loans for vermin fences are repaid unless the Commissioner is satisfied that payment on account of the lease will be duly made. Nor shall any lessee transfer or surrender his lease while any money is due by him for wire netting or barbed wire.

If the Commissioner is satisfied that any person has discovered pastoral land, or has applied for any land that has been unoccupied over three years and is more than 50 miles from the seaboard, or has applied for a lease of

land which, owing to vermin, has been abandoned, or land destitute of natural water, he may be granted a lease of such land at a peppercorn rent for 10 years, and at 6d. per square mile per annum for the next 10 years, and 2s. per square mile for the rest of the term of 42 years without revaluation. On vermin-infested or waterless country, if the Commissioner is satisfied that during the first six years of the term a sum equal to £5 per square mile of the leased land has been spent by the lessee in destroying vermin on the land, or erecting vermin-proof fences thereon, or constructing wells, reservoirs, tanks, or dams available for sheep or cattle, which increases the carrying capacity of the land, he is not bound to have more than 10 sheep or two cattle per square mile.

The Tenants' Relief Board consists of a Judge of the Supreme Court and two assessors, one appointed by the Commissioner, the other by the lessee. A lessee who gets notice of intention to forfeit the lease (this must be three months) for breach of covenant, other than non-payment of rent, may apply to the Tenants' Relief Board. If the Board, after proper investigation, considers that forfeiture should not be enforced, it shall not take place; but if the board certifies that the land should be forfeited, it may be. Mining may be carried on over land held on pastoral lease, but not within 200yds. of any well, reservoir, dam, dwelling-house, factory, or building worth £100 or more. No district council is to be proclaimed to include land held on pastoral lease. Annual leases and commonage licences may be granted on land within hundreds, subject to the rights of commonage of owners and lessees of land within such hundreds. Travelling stock roads or reserves are not to be used for any other purpose.

The Commissioner, the board, or authorised person may enter on leased lands to survey or inspect same, or to make valuation. The Commissioner may give permission to any person to erect gates on any roads outside corporate towns and district councils, and to let the right to depasture such roads. Anyone who injures, destroys, or leaves open such gate is liable to a fine not exceeding £50, or six months' imprisonment. Leases may be granted to charitable incorporated bodies for any term not over 21 years, at such rent and terms as the Governor may think fit, of land for aboriginal reserves, in blocks not exceeding 1,000 square miles, with right of renewal so long as the land is used for the benefit of the aborigines. No lessee shall be proceeded against for not destroying vermin, unless the lessee of adjoining lands who is not destroying vermin is similarly dealt with, unless lands are separated by a vermin-proof fence. The Commissioner may waive or rescind forfeiture of a lease on such terms as he may think fit.

On June 30th, 1912, the number of pastoral leases was 529, representing an area of 131,739 square miles and a total annual rental of £24,617. Improvements to be paid for amounted to £276,658 5s. 10d. There were also in force 83 annual permits, covering an area of 12,356 square miles, and requiring the payment of a rental totalling £1,155. The number of pastoral blocks open to application was 102, which accounted for an area of 43,363 square miles at an average rental (including instalments) of 1s. 7d. a square mile.

## MISCELLANEOUS LEASES.

These may be granted for 640 acres to the discoverer of guano or other valuable substance, not mineral, on Crown lands, on such terms as the Governor may determine; also leases of Government buildings, or for removing from Crown lands guano or other manures, stone, clay, or earth, for sites for inns, stores, smithies, bakeries, or other business purposes, or for sites for bathing-houses, bathing-places, mail stations, toll or punt houses, sites for tanneries, factories, sawmills, paper-mills, wharves, quays, jetties, landing-places, or for depositing materials or produce, for ship or boat building or repairing, or for other purposes, as may be approved by the Commissioner, for a term not exceeding 21 years, on such terms as the Commissioner may think fit. Leases for these latter objects are offered at auction.

## VARIOUS MATTERS.

Any arrangement to give reward to abstain from competition at auction sales is null and void; so is any agreement with an agent employed to bid at an auction sale for more than  $2\frac{1}{2}$  per cent. on the purchase-money.

Town lands, special blocks for establishing any industry, trade, or business; land that has been open for selection for two years and not taken; and suburban lands, if withdrawn from the Land Board, are sold by auction for cash. The upset price of these is fixed by the Commissioner, and notice of sale given. Terms, 20 per cent. cash, balance in a month.

Any Crown lands not reserved for special purposes may be exchanged for private property, subject to the recommendation of the Land Board and the approval of Parliament. The land thus acquired may be sold or let to the lessee of the land given in exchange for the unexpired term of lease, and must be devoted to the purpose for which the land given in exchange was set apart.

The Governor may, with the consent of the holder of a lease or agreement, grant not more than two acres of such land for a site for a school, church, chapel, or other public or charitable purposes, or one acre for a shop, mill, store, or a post office, provided the land is not within five miles of town lands. The purchase-money for such land must be paid at the time of application.

Licences to remove timber, stone, guano, manure, shell, or seaweed from Crown lands, and for fishermen's residences and drying grounds, for manufactures, slaughter-houses, or sawmills, for depasturing stock, or other purposes approved by the Commissioner, are granted for any term not exceeding a year, on payment of such fees as the Commissioner shall fix.

No person under 18 years old can hold a lease, agreement, or licence under the Acts dealing with Crown lands.

## PASTORAL.

THE expansion of the pastoral industry has had much to do with the general prosperity of South Australia. The pastoralist has been the pioneer settler testing the country and pointing the way for agricultural and closer settlement. The annual returns from pastoral pursuits in South Australia are estimated to have a value of nearly £4,000,000. Even this amount does not represent the full benefits of the industry or the amount of money actually disbursed among the community. The net value of pastoral products exported (oversea)—sheep, cattle, and horses (living), meat (frozen, &c.), skins and hides, tallow, wool, &c., for the year 1911 amounted to £2,571,660, compared with £2,720,783 in 1910.

Of the total area of the State—243,244,800 acres—11,186,540 acres are alienated, either wholly or conditionally, and 111,001,510 acres are leased (excluding 89,077 acres leased for mining purposes). There are 82,463,335 acres of the leased country situated outside and 28,538,175 acres within the counties. Beyond the limits of agricultural settlement 143,042 square miles (91,546,770 acres) are held by Crown lessees as sheep or cattle runs. The rental paid was £25,656, as against £25,681 in the previous year. The following table shows the area of leased land for depasturing purposes:—

Year.	Pastoral Leases.		Annual Leases.		Total Area of Pastoral Land Leased in each Year.	Annual Rent Payable on		Total Annual Rent Payable.
	Number of Leases.	Area Leased.	Number of Leases.	Area Leased.		Pastoral Leases.	Annual Leases.	
		sq. miles		sq. miles	sq. miles	£	£	£
1901 ..	536	107,681	—	—	107,681	35,747	—	35,747
1902 ..	538	113,139	—	—	113,139	32,646	—	32,646
1903 ..	510	114,638	—	—	114,638	30,356	—	30,356
1904 ..	479	113,365	16	4,063	117,428	25,468	455	25,923
1905 ..	468	113,861	32	5,518	119,379	23,214	568	23,782
1906 ..	468	113,112	43	6,709	119,821	23,129	657	23,786
1907 ..	483	116,005	53	8,039	124,044	23,476	769	24,245
1908 ..	485	120,129	64	9,573	129,702	23,635	884	24,519
1909 ..	495	124,828	75	11,169	135,997	23,980	1,004	24,984
1910 ..	523	130,606	82	12,260	142,866	24,595	1,086	25,681
1911 ..	527	130,685	83	12,356	143,041	24,501	1,155	25,656

The following is a decennial return showing the number of depasturing certificates issued (exclusive of those issued by district councils):—

Year.	DEPASTURING CERTIFICATES.		
	Number Issued.	Number of Head of Great Cattle.	Number of Head of Small Cattle.
1901 .. .. .	242	4,668	47,268
1902 .. .. .	398	6,892	144,485
1903 .. .. .	179	2,981	49,703
1904 .. .. .	196	3,554	9,395
1905 .. .. .	185	3,962	8,846
1906 .. .. .	219	9,739	8,242
1907 .. .. .	195	11,739	15,580
1908 .. .. .	181	10,210	13,888
1909 .. .. .	267	3,046	4,379
1910 .. .. .	208	1,202	5,380
1911 .. .. .	200	658	4,630

### LIVESTOCK IN SOUTH AUSTRALIA.

On December 31st, 1911, it was estimated that the livestock of the State comprised 6,171,907 sheep, 393,566 cattle, 259,719 horses, 13,728 goats, and 93,130 pigs. The following return shows an appreciable annual increase in the flocks, herds, and horses:—

Year.	Horses.	CATTLE.		Sheep.	Goats.	Pigs.
		Milch Cows.	Other.			
1901 .. .. .	165,303	74,995	150,261	5,012,216	8,869	88,886
1902 .. .. .	164,625	75,011	138,332	4,880,540	8,754	82,777
1903 .. .. .	176,648	83,348	161,262	5,298,720	11,650	88,246
1904 .. .. .	183,481	88,156	184,303	5,820,301	13,386	111,497
1905 .. .. .	196,114	93,069	207,652	6,140,600	14,138	117,762
1906 .. .. .	206,633	97,843	227,881	6,624,941	14,317	111,240
1907 .. .. .	208,639	100,743	233,928	6,829,637	13,428	90,741
1908 .. .. .	213,385	106,269	234,107	6,898,451	14,611	78,454
1909 .. .. .	240,405	110,757	233,277	6,432,038	13,349	80,410
1910 .. .. .	249,326	119,628	265,234	6,267,477	14,403	96,386
1911 .. .. .	259,719	121,803	271,763	6,171,907	13,728	93,130

## STOCK PER SQUARE MILE IN EACH DIVISION, 1911.

Division of State,	Area in Square Miles.	Horses per Square Mile.	Cattle per Square Mile.	Sheep per Square Mile.	*All kinds in terms of Sheep per Square Mile.
Central .. .. .	13,891	7.25	7.48	85.68	232.94
Lower North .. .. .	12,401	4.65	3.66	92.96	176.05
Upper North .. .. .	14,065	1.98	4.83	56.69	124.82
South-Eastern .. .. .	15,585	2.10	3.50	88.20	144.25
Western .. .. .	26,161	.87	.53	22.00	35.96
Outside counties .. .. .	297,967	.06	.36	3.63	7.86
Total South Australia .. {1911, } {1910, }	380,070	{ .68 .66	{ 1.04 1.01	{ 16.24 16.49	{ 33.43 33.18

\* For this purpose each horse or head of cattle equals 10 sheep.

## NUMBER OF LIVESTOCK IN DIVISIONS.

The following shows the number of sheep, cattle, and horses in the various divisions of the State in 1910 and 1911:—

		Sheep.	Cattle.	Horses.
Central,	1911 .. .. .	1,190,141	103,846	100,713
"	1910 .. .. .	1,245,277	105,886	97,055
Lower North,	1911 .. .. .	1,152,848	45,408	57,628
"	1910 .. .. .	1,275,219	46,600	55,580
Upper North,	1911 .. .. .	797,278	67,945	27,888
"	1910 .. .. .	805,612	66,192	27,331
South-Eastern,	1911 .. .. .	1,374,627	54,581	32,772
"	1910 .. .. .	1,414,860	55,040	31,478
Western,	1911 .. .. .	575,486	13,791	22,743
"	1910 .. .. .	545,177	14,623	20,277
Outside dist's,	1911 .. .. .	1,081,527	107,995	17,975
"	1910 .. .. .	981,332	96,521	17,605

## INFLUENCE OF CLIMATE.

Stall-feeding of stock is unknown in South Australia, owing to the mildness of the weather. Climate is an important factor in the development of the pastoral business. Sheep, cattle, and horses thrive on natural herbage out in the open throughout the year. The fact that housing and artificial feeding are not necessary enables a big saving to be made in the raising of stock and production of wool, and partly explains the rapid expansion of the industry in Australia. Those of the early settlers who had been accustomed to stock were quick to recognise that the country and climate were eminently adapted to the breeding of sheep and cattle. Within two years of the proclamation cattle were brought overland from New South Wales, and the pioneer

pastoralists went farther and farther afield, increasing their flocks and herds from year to year. A history of the pastoral industry would embrace the commercial, agricultural, and social record of the State. The pastoralist "blazed the trail," and it was upon him that the early colonists depended for food supplies and the inauguration of an export trade which ever since has been the base of the State's prosperity.

### FLOCKS AND FLEECES.

The first vessels which left London for South Australia carried Leicester and Southdown sheep. Purchases were made *en route* at Capetown, where sheep were selling at the time at 5s. each. The South Australian Company purchased Merinos from Saxony and Tasmania, and importations of Merinos, were made at an early date from New South Wales. Within two years of the proclamation of the province the flocks numbered 28,000. Importation and natural increase made the colonizing company the owner of 20,000 sheep by the end of 1841, and several private individuals' herd flocks up to 10,000 each. From that time onwards there was an annual addition to the flocks and the value of the wool exported steadily increased.

In 1837 four bales of wool were shipped to London, this "parcel" constituting the first export of a South Australian clip! Total shipments of wool to the end of 1911 aggregated over 2,000,000,000lbs., and a value exceeding £74,000,000! The growth of this branch of the pastoral industry since 1850 is shown in the following table:—

Year.	Sheep.	Lbs.	£
1850	1,000,000	3,266,017	131,731
1860	2,824,811	11,731,371	573,368
1865	3,779,308	16,269,890	821,482
1870	4,400,655	25,908,728	902,753
1875	6,179,395	39,723,249	1,833,519
1875	6,454,579	43,390,566	1,716,171
1880	7,004,642	39,281,447	1,353,762
1890	7,646,239	51,561,485	1,618,487
1891	7,250,000	54,550,423	1,438,776
1895	5,235,220	33,277,660	1,003,391
1900	5,012,216	37,530,720	1,029,063
1901	4,880,540	34,168,346	1,061,809
1902	5,298,720	39,281,604	1,326,236
1903	5,820,301	34,299,232	1,306,236
1904	6,277,812	35,442,796	1,356,595
1905	6,624,941	41,771,682	1,561,564
1906	6,829,637	50,639,368	2,100,067
1907	6,898,451	46,333,486	1,629,662
1908	6,432,038	46,533,849	1,815,653
1909	6,267,477	53,785,018	2,000,330
1910	6,171,907	57,948,565	1,933,379
1911			

From the year 1904, the figures given are the *net* Exports.



The following table shows the number of sheep, the number of pounds of wool exported, the average per sheep, the declared value and rate per pound at port of shipment, and also the London price of average Adelaide greasy wool for the last 10 years. The rainfall for each season is also given :—

Year.	Rainfall (Adelaide).	Sheep at End of Year.	S.A. Wool Exported (in Grease and Washed).		Valued Declared at Port.		London Sales' Prices (Average Greasy).
			Total.	Per Sheep.	Total.	Per Pound.	
	Inches.	Numbers.	Lbs.	Lbs.	£	d.	d.
1900 .. ..	21.68	5,235,220	33,277,660	6.36	1,003,391	7.24	7.50
1901 .. ..	18.01	5,012,216	37,530,720	7.49	1,029,063	6.58	7.00
1902 .. ..	16.02	4,880,540	34,168,346	7.00	1,061,809	7.46	8.50
1903 .. ..	25.47	5,298,720	39,281,604	7.41	1,326,236	8.10	8.00
1904 .. ..	20.31	5,820,301	37,530,200	6.45	1,367,473	8.74	8.50
1905 .. ..	22.28	6,277,812	40,784,613	6.40	1,491,943	8.78	8.75
1906 .. ..	26.51	6,624,941	41,771,682	6.31	1,561,564	8.97	9.08
1907 .. ..	17.78	6,829,637	50,639,368	7.41	2,100,067	9.95	9.40
1908 .. ..	24.56	6,898,451	46,334,258	6.72	1,629,662	8.44	8.00
1909 .. ..	27.69	6,432,038	46,533,849	7.23	1,815,653	9.36	9.21
1910* .. ..	24.61	6,267,477	53,654,831	8.56	1,943,455	8.93	8.58
1911* .. ..	15.99	6,171,907	57,948,565	9.39	1,933,379	8.01	8.75

\* Oversea exports only.

### “ LOCAL ” WOOL SALES.

At one time the bulk of South Australian grown wool was shipped by the growers to London. About 1860 foreign buyers began making direct purchase in Australia, but it was not until the eighties that Australian wool auctions assumed any importance. The development of “ local sales ” in South Australia is indicated in the following :—

Season.	Total Exports.	Local Sales.	Per cent. Local Sales to Exports.
	Bales.	Bales.	Bales.
1894-5 .. ..	173,189	64,056	37
1895-6 .. ..	179,576	80,234	41
1896-7 .. ..	153,751	63,804	41
1897-8 .. ..	116,592	51,287	43
1898-9 .. ..	113,056	61,122	54
1899-1900 .. ..	119,766	70,682	58
1900-1 .. ..	115,774	42,637	37
1902-3 .. ..	111,676	65,239	58
1903-4 .. ..	96,524	61,215	63
1904-5 .. ..	98,484	58,509	59
1905-6 .. ..	108,838	71,018	65
1906-7 .. ..	124,472	85,691	68
1907-8 .. ..	146,431	105,925	72
1908-9 .. ..	163,892	119,713	73
1909-10 .. ..	165,513	134,701	85
1910-11 .. ..	160,573	138,757	86
1911-12 .. ..	174,639	145,076	83
	176,985	147,375	83

### CHARACTERISTICS OF SOUTH AUSTRALIAN MERINOS.

The Merino flocks of the State had an excellent foundation in the parent flocks selected in Saxony and from the Macarthur pioneer stud, New South Wales; and it has ever been the ambition of leading breeders to improve the constitution and frame of the animal and increase the weight and value of its fleece. As a result a special type of Merino has been produced in South Australia, and heavy drafts are annually made upon leading studs to fill orders from all parts of Australia, New Zealand, and South Africa. The South Australian Merino, which is so much in favor in the interior of the continent and the countries mentioned, is a vigorous animal of large symmetrical frame, robust constitution, carrying a heavy fleece of wool of long staple, showing character, and possessing beautiful lustre and softness. Artificial feeding is never on any consideration allowed by the leading stud Merino breeders of the State. The relentless law of the survival of the fittest is allowed full scope. There are a number of high-class Merino stud flocks in the State.

Various mutton breeds, such as Shropshire, Lincoln, Leicester, Dorset-Horn, and Romney Marsh have been introduced, and they have had a marked influence in improving the quality of lambs frozen and exported to the United Kingdom.

### CATTLE.

It was on April 3rd, 1838, that the first herd of cattle arrived in Adelaide overland from Sydney. It comprised 335 head, and was in charge of the owners, Mr. Joseph Hawdon and Mr. C. Bonney, who during the journey of 10 weeks lost only four bullocks. To celebrate this important event 90 gentlemen sat down at a public dinner, and an ox chosen from the herd was roasted whole. Mr. Eyre, who subsequently won renown for his exploring exploits, was the second overlander with cattle, and Captain Sturt was in charge of the third party. From that time onwards cattle-raising became a profitable industry, and the herds gradually increased, as may be gathered from the following:—

Year.	No. of Cattle.	Year.	No. of Cattle.
1838	2,500	1880	307,000
1840	15,000	1890	359,000
1850	60,000	1900	214,000
1860	278,000	1910	384,862
1870	136,000	1911	393,506

The percentage of cattle in South Australia to the total for the Commonwealth has risen from 2.65 in 1901 to 3.32 in 1911.

From time to time importations have been made of high-class cattle. Considerable attention has been devoted by several breeders to the production of high-class Ayrshires, milking strains of Shorthorn-Jerseys, while splendid

specimens of the noted milkers, Holstein-Friesians, have also been imported. The Shorthorn and Hereford breeds are the mainstay of the cattle industry, and some splendid specimens of these are to be found throughout South Australia.

### HORSES.

Horse-breeding received early attention at the hands of pioneer settlers, and within a few years of the proclamation leading colonists began importing high class stallions and mares, mostly on the light side. An attempt was made in the forties to induce the legislature to grant a bonus to the importer of the best animals in a given period suitable for "cart and farm work." High-class stock was imported by leading breeders at various periods. South Australia is the natural home of the horse, climate and herbage being unequalled in aiding the production of a hardy animal. The horses bred in the far northern parts of this State are wonderfully stanch and are good "doers." They are capable of making long journeys without shoes on a minimum supply of water and feed. Astonishing feats of endurance are recorded in favor of the South Australian bred horse accustomed to the stony saltbush plains of some of the north country. Stuart, the explorer, on his great trip across the continent used northern-bred horses, and they carried the party long stages day after day. Only one animal was lost on this arduous journey.

The following shows the number of horses in the State during the years given :—

Year.	Horses.	Year.	Horses.	Year.	Horses.
1838 .. ..	180	1870 .. ..	83,744	1910 .. ..	249,326
1840. .. ..	1,060	1880 .. ..	155,915	1911 .. ..	259,719
1850 .. ..	6,488	1890 .. ..	187,686		
1860 .. ..	49,399	1900 .. ..	166,790		

The percentage of horses in South Australia to the total for the Commonwealth has risen from 10·20 in 1901 to 11·50 in 1911.

For a time little attention was paid to horse-breeding, owing to the low prices ruling; but with the increasing demands from South Africa and for the Indian remount service the industry has revived. During recent years a great improvement has taken place in quality, and further efforts are being made to produce the right stamp of animals. Frequent drafts are sent to India, Java, and South Africa.

The Australian turf owes much to the enterprise of early South Australians. The high standard in the thoroughbred classes up to the eighties was due largely to the influence of South Australian horses. Some writers have hastily given the whole credit to breeders in New South Wales, but a careful perusal of the turf statistics between 1850 and 1880 will go far to convince the unprejudiced that the turf is chiefly indebted to South Australian enterprise. Breeders have introduced a great line of stayers. The Messrs. Fisher, of South Australia, did a lot for the industry in Australia. The famous "Fisherman" first trod South Australian soil. Then the name of Gerrard

stands out prominently as a benefactor of the turf, as he introduced, among others, "Talk o' the Hill" and "Ace of Clubs." Sir Thomas Elder imported "Gang Forward" at a cost of over 4,000 guineas in 1876, and it is generally admitted there is no assessing the value of the mares got by the great "Stockwell" horse. There has been a marked improvement in draught stock during recent years.

### FROZEN MEAT TRADE.

The growth of the frozen meat trade has largely contributed to the general prosperity of the pastoral and agricultural industries of the State. Freezing works have taken the place of "boiling-down" establishments, and the change has meant a great deal to growers.

It is estimated that for the year 1911 slaughterings for home consumption and export represented 1,275,734 sheep and lambs, 87,293 cattle, and 88,170 pigs.

The following table shows the total exports of frozen mutton and lambs since the inauguration of the export business in 1895-6:—

Year.	Lambs.	Hoggets.	Mutton.	Season's Total.
1895-6 .. .. .	1,751	—	1,097	2,848
1896-7 .. .. .	10,606	—	675	11,281
1897-8 .. .. .	3,534	—	463	3,997
1898-9 .. .. .	38,620	—	2,052	40,672
1899-1900.. .. .	89,980	—	1,334	91,314
1900-1 .. .. .	94,597	—	7,122	101,719.
1901-2 .. .. .	92,574	—	—	92,574
1902-3 .. .. .	116,843	—	38,120	154,963
1903-4 .. .. .	156,366	—	20,911	177,277
1904-5 .. .. .	193,680	—	2,565	196,245
1905-6 .. .. .	251,569	—	—	251,569
1906-7 .. .. .	227,383	—	3,047	230,430
1907-8 .. .. .	271,629	—	4,490	276,119
1908-9 .. .. .	267,037	6,377	67,622	341,036
1909-10 .. .. .	154,399	504	99,596	254,499
1910-11 .. .. .	195,436	2,981	43,116	241,533
1911-12 .. .. .	132,062	638	72,458	205,118
Totals .. .. .	2,298,066	10,500	364,668	2,673,234

The average prices for lamb and mutton during the past year under review shows a still further advance, as the following table reveals:—

	1910-11.	1911-12.	Increase.
	<i>d.</i>	<i>d.</i>	<i>d.</i>
Good average quality lamb .. .. .	4.40	4.82	.42
Fair average quality lamb. .. .. .	4.13	4.55	.42
Inferior quality lamb .. .. .	3.95	4.35	.40
Heavy wethers .. .. .	3.04	3.39	.35
Light wethers .. .. .	3.08	3.28	.20
Ewes .. .. .	2.95	3.19	.24

Government works have been established at Port Adelaide, where all the freezing for export is done. This depôt has a capacity for treating 8,000 sheep per day.

The value of the exports of South Australian pastoral products to countries beyond the Commonwealth States—animals living, meat (frozen, &c.), skin and hides, tallow, wool, &c.—for the last five years was:—1907, £2,656,989; 1908, £1,973,977; 1909, £2,401,304; 1910, £2,720,783, and 1911, £2,571,660. The chief item was wool.

### STOCK AND BRANDS DEPARTMENT.

The Stock and Brands Department, which includes three veterinary surgeons, is under the Minister of Agriculture. All matters appertaining to stock and their diseases, especially infectious and contagious diseases, which are dealt with under the Stock Diseases Act of 1888, are completely controlled by this department. Travelling stock, including stock introduced from other States, are subject to strict supervision and border inspection by qualified inspectors. All dairy stock are subject to stringent inspection by the veterinary officers and trained lay inspectors. Drastic steps are taken by the officers to prevent the spread of infectious and contagious diseases. When these are reported, holdings and stock are at once quarantined and measures adopted to eradicate the disease. It is also the policy of the department to enlighten the stockowners by the means of lectures, demonstrations, and correspondence. The veterinary staff are held responsible for the examination of all stock owned or purchased by the Government. All stock imported from oversea are subject to quarantine, and the duties are carried out by certain officers in this department, appointed under the Federal Quarantine Act, 1908—

	Days in Quarantine.	Minimum Deposit. Each.	£
Horses, asses, and mules from the United Kingdom	14	..	5
Horses, asses, and mules from Canada and the United States of America .. .. .	28	..	5
Asses from France, Spain, and Portugal .. .. .	28	..	5
Cattle from United Kingdom .. .. .	40	..	10
Cattle from Canada .. .. .	60	..	10
Swine from United Kingdom and Canada .. .. .	14	..	5
Swine from New Zealand .. .. .	28	..	5
Sheep and goats from the United Kingdom and Canada .. .. .	30	..	3
Dogs from United Kingdom .. .. .	60	..	5
Wild and undomesticated animals for menagerie purposes, or for the purpose of a zoological collec- tion from any country .. .. .	90	..	5

It is the duty of the Chief Inspector of Stock, who is also the Chief Inspector and Registrar of Brands, and his officers to enforce the provisions of the Brands Acts, 1879 and 1882, to prevent illegal branding, cattle duffing, and stealing of stock generally. The system of inspection of stallions throughout the State has been recently inaugurated. This has entailed heavy work and extensive travelling by the veterinary staff.

Officers of the department are stationed at principal centres throughout the State. The following statistics will give an illustration of the inspectorial work carried out for 12 months :—

Sheep inspected	..	..	..	..	..	..	2,500,000
Cattle	“	..	..	..	..	..	191,000
Horses	“	..	..	..	..	..	23,000
Swine	“	..	..	..	..	..	85,000
Camels	“	..	..	..	..	..	1,000
Sheep exported by land		..	..	..	..	..	200,000
“	“	sea	..	..	..	..	24,500
Cattle exported by land		..	..	..	..	..	10,635
“	“	sea	..	..	..	..	217
Horses exported by land		..	..	..	..	..	1,100
“	“	sea	..	..	..	..	1,300
Sheep imported by land		..	..	..	..	..	296,600
“	“	sea	..	..	..	..	634
Cattle imported by land		..	..	..	..	..	26,600
“	“	sea	..	..	..	..	17
Horses imported by land		..	..	..	..	..	4,090
“	“	sea	..	..	..	..	424

Seven hundred and eleven post-mortems were held, and 64,000 miles travelled by the staff.

Approximately 40,000 brands, marks, &c., have been registered to stock-owners throughout the State since 1879.

## AGRICULTURE.

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**S**UBSTANTIAL progress has been achieved in agriculture, and the solid prosperity upon which the various industries have been built is a sound guarantee of sustained advancement. In consequence of the development of scientific knowledge of the general improvement in methods of cultivation, the area of land suitable for agricultural purposes has largely increased. Every year great tracts of country are thrown open for selection, and are being developed consistently with an expanding policy of railway construction. The season 1911-12, while not so favorable as some of its predecessors from a production point of view, was marked by a great forward movement.

The climatic conditions are admirably adapted for agriculture, and proof of this is supplied by the prolific harvests that are reaped every season. It is admittedly a country of limited rainfall for the greater part and the seasons may, for all practical purposes, be divided merely into winter and summer. There are really no sustained periods of spring and autumn intervening, and the changes are so subtle that they dovetail almost imperceptibly.

Approximately, three-quarters of the aggregate rainfall is recorded in the winter, and the weather of the wet season is usually mild. Severe frosts and cold are experienced in only a few localities, and snow is a very rare occurrence on the higher lands. The summer is warm and genial, if comparatively dry, in a general sense, and the long periods without rain enable the harvesting to be done under capital conditions. The climate, as a whole, is excellent for outdoor pursuits, and excepting, in perhaps, the two wettest months of mid-winter and spells of abnormally high temperatures during summer, work in the open is possible all the year round, and stock are little inconvenienced.

The varied characteristics of the State may best be presented by an explanation of the divisions into which it is officially separated. There are five of these—Upper North, South-Eastern, Western, Central, and Lower North; and their agricultural importance can be judged by figures relative to the rainfall and the area under cultivation.

### HOW THE STATE IS DIVIDED.

The Central Division embraces counties Adelaide, Albert, Alfred, Carnarvon (Kangaroo Island), Eyre, Fergusson, Gawler, Hindmarsh, Light, and Sturt. This country was the earliest settled and is the most populous, consisting of mountainous ranges (Mount Lofty, 2,334ft.), hills, and plains of superior agricultural and horticultural land. The Rivers Murray, Torrens, Onkaparinga, Gawler, Wakefield, and Light, and numerous minor watercourses attest the sufficiency of the water supply. The climate is temperate and the rainfall reliable, varying over a number of years from 42in. to 16in. in the hills and plains respectively, 21in. being the average fall at Adelaide for 73 years. It embraces 13,891 square miles, or 8,890,240 acres, of which 7,735,748 acres are in occupation, and 1,471,927 acres in cultivation.

The Lower North Division is bounded on the south by the Central Division, on the west by the coastline from below Wallaroo to a little north of Port Pirie, extending easterly to the boundary, and includes the counties Burra, Daly, Hamley, Kimberley, Stanley, Victoria, and Young. This division enjoys also a temperate climate, but with an earlier season by some weeks. There is a fair rainfall, averaging from 12in. to 21in., according to the level of the country. Two mountain ranges traverse it from south to north, with broad well-watered plains of exceptionally good arable land intervening. Some of the tableland is 1,500ft. to 2,000ft. above sea level. The greater part is very valuable sheep country, and farmers and graziers have increased their flocks considerably. It is the finest wheat-growing centre in the State, averaging during each of the last five years 7,641,068bush. of wheat, or 14·01bush. to the acre. The total area of this division is 12,401 square miles, or 7,936,640acres, of which 7,391,599 acres are occupied and 1,279,876 acres cultivated. Ports Pirie and Wallaroo and 329 miles of railway throughout the district afford ample and cheap facilities for transport of produce. It possesses also the advantage of being the nearest agricultural land to the Broken Hill silver mining district, with which it is connected by rail.

The Upper North Division includes all counties north of Port Pirie, and is bounded on the west by Spencer's Gulf as far as Port Augusta; thence northwards by the eastern shore of Lake Torrens, and includes the counties of Blachford, Dalhousie, Derby, Frome, Granville, Hanson, Herbert, Lytton, Newcastle, and Taunton. This division contains a large proportion of country popularly known as "beyond Goyder's line of rainfall," where the climate is hotter and drier and better suited for grazing than agricultural pursuits, the average rainfall in the farming districts approximating 12in. to 15in. With the exception of counties Frome and Newcastle, through which the Flinders and Eastern ranges (Mount Brown 2,400ft.) run, the country chiefly consists of extensive plains with low rises and little surface water. Much of the country to the eastward is tableland considerably above sea level, namely, from 1,500ft. to 2,000ft., with a consequent lower temperature. The area within counties is 14,065 square miles, or 9,001,600 acres, of which 8,321,419 acres are occupied, and 526,759 acres under cultivation.

The South-Eastern Division comprises all country east of the River Murray as far as the Victorian boundary, and on the south is bounded by the Southern Ocean. It includes counties Buccleuch, Buckingham, Cardwell, Chandos, Grey, MacDonnell, Robe, and Russell. The climate is, of course, colder and the rainfall heavier than in any other part of the State (except Mount Lofty Range), viz., 18in. to 31in. The land is low-lying, with isolated hills or ridges, and a large portion of the surface is covered with water, but some thousands of acres have been reclaimed or improved by drainage works. The area within these counties is 15,585 square miles, or 9,974,400 acres, of which 7,190,511 acres are in occupation, and only 451,047 acres cultivated, the country being almost entirely devoted to grazing. Large areas are being newly cultivated in counties Chandos and Buccleuch.



The Western Division is confined to lands within counties adjacent to the west coast of Spencer's Gulf and that portion of the southern coast lying between Port Lincoln and Fowler's Bay. It includes the counties of Buxton, Dufferin, Flinders, Hopetoun, Jervois, Kintore, Le Hunte, Manchester, Musgrave, Robinson, Way, and York, comprising 26,161 square miles, or 16,743,040 acres. It has an equable climate and an average coastal rainfall of 16in. Until the last few years the land was principally used for sheep. The acreage cultivated has nearly trebled during the last decade, the area last season being 610,826 acres. There are immense areas of arable land yet to be opened up in this division, which promises to be a great wheat-growing centre. The subdivision of several estates in reliable districts is likely to have an important influence on the wheat production of the State.

It will be seen, therefore, that while a large proportion of South Australia is restricted by a low rainfall to pastoral pursuits, the use of superphosphates, combined with advancing scientific skill and great energy on the part of the farmers, is bringing successively under agricultural occupation many millions of acres. The wide range of climate and of fertile soils offer to settlers a generous choice in the type of production, and the system of mixed farming enables him to develop his opportunities to splendid advantage. There are immense stretches of virgin soil with a fair rainfall yet to be utilised; for the joint influences of the practice of dry farming and the distribution of artificial manures must soon make available for the plough country which hitherto was considered to be irretrievably idle. The potentialities of South Australia, reckoned from this standpoint alone, are great. For many years farming has been carried on in districts with 15in. of rain, and since the introduction of phosphate it has been found that scrub land with an average of 12in. will produce a good crop. The nature of the soil and the time when the rains fall is far more important than the total precipitation of the year. Indeed, many farmers assert that they can secure profitable yields on 7in. of rain fairly distributed between seedtime and harvest. To South Australia in particular the utilisation of the dry areas is an important matter, and in it is wrapped up a substantial increase in the wheat yield. This State has more than 30,000,000 acres of land which receives between 10in. and 16in. of rain. Of this quite half is situated in the Western Division, where the greatest development has been taking place. The extent to which wheat is being grown in country with a rainfall average of 16in. or less is shown by the fact that over 60 per cent. of the total production came from such lands as these, and it is safe to estimate that by the end of the present decade the percentage will reach to 75.

These facts and figures are vitally important in considering the present and future agricultural position of South Australia, because they show how the statement that it is, over the greater portion of its area, essentially a country of comparatively limited rainfall may be wrongly interpreted. The cereal crops are sown at the commencement of the winter (April to May, according to district), and they make most growth before the summer

commences. The warm weather of early summer (October-November) brings the crop to maturity, and usually secures the production of a bright, heavy grain, highly appreciated in the world's markets on account of its dryness and the color and quality of its flour. The nature of the summer, except in the cooler districts, militates against the cultivation of summer crops on an extensive scale except with the aid of irrigation, and consequently the skill and energy of the farmer have been mainly directed to the growing of cereal crops and the breeding of stock.

An excellent idea of the distribution of the rainfall is given by the following official table:—

### MEAN ANNUAL RAINFALL.

District.	Mean Annual Fall.	Number of Stations Used to Get Mean.	Range.			
			Highest Yearly Fall.		Lowest Yearly Fall.	
			Station.	Amount.	Station.	Amount.
	Inches.		Inches.		Inches.	
Far North and N.W. Pastoral ....	7.43	16	Blinman .....	12.94	Oodnadatta ...	4.79
Upper North (agricultural areas)	13.3	23	Melrose .....	23.03	Pt. Augusta W.	9.12
Lower North (agricultural areas)	17.09	32	Waterva'e.....	27.42	Port Pirie .....	12.86
North-East .....	7.97	5	Broken Hill ...	8.64	Waukaranga...	7.46
Yorke's Peninsula .....	16.46	13	Maitland .....	20.10	Ardrossan.....	13.82
Central Districts (Adelaide plains)	23.96	54	Stirling West .	46.65	Stockport .....	15.98
Kangaroo Island .....	21.43	6	Cape Borda ...	24.90	Kingscote .....	18.35
West of Spencer's Gulf .....	15.58	31	Green Patch ...	26.23	White Well ...	9.48
Murray Valley .....	13.6	17	Truro .....	19.49	Morgan .....	9.15
South-East (northern half) .....	18.62	8	Frances .....	20.55	Lameroo .....	16.36
South-East (southern half) .....	26.17	9	Mt. Gambier .	31.76	Naracoorte ...	22.49

The approximate mean rainfall in divisions in 1912 was as follows:—

Year.	Total all Counties.	DIVISIONS.				
		Central	Lower North	Upper North	South-Eastern	Western
		Inches	Inches	Inches	Inches	Inches
1912 ... ..	14.39	16.80	12.94	11.29	18.50	13.42
Mean for 5 years	16.49	19.20	15.50	12.15	21.59	14.02

### EXPERIMENTAL FARMS.

Experimental farms occupy a distinctive place in the agricultural education of South Australia. There is no more potent way of influencing the practice of a district than by the establishment of plots under capable and reliable management, either on the part of a departmental expert or on the part of an experienced and well-trained farmer. The Government has brought to the assistance of agriculturists excellent facilities for imparting valuable

information. The expenditure on agricultural colleges and Government farms for the season 1911-12 was £29,215. There are now eight institutions, or double the number of 1907. The total area of the farms is 13,261 acres ; in 1907 the figures were only 2,732, and the expenditure £17,311. The experimental and demonstrative policy by the Government experts is being vigorously developed. The Roseworthy College is centrally situated. It is in the centre of the farming areas, about 25 miles from Adelaide. The College was established in 1885 to teach young men the principles and practices of scientific agriculture. There is a farm of 2,200 acres, and cereal-growing, stock-rearing, dairying, wine-making, and other pursuits are carried on.

At Kybybolite, in the South-East, 2,300 acres have been set apart for experimental purposes, and at Parafield 110 acres are devoted to the testing of varieties of wheat and the improvement of wheats by cross breeding and selection.

At Murray Bridge a small area of reclaimed swamp is cultivated by the Agricultural Department to supply information to holders of land concerning the best crops to grow, methods of cultivation, and so on. Then there are experimental farms dotted throughout the State.

The Roseworthy College provides accommodation for resident students and gives theoretical and practical instruction in a course which comprises nine sessions, extended over three years. The fee is £30 a year. Every phase of agriculture is embraced. Attached to the College are chemical laboratories and lecture rooms, and on different parts of the farm are situated a wine-making plant and cellars, butter and cheese factory, poultry yards, incubator house, besides the usual farm buildings. Experimental research work is carried out in relation to cereal and other crops, manures, soil culture, &c. There is accommodation for 60 students, and a competent and experienced staff is engaged to instruct them. The bulk of the work is done by the students, and they are made thoroughly acquainted with every detail of farm work and the manipulation of machinery.

The technical subjects taught at the College are general agriculture, and livestock, viticulture and œnology, fruit culture, dairying, elementary veterinary science, book-keeping, surveying, wool-classing, and poultry-breeding. During 1911 there were 51 students on the roll, which was slightly below the average of the 10 previous years. The Government offers yearly six scholarships at the College, tenable for three years.

The experimental farms which are distributed throughout the State perform work comprising two sections—demonstration work on private farms and experimental operations on State farms. The demonstration blocks have been confined to (1) wheat variety tests ; (2) complete *v.* incomplete manurial tests ; (3) hay tests ; (4) feeding-off experiments ; (5) potato experiments.

The experimental farms in the control of the department are—

Kybybolite, of 2,300 acres. This is the headquarters of the Superintendent of Agriculture in the South-East, and experiments of a general character, dealing specially with conditions in that part of the State, are conducted.

Parafield is essentially a wheat-breeding station, and at Turretfield there are 1,600 acres devoted to a stud dairy farm and a seed wheat station. The department is utilising 30 acres of beautiful alluvial land for working up problems in irrigation from the Para River.

At Veitch's Well a farm of 4,000 acres has been established to assist settlers in the exploitation of a wide range of country south of the Murray and between the river and the overland line.

The Minburra farm of 3,000 acres is subleased, on terms of half the produce of grain, from the pastoral lessee for the purpose of practising dry-farming methods and testing their utility under extreme conditions.

At Booborowie 1,300 acres have been secured for a seed wheat station serving the northern areas, and as a training farm for town boys, to give them, if possible, a taste for farm life and a good start towards becoming efficient farm hands, and in course of time, by diligence and thrift, as farmers of their own blocks of land.

Small farms to be worked in conjunction with the Irrigation Department have been reserved in the irrigation areas at Berri, Pekina, and Murray Bridge, on which many and varied questions will be investigated, and from which data now not available will be furnished.

#### AGRICULTURAL SOCIETIES.

The pursuit of agriculture being one of the chief and most profitable occupations in South Australia, naturally the farmers in the different rural centres club together for mutual advancement of knowledge in the innumerable ramifications of agricultural practice and science; hence agricultural societies and bureaus have sprung up throughout the country. Of the former there are 52, in addition to the Royal Agricultural Society of Adelaide. These are scattered throughout the settled portions of the State, and have established annual "shows" of farm and dairy produce, stock, implements, &c., for which prizes are offered. About £12,000 is annually paid in prizes, the Government supplementing this to the extent of £1,350. The total annual expenditure of these societies is about £20,500, and that of the parent society in the city £10,300. The aim and object of the societies is the improvement of stock and produce by introducing healthy competition, and also to bring before producers the latest description of machinery. The bureaus were established for the mutual enlightenment of members by means of periodical lectures and discussions on subjects pertaining to agriculture, and for the dissemination of literature on these subjects. There are 125 of these bureaus, and they usually meet once a month and receive information from the Department of Agriculture. The Advisory Board of Agriculture, composed of representatives of the different branches of agricultural industry, meets monthly, and is in touch with the Minister, the officers of the Department, and the bureaus.

FERTILISERS.

Fertilisers came to the aid of farmers at a critical turn in the history of cultivation. Returns from land which had been cropped for many years were constantly decreasing, owing to the drain on the resources of the soil, and farmers were leaving their holdings for virgin fields from which profitable harvests could be won. Obviously there was a limit to an exodus of this character, as available areas with the advantage of railway facilities were restricted in those days. The utilisation of fertilisers was therefore established, and these quickly became general in consequence of the marked effect on the cereal crop and the commercial soundness of the practice. It was at once demonstrated that the enhanced returns paid for the outlay several times over.

The results of numerous analyses have shown that, generally speaking, the soils of South Australia are unusually rich in potash. This is supported by the fact that in hundreds of experiments in different parts the application of potash to the cereal crop has rarely proved beneficial, while the percentage of phosphoric acid is low. Nitrogen, as a rule, exists only in fair quantities, but the application of nitrogenous manures, even on land which has been in cultivation for 40 years or more, has rarely shown profitable results. This is generally attributed to the fact that a relatively large percentage of the nitrogen is in an available form, and that the nitrifying and nitrogen-fixing bacteria are unusually active, thus replenishing the supply. The fact that phosphatic fertilisers alone have been required, and that it is necessary to apply but limited quantities of this, reduces the outlay. Fully 95 per cent. of the fertiliser used consists of superphosphate (mineral, bone, and guano), or other form of phosphate, in which the greater portion of the phosphoric acid is soluble in water.

In South Australia there are deposits of phosphate of lime, some of which are being worked and treated. Large quantities are being imported. The quantity placed on the land varies from 70lbs. per acre in dry districts to 2cwts. where there is a good rainfall. The cost is from 4s. to 4s. 6d. per hundredweight, according to quality.

The quantities of fertilisers used since 1900 are as follows :—

Year.				Quantity used. Tons.		Area treated. Acres.
1900	..	..	..	24,600	..	500,000
1901	..	..	..	31,400	..	700,000
1902	..	..	..	37,500	..	845,000
1903	..	..	..	44,500	..	1,000,000
1904	..	..	..	52,000	..	1,170,000
1905	..	..	..	56,000	..	1,265,600
1906	..	..	..	59,000	..	1,321,600
1907	..	..	..	60,008	..	1,555,153
1908	..	..	..	64,842	..	1,693,676
1909	..	..	..	76,413	..	2,014,102
1910	..	..	..	81,899	..	2,217,404
1911	..	..	..	87,475	..	2,494,773

## AREA UNDER CULTIVATION.

The land under crop in the Commonwealth in 1911-12 was 12,105,113 acres, an average of 2.65 acres per head of the population. In proportion to the number of people South Australia had the largest area in cultivation—2,965,338 acres, against 2,746,334 acres in 1909-10. This was nearly one-fourth of the Commonwealth aggregate, being 7.09 acres per head. The comparison with the other States reveals the superiority of South Australia's position.

## CULTIVATION PER HEAD OF POPULATION.

	1910-11. Acres.	1911-12. Acres.
South Australia .. ..	6.90	7.09
New South Wales .. ..	2.07	2.17
Victoria .. ..	3.08	2.67
Queensland .. ..	1.13	0.85
Western Australia .. ..	3.15	3.65
Tasmania .. ..	1.50	1.40

The following is a comparative statement of the area under cultivation, including land in fallow and artificial grasses, in each division in 1910-11 and 1911-12, together with the increase or decrease:—

Division.	1910-11.	1911-12.	Increase.	Per Cent. Increase.
	Acres.	Acres.	Acres.	
<b>CENTRAL—</b>				
Land under crop .. ..	940,455	1,004,631	64,176	6.82
Land cultivated .. ..	1,441,752	1,471,927	30,175	2.09
<b>LOWER NORTH—</b>				
Land under crop .. ..	703,293	741,668	38,375	5.46
Land cultivated .. ..	1,237,494	1,279,876	42,382	3.42
<b>UPPER NORTH—</b>				
Land under crop .. ..	320,617	324,908	4,291	1.34
Land cultivated .. ..	535,906	526,759	9,147	1.03
			Increase.	Increase.
<b>SOUTH-EASTERN—</b>				
Land under crop .. ..	353,605	385,594	31,989	9.0
Land cultivated .. ..	401,658	451,047	49,389	12.30
<b>WESTERN—</b>				
Land under crop .. ..	428,364	508,537	80,173	18.72
Land cultivated .. ..	525,182	610,826	85,644	16.31
<b>Total in Counties—</b>				
Land under crop .. ..	2,746,334	2,965,338	219,004	7.97
Land cultivated .. ..	4,141,992	4,340,435	198,443	4.79

Steady advance has been made in the area under cultivation during the last decade. In 1901 the total was 3,279,406 acres; but there was a slight retrogression the following season, which was not such a favorable one. The next year, however, the deficit was more than met; but again there was a check, owing to the prevalence to adverse conditions. In 1905 the area increased by more than 89,000 acres compared with the 1901 figures, and from 1907 onward there has been substantial progress. In that year there were 3,308,385 acres in use, and the following season the aggregate grew by over 300,000

acres to 3,752,094, reaching in 1911 the summit of expansion—4,340,435 acres. All classes of crops have made substantial increases, and the forward movement in cultivation has been marked by the great development of fallowing, which is characteristic throughout the whole of the State. The rapid spread of this system is an important indication of the advanced methods and intelligent industry adopted by the farmers. The total area under cereal cultivation in 1911-12 was 2,907,182 of which 2,607,206 acres were sown to wheat, 43,616 to barley, 224,781 to oats, and 31,599 to all other cereals. In this connection the following table is illuminating :—

Season.	Area under Cereals for Grain, Hay, and Fodder.	Area of Fallow Land Sown.	Percentage Fallow to Area Cropped.
	Acres.	Acres.	
1907-8 .. .. .	2,203,641	1,065,921	48.37
1908-9 .. .. .	2,267,325	1,008,733	44.49
1909-10 .. .. .	2,474,501	1,097,186	44.34
1910-11 .. .. .	2,689,607	1,198,450	44.56
1911-12 .. .. .	2,907,182	1,369,242	47.10
Mean for five years ..	2,508,451	1,147,906	45.76

An instructive and satisfactory comparison is the estimated value of each kind of crop of the percentage of value to the total for the last four seasons. The figures illustrate most emphatically that the agricultural wealth of South Australia is embraced in wheat and hay production. The return from wheat for 1911-12 was £3,858,469, 50.55 per cent. of the aggregate value. The total for 1910-11 was £4,209,611. In 1909-10, the figures stood at £4,187,321, £66,370 better than 1908-9, and £462,231 above the figures of 1907-8. The highest percentage to the total value was recorded in 1909-10, when it was as high as 64.58. The present position in regard to all crops is graphically conveyed by the following particulars :—

Kind of Crop.	Valuation of Crops.			
	1908-9.	1909-10.	1910-11.	1911-12.
	£	£	£	£
Cereals—Wheat .. .. .	4,243,241	4,817,321	4,209,611	3,858,469
Oats .. .. .	130,691	115,875	113,662	185,554
Barley—Malting .. .. .	100,920	89,365	64,625	96,990
All other .. .. .	28,019	30,252	22,317	29,839
Other .. .. .	6,356	3,301	2,317	1,357
Hay—Wheaten .. .. .	1,318,070	1,010,779	1,183,322	1,665,237
All other .. .. .	278,011	310,513	334,091	453,100
Green fodder cut and fed off ..	34,419	31,323	40,485	43,005
Straw .. .. .	65,951	45,292	39,135	39,888
Root crops .. .. .	121,368	116,996	134,298	169,696
Vineyards .. .. .	403,153	398,426	585,285	578,504
Market gardens .. .. .	84,228	99,036	97,843	95,434
Orchards .. .. .	283,070	354,358	343,941	372,616
All other crops .. .. .	21,044	36,580	52,278	44,285
Grand Total .. .. .	7,118,541	7,459,417	7,223,210	7,633,974

*Estimated Value of Each Kind Kind of Crop—continued.*

Kind of Crop.	Percentage to Total Value.			
	1908-9.	1909-10.	1910-11.	1911-12.
	%	%	%	%
Cereals—Wheat .. ..	59·61	64·58	58·28	50·55
Oats .. .. .	1·84	1·55	1·57	2·43
Barley—Malting ..	1·42	1·20	·90	1·27
All other .. ..	·39	·41	·31	·39
Other .. .. .	·09	·04	·03	·02
Hay—Wheaten .. .. .	18·52	13·55	16·38	21·81
All other .. .. .	3·90	4·16	4·63	5·94
Green fodder cut and fed off ..	·48	·42	·56	·56
Straw .. .. .	·93	·61	·54	·52
Root crops .. .. .	1·70	1·57	1·86	2·22
Vineyards .. .. .	5·66	5·34	8·10	7·58
Market gardens .. .. .	1·18	1·33	1·36	1·25
Orchards .. .. .	3·98	4·75	4·76	4·83
All other crops .. .. .	·30	·49	·72	·58
Grand Total .. .. .	100·00	100·00	100·00	100·00

## WHEAT.

Wheat is, of course, by far the most important crop cultivated in South Australia, as, indeed, in other countries. This is forcibly demonstrated by figures relative to grain production for each of the five years up to and including 1911-12. These averaged 21,672,908bush., or 11·30bush. an acre, and inclusive of the wheaten hay crop the mean value for five seasons was £5,199,016. The Lower North division alone averaged each season for the same period 7,641,068bush., or 14·01bush. per acre. The worth of the 1910-11 wheaten grain and hay crop, according to ruling prices, was £5,392,933. The value of the 1911-12 crop was £5,410,005. In 1909-10 more than 25 million bushels of wheat were produced, and more than 95 per cent. of the area sown to farm crops was devoted to this great cereal. The total area sown to wheat in 1911-12 was 2,607,206 acres, an increase of 163,025 acres. Of that area 2,190,782 acres were under wheat for grain, 407,648 acres were cut for hay, and 14,776 acres were either reserved for green fodder or were fed off. South Australia has always been a prolific wheat State, because the greater portion of the country is better adapted to that than to other cereals. Another reason is that the grain possesses special qualities that guarantee prompt and profitable business in the markets of the world. So far back as 1851—15 years after the proclamation—wheat from South Australia took first prize against the world at the famous exhibition promoted by the late Prince Consort, and since then the cereal has been in ready demand and has never failed to command top prices.



The proportions to which wheat production have grown even in 10 years are exhibited by the harvests and the average yield. The earlier seasons embraced drought times, but since 1904-5 the position has been one of sustained prosperity.

	Yield.	Average.
1901-2 .. .. .	8,012,762	4-60
1902-3 .. .. .	6,354,912	3-64
1903-4 .. .. .	13,209,465	7-72
1904-5 .. .. .	12,023,172	6-53
1905-6 .. .. .	20,143,798	11-46
1906-7 .. .. .	17,466,501	10-36
1907-8 .. .. .	19,135,557	10-91
1908-9 .. .. .	19,397,672	11-45
1909-10 .. .. .	25,133,851	13-26
1910-11 .. .. .	24,344,740	11-57
1911-12 .. .. .	20,352,720	9-29
1912-13 .. .. .	20,137,870	9-03

Two years after the first settlers landed in South Australia there were 20 acres under wheat, and in the following season of 1839 120 acres were sown. From that year onward the development was rapid, with an occasional check, but in 1866 there were about half a million acres. These figures were more than doubled within 10 seasons, and in no year since 1880 has the area devoted to the chief cereal been below 1,500,000 acres. The 1907 crop was roughly 19 million bushels, equal to about 11bush. an acre. The following statement shows in comparative form the progress that has been accomplished in wheat cultivation for 50 years :—

Year.	Wheat Sown for Grain.		Average Rainfall.
	Acreage Sown.	Yield per Acre.	
CENTRAL DIVISION.			
1862-3 .. .. .	297,411	11-77	19-91
1871-2 .. .. .	509,572	5-84	24-37
1881-2 .. .. .	559,194	5-28	16-91
1891-2 .. .. .	426,116	3-30	14-26
1896-7 .. .. .	489,257	2-08	14-21
1897-8 .. .. .	420,789	3-38	13-31
1898-9 .. .. .	544,901	6-59	17-24
1899-1900 .. .. .	533,543	5-32	14-90
1900-1901 .. .. .	593,735	7-16	17-86
1901-2 .. .. .	545,982	4-95	14-75
1902-3 .. .. .	522,793	5-59	13-84
1903-4 .. .. .	564,494	8-51	20-75
1904-5 .. .. .	593,895	7-28	15-44
1905-6 .. .. .	570,772	12-75	18-47
1906-7 .. .. .	551,676	10-38	21-17
1907-8 .. .. .	555,521	11-67	15-67
1908-9 .. .. .	525,546	12-05	18-10
1909-10 .. .. .	586,234	14-21	21-75
1910-11 .. .. .	634,242	11-77	24-21
1911-12 .. .. .	635,924	10-12	16-16
1912-13 .. .. .	639,650	9-40	—

## Progress in Wheat Cultivation—continued.

Year.	Wheat Sown for Grain.		Average Rainfall.
	Acreage Sown.	Yield per Acre.	
LOWER NORTH.			
1862-3 .. .. .	15,013	13-73	15-20
1871-2 .. .. .	139,668	3-91	18-78
1881-2 .. .. .	567,467	5-25	12-24
1891-2 .. .. .	595,337	3-43	12-08
1896-7 .. .. .	532,483	1-86	10-88
1897-8 .. .. .	441,397	3-10	10-54
1898-9 .. .. .	526,842	5-36	12-76
1899-1900 .. .. .	546,697	4-67	12-24
1900-1901 .. .. .	549,208	6-96	13-48
1901-2 .. .. .	535,308	5-79	11-79
1902-3 .. .. .	539,521	4-36	10-20
1903-4 .. .. .	540,926	9-40	18-35
1904-5 .. .. .	581,370	8-24	12-04
1905-6 .. .. .	551,016	14-99	14-18
1906-7 .. .. .	526,164	12-39	15-87
1907-8 .. .. .	529,602	13-76	13-70
1908-9 .. .. .	493,265	13-71	16-86
1909-10 .. .. .	554,975	16-45	14-85
1910-11 .. .. .	571,641	13-65	19-74
1911-12 .. .. .	579,419	12-47	13-10
1912-13 .. .. .	572,050	11-83	—
UPPER NORTH.			
1862-3 .. .. .	4	20-50	13-65
1871-2 .. .. .	200	14-24	18-26
1881-2 .. .. .	576,843	3-00	8-29
1891-2 .. .. .	463,877	5-60	11-94
1896-7 .. .. .	537,261	0-58	7-00
1897-8 .. .. .	510,754	1-28	6-71
1898-9 .. .. .	531,712	2-60	9-23
1899-1900 .. .. .	535,912	3-84	9-22
1900-1901 .. .. .	552,932	3-43	8-71
1901-2 .. .. .	462,123	3-17	8-61
1902-3 .. .. .	483,494	0-71	4-89
1903-4 .. .. .	396,427	5-18	13-46
1904-5 .. .. .	417,453	3-77	11-40
1905-6 .. .. .	375,641	6-31	8-16
1906-7 .. .. .	326,926	10-13	14-07
1907-8 .. .. .	340,471	8-90	11-66
1908-9 .. .. .	286,796	9-03	13-33
1909-10 .. .. .	260,090	11-05	11-43
1910-11 .. .. .	268,020	11-87	15-12
1911-12 .. .. .	272,014	7-09	9-60
1912-13 .. .. .	252,970	6-48	—
SOUTH-EASTERN.			
1862-3 .. .. .	7,194	18-52	28-73
1871-2 .. .. .	39,768	10-69	25-43
1881-2 .. .. .	39,311	8-35	21-49
1891-2 .. .. .	27,680	7-18	17-60
1896-7 .. .. .	28,237	5-58	17-80
1897-8 .. .. .	30,116	8-72	16-47
1898-9 .. .. .	49,725	10-57	20-16
1899-1900 .. .. .	43,450	7-51	18-55
1900-1901 .. .. .	41,984	7-52	19-96
1901-2 .. .. .	28,320	8-55	19-19
1902-3 .. .. .	34,922	8-25	16-47
1903-4 .. .. .	48,530	8-27	22-98
1904-5 .. .. .	53,916	8-56	18-09

Progress in Wheat Cultivation—continued.

Year.	Wheat Sown for Grain.		Average Rainfall.
	Acreage Sown.	Yield per Acre.	
<b>SOUTH-EASTERN—continued.</b>			
1905-6 .. .. .	55,966	10.40	20.90
1906-7 .. .. .	62,610	9.14	23.66
1907-8 .. .. .	81,145	8.20	18.34
1908-9 .. .. .	120,928	11.04	19.28
1909-10 .. .. .	181,362	11.18	25.77
1910-11 .. .. .	263,319	10.14	25.08
1911-12 .. .. .	280,861	5.10	19.31
1912-13 .. .. .	311,060	8.47	—
<b>WESTERN.</b>			
1862-3 .. .. .	538	11.70	—
1871-2 .. .. .	3,280	5.50	20.74
1881-2 .. .. .	25,966	3.50	11.10
1891-2 .. .. .	35,935	6.17	21.05
1896-7 .. .. .	105,807	3.11	13.83
1897-8 .. .. .	119,612	2.58	8.66
1898-9 .. .. .	135,590	3.38	10.34
1899-1900 .. .. .	161,535	4.18	10.67
1900-1901 .. .. .	175,388	5.51	14.73
1901-2 .. .. .	171,719	2.93	14.92
1902-3 .. .. .	166,232	2.70	11.97
1903-4 .. .. .	160,797	5.39	15.39
1904-5 .. .. .	193,523	4.53	12.27
1905-6 .. .. .	203,641	8.63	12.10
1906-7 .. .. .	218,998	6.31	13.98
1907-8 .. .. .	247,016	6.75	11.74
1908-9 .. .. .	266,966	8.91	12.96
1909-10 .. .. .	313,077	8.86	14.46
1910-11 .. .. .	367,495	8.79	16.17
1911-12 .. .. .	422,564	7.87	13.08
1912-13 .. .. .	454,160	6.80	—
<b>TOTALS.</b>			
1862-3 .. .. .	320,160	12.00	19.37
1871-2 .. .. .	692,508	5.73	21.92
1881-2 .. .. .	1,768,781	4.57	14.01
1891-2 .. .. .	1,552,423	4.15	13.84
1896-7 .. .. .	1,693,045	1.66	12.74
1897-8 .. .. .	1,522,668	2.64	11.14
1898-9 .. .. .	1,788,770	4.91	13.95
1899-1900 .. .. .	1,821,137	4.64	13.12
1900-1901 .. .. .	1,913,247	5.88	14.95
1901-2 .. .. .	1,743,452	4.60	13.85
1902-3 .. .. .	1,746,842	3.64	11.47
1903-4 .. .. .	1,711,174	7.72	18.19
1904-5 .. .. .	1,840,157	6.53	13.85
1905-6 .. .. .	1,757,036	11.46	14.76
1906-7 .. .. .	1,686,374	10.36	17.75
1907-8 .. .. .	1,753,755	10.91	14.22
1908-9 .. .. .	1,693,501	11.45	16.11
1909-10 .. .. .	1,895,738	13.26	17.65
1910-11 .. .. .	2,104,717	11.57	20.06
1911-12 .. .. .	2,190,782	9.29	14.25
1912-13 .. .. .	2,229,890	9.03	—

## GOYDER'S LINE.

With wonderful accuracy a quarter of a century ago Mr. Goyder (Surveyor-General) traced on the map his famous line of rainfall. A question frequently discussed is whether wheat-growing should be continued beyond this, and a table will be found below which conveys very important lessons in that direction. The area of the State within counties is 82,103 square miles, of which approximately 46,780 square miles are within and 35,323 square miles are beyond the line of rainfall. The area within the line embraces approximately the Central Division, less portions of counties Albert and Eyre, and county Alfred; the Lower North Division, less counties Hamley, Kimberley, Young and portions of counties Burra, Daly, and Victoria; the Upper North Division, portions only of counties Dalhousie and Frome; the whole of the South-Eastern Division; and the Western Division, with the exception of counties Buxton, York, Manchester, Le Hunte, and portion of county Jervois.

Here is a most illuminating comparison, spread over nine seasons, of the results from the industry of the farmers inside and outside the area mapped by Goyder —

Year.	WHEAT FOR GRAIN.		Produce.	WHEAT FOR HAY.	
	Sown.	Reaped.		Area.	Produce.
	Acres.	Acres.	Bushels.	Acres.	Tons.
WITHIN GOYDER'S LINE OF RAINFALL.					
1903-4 .. .. .	1,124,220	1,038,590	10,101,934	311,602	422,290
1904-5 .. .. .	1,171,207	1,157,781	9,596,040	229,598	264,136
1905-6 .. .. .	1,188,007	1,177,118	16,151,135	271,969	392,415
1906-7 .. .. .	1,184,647	1,184,647	12,760,306	248,175	341,748
1907-8 .. .. .	1,251,813	1,242,984	14,957,229	224,276	272,690
1908-9 .. .. .	1,244,776	1,244,571	15,325,989	284,928	410,195
1909-10 .. .. .	1,446,038	1,441,345	20,036,700	256,996	364,780
1910-11 .. .. .	1,573,498	1,563,333	18,515,202	263,957	370,882
1911-12.. .. .	1,693,097	1,667,768	16,739,190	333,392	417,035
BEYOND GOYDER'S LINE OF RAINFALL.					
1903-4 .. .. .	586,954	555,240	3,107,531	58,550	57,433
1904-5 .. .. .	668,950	570,451	2,427,132	40,028	30,116
1905-6 .. .. .	569,029	533,168	3,992,663	45,955	43,131
1906-7 .. .. .	501,727	501,727	4,706,195	50,221	57,118
1907-8 .. .. .	501,942	487,510	4,178,328	46,791	43,167
1908-9 .. .. .	448,725	447,560	4,071,683	63,379	77,979
1909-10 .. .. .	449,700	448,630	5,097,151	61,201	74,689
1910-11 .. .. .	531,219	529,719	5,829,538	72,482	93,166
1911-12.. .. .	497,685	487,333	3,613,530	68,256	58,747
THE WHOLE STATE (WITHIN COUNTIES).					
1903-4 .. .. .	1,711,174	1,593,830	13,209,465	370,152	479,723
1904-5 .. .. .	1,840,157	1,728,232	12,023,172	269,626	294,252
1905-6 .. .. .	1,757,036	1,710,286	20,143,798	317,924	435,546
1906-7 .. .. .	1,686,374	1,686,374	17,466,501	298,396	398,866
1907-8 .. .. .	1,753,755	1,730,494	19,135,557	271,067	315,857
1908-9 .. .. .	1,693,501	1,692,131	19,397,672	348,307	488,174
1909-10 .. .. .	1,895,738	1,889,975	25,133,851	318,197	439,469
1910-11 .. .. .	2,101,717	2,093,052	24,344,740	336,439	464,048
1911-12.. .. .	2,190,782	2,155,141	20,352,720	401,648	475,782

These figures again may present more striking contrasts in the shape of a comparison of the average wheat cultivation within and beyond the line of rainfall for the last five seasons—

Items of Comparison.	Within Goyder's Rainfall Line.	Beyond Goyder's Rainfall Line.
Area under wheat for grain .. ..	74·80 per cent.	25·20 per cent.
Production of wheat .. ..	78·97 “	21·03 “
Average production of area sown for grain .. ..	11·95bush. per acre	9·39bush. per acre
Approximate mean annual rainfall ..	18·37in.	12·98in.

During the 51 seasons (1861-2 to 1911-12) the average annual number of acres of wheat sown for grain was 1,373,532 acres, off which 504,461,085bush. were reaped, giving an average annual yield of 9,891,394 bush., or 7·20bush. per acre. The quantity of breadstuffs shipped was 9,277,318 tons, of the total value of £76,125,180, and the average price of wheat at Port Adelaide 4s. 6d. per bushel. The mean average yield of wheat for the five years to 1910-11 was 11·30bush. per acre, compared with 7·94 for the previous period.

#### AREA SUITABLE FOR WHEAT-GROWING.

Statistics which were carefully gathered by the Government officials from farmers in 1911-12 gave a good idea of the extent of land suitable for wheat-growing. The total aggregate area was 11,954 698 acres, divided as follows :—

Division	Acres.	Division.	Acres.
Central .. ..	3,385,410	South-Eastern .. ..	1,383,183
Lower North .. ..	2,326,195	Western .. ..	3,641,539
Upper North .. ..	1,207,248	Remainder of State ..	11,123

These figures refer only to land actually in occupation at the time of collection.

#### CAPITAL REQUIRED.

It has been approximately ascertained by practical experience what the cost of starting a farm in South Australia is, taking as a basis an area of 1,000 acres, which is considered to be required by a settler on Crown lands. A man needs at least 10 horses to work a holding of this extent. At £30 each, that would mean £300. Then he would want six cattle, at a cost of, say, £30 to start. Then an ordinary five-furrow plough would mean an expenditure of £34; one set of harrows, £5; cultivator, £25 to £30; seed drill, £36; and binder, £38. If the man did not have the newest appliances it would mean extra cost for labor. A harvester would cost £73; a wagon, £50; dray, £15; harness and sundries, £30. If the settler intended to make use of his cows he would want a separator, which would cost £13; and odds and ends would mean, perhaps, £10. That list includes nothing that is not on a fairly well-appointed farm, and is a great deal less than may be found on many holdings of the kind, yet it represents £664. This ready arithmetic takes no account of the expense a settler would have to incur in the first year for horse feed, because the outside country cannot be worked by going there in the spring-time and fallowing on the natural grass. The country is chiefly scrub lands, and the farmer will have to provide feed for the first year. The cost of seed wheat, fencing, water, and improvements, clearing, houses, sheds, and so on

are also omitted, and 25s. or 30s. per acre would be required to have such a farm fairly well equipped. Although these figures represent a well-equipped property, yet many begin farming with much less capital; indeed, arrangements may be made to hire the necessary plant, or "farming on halves" (getting a neighbor to do the work) is frequently done. The cost of preparing the land, sowing, and harvesting a wheat crop varies, according to the methods adopted and the districts, from about 15s. to 30s. per acre; 25s. an acre is considered a fair average cost, including seed and all expenses. Details of cost per acre are estimated as follow:—Fallow and work 6s.; seed, 3s. 6d.; grilling, 1s.; scarifying, 2s.; manure, 3s.; reaping and cleaning, 4s. 6d.; fair rent value, 5s.—total, 25s. To properly work land for wheat-growing in average mallee country would cost from 30s. to 40s. per acre, including seed, super., and carting, and with a 20bush. harvest, and wheat at 3s. 4d. per bushel, the return would be equal to £3 10s. per acre.

### QUALITY OF THE WHEAT.

The quality of the wheat is explained by the standard which is fixed by the Chamber of Commerce as "fair average quality." In ordinary seasons only a small proportion, when thoroughly cleaned, falls below 63lbs. to the measured bushel, and a weight of 65lbs. is common. At agricultural shows, indeed, the prize wheats usually turn the scale at from 68lbs. to 70lbs. The splendid results achieved by farmers in areas of limited rainfall are due to the conservation of moisture and the breeding of wheats suited to special climatic conditions.

The aim in comparatively dry areas is, so far as possible, to utilise the rain fall of two winters for one season's crop. This is secured by the adoption of a three years' rotation, viz., grazing, bare fallow, cereals. After the cereal crop is harvested stock graze on the stubble and the pastures during the ensuing 18 months. The land is then ploughed up early in the winter to permit of the rains penetrating deeply and to avoid loss of moisture by run off. This having been done, the surface of the land is kept loose and fine through the spring and summer following, experience having proved that a dry earth mulch is a great factor in retarding the evaporation of soil moisture. The following winter the land so treated is sown to cereals. On the authority of an eminent Australian statistician, an apparently low yield in South Australia is financially as satisfactory as crops ranging from 100 to 150 per cent. higher in other parts of the world. This is due to the peculiarly favorable circumstances which surround cultivation and harvesting.

South Australia possesses a strip of country at least 500 miles long and an average of 60 miles broad wherein agricultural pursuits of every description can be followed. Beyond that limit pastoral and mixed farming pursuits are carried on. Another factor that has contributed substantially to the leading position the State has occupied in wheat production is the prominent part which agricultural mechanics has played in the progress of the industry. South Australian farmers have been singularly active, not only in advanced practices of cultivation, but in the invention of agricultural implements.

The conditions which have faced them have developed the mechanical instinct to a really wonderful degree. The Ridley harvester may be instanced, the stump-jump plough, and machines for mullenising and rolling the mallee.

PRICE OF WHEAT.

It is interesting to glance at the average price of wheat per imperial bushel in each month for the 1911 decade. Many factors govern the constant fluctuation. It will be noticed that in the 1905 and 1906 seasons the average rates which ruled were remarkably steady. The best year of the 10 was that of 1903, which followed a succession of bad times. On that occasion the harvest increased by double the preceding one, and the average yield advanced from 3.64 to 7.72, the respective aggregate number of bushels being 6,354,912 and 13,209,465. The season 1904-5 witnessed the last of the single figure averages. After 1903 the price of wheat never rose to 4s. a bushel until September of 1907. The returns in 1909 were remarkably consistent, for after February the rate remained above 4s. until February the following year, when a declining list of "3's" was recorded to the end. The average price per bushel in 1901-2 was 4s. 1d., and the next season it jumped to a record figure of a halfpenny over 5s. That summit has not again been reached, and the nearest approach to it was 4s. 4½d. in 1908-9. A comparison of the average market prices is supplied thus:—

Month.	1903.	1904.	1905.	1906.	1907.
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
January .. .. .	5 10	2 10	3 5	3 3	2 11
February .. .. .	5 10	3 4	3 5	3 2	2 11
March .. .. .	5 10	3 1	3 3	3 2	2 11
April .. .. .	5 8	2 10	3 3	3 2½	3 0
May .. .. .	5 4	2 11	3 3	3 3½	3 5
June .. .. .	5 4	2 11	3 4	3 3	3 7
July .. .. .	5 4	3 1	3 4½	3 3½	3 9
August .. .. .	5 4	3 5	3 4	3 2	3 9
September .. .. .	4 10	3 6	3 7½	3 2	4 0
October .. .. .	5 0	3 4	3 7½	3 1	4 11
November .. .. .	3 3	3 3	3 8	3 0½	4 6½
December .. .. .	2 11	3 8	3 5	3 0	4 1

Month.	1908.	1909.	1910.	1911.	1912.
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
January .. .. .	4 2	3 8½	4 3½	3 6½	3 7½
February .. .. .	3 9½	3 10½	4 0½	3 3½	3 7
March .. .. .	3 10½	4 2½	3 11½	3 2½	3 7½
April .. .. .	3 10	4 9	3 11½	3 3	3 11½
May .. .. .	4 1	4 10½	3 6½	3 4	3 11½
June .. .. .	3 9½	4 10½	3 2	3 2½	4 0
July .. .. .	3 9	4 10	3 5	3 2½	3 11
August .. .. .	3 10½	4 6½	3 9	3 4½	3 11½
September .. .. .	3 10½	4 6	3 9	3 6½	4 1
October .. .. .	3 9½	4 6	3 7½	3 6	4 1½
November .. .. .	3 9½	4 2½	3 7	3 5½	3 11½
December .. .. .	3 9	4 0½	3 7½	3 6½	3 6½

## IMPORTANCE OF WHEAT YIELD.

A valuable comprehensive table is that which, so to speak, sums up the whole position in connection with the production of wheat. This affords at a glance the extent to which the industry has grown and what it is worth to the State.

Season.	Area under Wheat for Grain.	Produce Wheat.	Total Estimated Value.	Shipments Breadstuffs.	Total Value Shipments Breadstuffs.
	Acres.	Bushels.	£	Tons.	£
1901-2 .. ..	1,743,452	8,012,762	1,635,938	171,727	1,229,212
1902-3 .. ..	1,746,842	6,354,912	1,601,967	122,690	1,147,356
1903-4 .. ..	1,711,174	13,209,465	2,091,499	263,469	1,649,414
1904-5 .. ..	1,840,157	12,023,172	2,053,959	280,794	1,877,318
1905-6 .. ..	1,757,036	20,143,798	3,189,435	424,001	2,676,959
1906-7 .. ..	1,686,374	17,466,501	3,202,172	443,332	2,974,860
1907-8 .. ..	1,753,755	19,135,557	3,747,380	454,139	3,588,813
1908-9 .. ..	1,693,501	19,397,672	4,243,241	462,581	3,775,635
1909-10 .. ..	1,895,738	25,133,851	4,817,321	* 575,150	*4,404,664
1910-11 .. ..	2,104,717	24,344,740	4,209,611	592,528	*3,844,681
1911-12 .. ..	2,190,782	20,352,720	3,858,463	—	—

\*Oversea only.

## OTHER CEREAL CROPS.

Hay is extensively grown in South Australia, and a considerable portion of the area under wheat, oats, barley, and lucerne is utilised in its production for farm stock. Wheaten hay constitutes the bulk of the crop, and some fine yields are obtained. The total acreage cut for hay in 1910-11 was 521,182 acres, compared with 440,177 acres, the previous year's figures. Wheaten hay accounted for 401,648, acres, oaten for 113,011, and other kinds for 6,523 acres. In 1910-11, the respective totals were 336,439, 96,062, and 7,676 acres. The total yield of the 1911-12 season was 605,239 tons (average 1·16), and the return for the 1910-11 season was 595,064 tons, and the average per acre 1·35 tons, against 574,475 and the same average in the preceding year. The increase in 1910-11 was 20,589 tons, and in 1911-12, 10,175 tons. The extending acreage under cultivation for hay is shown by the following table:—

Year.	Acres.	Year.	Acres.
1901 .. ..	341,330	1907 .. ..	328,672
1902 .. ..	325,789	1908 .. ..	424,924
1903 .. ..	370,152	1909 .. ..	424,448
1904 .. ..	269,626	1910 .. ..	440,177
1905 .. ..	317,924	1911 .. ..	521,182
1906 .. ..	298,396		

In 1909-10 the quantity of wheaten hay produced was 439,469 tons, in 1910-11, 464,048, and in 1911-12, 475,782; an increase of 24,579 tons in 1910-11, and of 11,734 in 1911-12. In the two earlier years the average was the same—1·38, but in 1911-12 it was only 1·18. There was a slight decrease in oaten hay of 978 tons, the totals being 121,017 in 1910-11 and



121,995 in the preceding season. In 1911-12 the production of oaten hay was 120,629 tons. It is apparent, however, that more and more attention is being devoted to hay-growing, and the increasing acreage since 1906 is convincing proof. There is still room for considerable extension, and no doubt future seasons will witness it. The following particulars show how production has advanced since 1901 :—

Year.	Produce. Tons.	Average. Tons.
1901 .. .. .	346,467	·94
1902 .. .. .	308,825	·95
1903 .. .. .	479,723	1·30
1904 .. .. .	294,252	1·09
1905 .. .. .	435,546	1·37
1906 .. .. .	398,866	1·34
1907 .. .. .	376,170	1·14
1908 .. .. .	591,141	1·39
1909 .. .. .	574,475	1·35
1910 .. .. .	595,064	1·35
1911 .. .. .	605,239	1·16

BARLEY AND OATS.

The general conditions in South Australia are more suited to wheat-growing than to oats and barley, but in the southern and cooler districts these crops are largely cultivated. The South-East is admirably adapted to oats and barley, and excellent crops of from 40bush. to 50bush. of the latter are common. Barley produced in the South-East and on Kangaroo Island has won a high reputation for malting purposes. There is an increasing demand for barley, not only in South Australia itself, but from the other States. In southern Yorke's Peninsula some excellent yields are obtained. The acreage under cultivation, produce, and average number of bushels are given in the following table :—

Year.	BARLEY.			OATS.		
	Acres.	Produce.	Average.	Acres.	Produce.	Average.
1901 .. .. .	15,352	Bushels. 243,362	Bushels. 15·68	27,988	Bushels. 469,254	Bushels. 13·54
1902 .. .. .	21,493	317,155	14·76	50,296	620,823	12·34
1903 .. .. .	28,697	487,920	17·00	57,558	902,936	15·69
1904 .. .. .	23,904	346,718	14·50	50,630	555,696	10·98
1905 .. .. .	26,250	505,916	19·27	56,950	869,146	15·26
1906 .. .. .	28,112	491,246	17·47	57,000	896,166	15·72
1907 .. .. .	37,321	566,937	15·19	66,297	874,388	13·19
1908 .. .. .	44,911	825,740	18·39	78,494	1,280,235	16·31
1909 .. .. .	41,895	691,424	16·50	85,346	1,209,131	14·17
1910 .. .. .	34,473	544,471	15·79	77,674	1,136,618	14·63
1911 .. .. .	40,743	702,855	17·25	107,881	1,349,480	2·511

The production of barley of all kinds in 1911-12 was 702,855bush., an average of 17·25. The chief varieties were returned under the following headings :—Malting, 484,951bush. against 344,665 in 1910-11 and 446,825 in

1909-10; Cape, 208,012, 186,912 and 218,771; other, 9,892, 12,894 and 25,828bush. Cape barley represents the whole of that kind grown in the State. The greater portion of it is used for feed purposes, though inquiry has shown that a fair quantity, when of special quality, is sold for malting purposes. The decrease in the oat crop was 72,513bush.

Maize is grown principally in the dairying districts to provide feed for dairy cattle. It is cultivated almost entirely where it can be irrigated, and then heavy crops are obtained. Stockowners are appreciating the advantages of maize for feed, and even where they have to rely only on the rainfall the fodder is being grown in increasing quantities. The area under maize in 1911-12 was 97 acres and the production 1,490bush.

The total acreage under root crops in 1911-12, with the figures for 1910-11 in brackets, was—7,982 (8341) acres; 7,412 (7,812) acres with potatoes yielding 22,668 (23,920) tons, averaging 3.06 (3.06) tons per acre; 238 (270) acres with onions, yielding 1,462 (2,142) tons, averaging 6.14 (7.93) tons per acre; and 332 (349) acres with other kinds of root crops. These crops are grown in the Central and South-Eastern Divisions of the State, and the total estimated value in 1910-11 was £169,696, and £134,298 in the previous season. Potatoes are largely grown, almost entirely for domestic purposes. The quantities of potatoes produced, however, have consistently grown and the average has been on an upward tendency for many years, as the following information will prove :—

Year.					Produce. Tons.	Average. Tons.	
1901	..	..	..	..	15,059	..	2.41
1902	..	..	..	..	28,312	..	3.65
1903	..	..	..	..	31,415	..	3.65
1904	..	..	..	..	19,521	..	2.36
1905	..	..	..	..	20,238	..	2.13
1906	..	..	..	..	22,277	..	2.25
1907	..	..	..	..	20,373	..	2.24
1908	..	..	..	..	21,588	..	2.67
1909	..	..	..	..	18,569	..	2.28
1910	..	..	..	..	23,920	..	3.06
1911	..	..	..	..	22,668	..	3.06

Turnips, mangolds, and other roots receive some attention in the cooler portions of the State, and rape is largely grown for fodder. Field peas and beans are cultivated in the Hills districts, and in the South, and South-East, and in 1911-12 the area under cultivation was 11,826 acres, an increase of 2,197 acres on the figures for 1910-11. The total yield was 156,522bush. against 188,786bush. for 1910-11, which was the highest production for 10 years. The average in 1911-12 was 13.24, and in the previous year 19.61. Farmers grow peas in conjunction with pig-breeding and bacon-curing, and top up sheep and lambs on this food with satisfactory results, in consequence of its fattening properties. The crop, as a rule, gives a better return than wheat, and is well known for its recuperative action on exhausted soils. The 1910-11 season was exceptionally favorable for this crop, the production being

a record for the State, whilst the average per acre had only very slightly been exceeded on two or three occasions. The total area either cut for fodder or fed off in 1911-12 was given at 33,673 acres, compared with 20,728 acres in 1910-11. The chief crop was, of course, lucerne, with 10,591 acres; and 34,766 tons were cut for green fodder, the value of which, including the value of the area fed off, was estimated by the growers at £43,005, against £40,485 in the previous year.

ENSILAGE.

The periods of dry weather experienced in South Australia emphasize the prudence of conserving fodder for stock when natural grasses are not available. The advantage of this system in the dairying centres is obvious, especially where these are located in northern areas. It cannot be said that anything like adequate attention is devoted to the manufacture of ensilage and to the erection of silos for the storage of the food. More and more, however, the wisdom of making this provision is being forced on stockowners, and each year records a slightly increasing number of pit and stack silos. The latest figures are—57 pit and 7 stack silos on 39 farms. These have an aggregate capacity of 123,403 cub. ft. The quantity of ensilage made in 1911 was 1,250 tons. The value of the manufacture in 1911 was £820, and in 1911 £1,581.

MACHINERY.

Considerable capital is invested in agricultural machinery and plant. The estimated value is £3,046,212, distributed as follows:—

Division.	Area Farmed. Acres.	Value of Machinery. £
Central .. .. .	1,471,927	1,121,118
Lower North .. .. .	1,279,876	749,496
Upper North .. .. .	526,759	314,759
South-Eastern .. .. .	451,047	383,639
Western .. .. .	610,826	408,653
Remainder of State .. .. .	—	60,068
<b>Total .. .. .</b>	<b>4,340,435</b>	<b>£3,046,212</b>

The total value is thus shared by the various industries—

	1910.	1911.
Used mainly in general agriculture ..	£2,349,819	£2,609,098
“ orchards, &c. .. .. .	123,236	99,687
“ dairying .. .. .	93,476	194,030
“ pastoral pursuits .. .. .	169,815	134,918
Travelling machinery, such as threshing machines and chaffcutters .. .. .	9,283	8,479
	<u>£2,750,629</u>	<u>£3,046,212</u>

The latest official returns show that 58,893 persons—41,916 males and 16,977 females—are deriving constant employment on the land : cultivating, 41,243 ; dairying, 11,497 ; and pastoral, 6,153. The following table shows how the labor is distributed :—

DIVISION.	Cultivating		Dairying.	
	Males.	Females.	Males.	Females.
Central .. .. .	17,040	2,125	821	5,385
Lower North .. .. .	7,203	1,799	131	1,591
Upper North .. .. .	3,203	591	177	1,583
South-Eastern .. .. .	4,263	500	459	1,218
Western .. .. .	3,381	1,135	18	109
Outside Districts .. .. .	2	1	2	3
	<b>35,092</b>	<b>6,151</b>	<b>1,608</b>	<b>9,889</b>
1911 .. .. .	41,243		11,497	
1910 .. .. .	39,649		11,788	
Increase .. .. .	1,594		— 291	

DIVISION.	Pastoral.		Total.	
	Males.	Females.	Males.	Females.
Central .. .. .	989	155	18,850	7,665
Lower North .. .. .	718	167	8,052	3,557
Upper North .. .. .	772	166	4,152	2,340
South-Eastern .. .. .	1,372	259	6,094	1,977
Western .. .. .	216	47	3,615	1,291
Outside Districts .. .. .	1,149	143	1,153	147
	<b>5,216</b>	<b>937</b>	<b>41,916</b>	<b>16,977</b>
1911 .. .. .	6,153		58,893	
1910 .. .. .	6,057		57,494	
Increase .. .. .	96		1,399	

## DAIRYING.

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**S**OUTH AUSTRALIA is most favorably situated for dairying, and a large area is eminently adapted to the successful operations of this advancing industry. Long ago the State established a reputation for choice products of the dairy, and this has been maintained with increasing merit. The strong, nutritive herbage and grasses form a rich, natural food for milking stock, and the industry is now a permanent and an important factor in prosperity. Although the summer is dry, and necessitates the conservation of succulent feed for the cows during several of the hotter months, the temperate climate, excepting days of excessive wet and cold, enables the herd to remain in the open practically for the 12 months with sufficient protection by trees. Shelter-sheds which can be cheaply erected, reduce the labor of feeding to a minimum. Landholders are more and more recognising that dairying is a steady, profitable branch of agriculture. The conditions in the North are not so attractive, owing to the severe and often erratic weather, but even in the drier areas progress has been satisfactory. In the South and South-Eastern portions of the State, with the heavy rainfall, intense culture is adopted, and with the extension of that practice, milking stock is being maintained at a correspondingly smaller cost. The volcanic country of the Mount Gambier district is the ideal home of dairymen, and it is doubtful whether any part of Australia offers more favorable natural conditions.

While the industry has made great strides, the more attractive financial proposition of mixed farming has been rather an opposing factor. Lamb-raising, too, another source of great profit not requiring the continuous labor associated with dairying, has, perhaps, discouraged any marked expansion; and yet the advancement, on the whole, has been stimulating and significant. In some of the driest of the farming areas dairying has taken the place of wheat-growing, and the reduction in the yield of milk is balanced somewhat by the low rentals and the extent of natural pasture available. During recent years progress of a permanent character has been achieved, largely as the result of better methods of feeding, breeding, and the general management of dairy farms, together with the opening up of new areas and the subdivision of country suited to mixed farming.

The following figures will indicate the substantial improvement that has been made in the industry :—

Year.	Butter. Lbs.	Cheese. Lbs.
1903-4 .. .. .	5,955,756	972,854
1904-5 .. .. .	6,836,169	851,800
1905-6 .. .. .	8,266,805	1,174,867
1906-7 .. .. .	8,873,632	1,389,785
1907-8 .. .. .	8,519,340	1,385,790
1908-9 .. .. .	8,130,560	1,556,894
1909-10 .. .. .	8,482,168	1,578,378
1910-11 .. .. .	10,717,486	1,796,281
1911-12 .. .. .	9,694,666	1,526,930

Comparing the 1911 season with that of 1904 it will be seen that the output of butter has increased by 4,721,730lbs., and of cheese by 823,697lbs. Putting these figures into money equivalents, the improved cash value is—butter, £206,575 ; cheese, £20,592—a total cash increase of £227,167. Comparing the 1910-11 season with that of 1909-10, butter production shows an increase of 2,235,318lbs., which, valued at 10d. a pound, means £97,790 ; and cheese, 217,903lbs., which, valued at 6d. a pound, represents £5,447. Altogether the improvement in production for 1910-11 was £103,237.

Much attention has been devoted to the production of fodders, and particularly to the cultivation of lucerne, while the conversion of green crops into ensilage has been an increasingly active department of the dairyman's industry. Many other crops are cultivated, in extent according to the suitability of climate and rainfall ; among these are peas, rape, kale, cabbages, clover, maize, sorghum, and mangolds.

The butter produced at the Butter Factories is mostly of a high quality, being made from the milk of herds carrying a high percentage of the Channel Island breed (Jersey), grazed upon the rich natural pastures which cover a considerable area of the country.

It is due largely to this fact, together with the excellent methods adopted in the manufacture, that South Australia has invariably taken pride of place in competition with all Colonial Butters, at the London Dairy Show. Again this year 1912—the exhibits of salted and fresh butters took first prizes against all-comers. These were exhibited by Messrs. Taylor Bros., of Gawler, and in both classes the maximum points were awarded, viz. 100, a position never before reached by any butters in competition, which easily establishes a record.

Some idea of the extent of dairying operations may be gauged by a glance at the following table, which gives the number of hands employed, the capital invested in machinery and plant, and the output:—

	In Factories.	On Farms.	Total.
Hands employed—			
Males .. .. . number	298	1,602	1,900
Females .. .. . number	5	10,186	10,191
Total .. .. . number	303	11,788	12,091
Power of engines (full capacity) .. h.p.	405	—	405
Value of plant and machinery .. .. £	33,140	94,294	127,434
Milk used for making butter .. galls.	14,422,660	10,939,394	25,362,054
Butter made .. .. . lbs.	6,720,650	3,996,836	10,717,486
Milk used for making cheese .. galls.	1,802,606	8,096	1,810,702
Cheese made .. .. . lbs.	1,788,280	8,001	1,796,281
Bacon and ham cured .. .. lbs.	2,656,147	1,085,795	3,741,942

It is interesting to have those figures in greater detail by showing their distribution in districts—

	Central.	Lower North.	Upper North.	South-Eastern.	Western.
Separators on farms number	5,227	2,103	1,421	1,104	386
Butter made .. .. lbs.	7,153,133	1,782,863	1,107,370	540,862	131,778
Cheese made .. .. lbs.	393,899	3,086	387	1,398,909	—
Bacon and ham cured .. lbs.	2,825,446	235,063	173,355	440,670	67,308
Hands on farms .. number	6,287	1,758	1,984	1,649	109
Estimated value plant and machinery .. .. £	48,889	18,563	14,607	9,690	2,517

Nearly all the separating is done on the farms. Hand separators are in general use, the cream being sent to the factories for treatment. The percentage of butter-fat in the milk of cows grazing on the natural pastures is unusually high.

Large quantities of butter are exported to Broken Hill and to Western Australia, and Victoria, and during the spring months shipments are made to Great Britain. The rapid means of transit provided by modern ocean steamers, with their spacious refrigerating chambers, have enabled producers to place their article on foreign markets in first-class condition. The following statement shows the quantity of butter shipped from this State to England each season since the inception of the industry :—

Year.	Tons.	cwts.	Year.	Tons.	cwts.
1893-4 .. ..	167	15	1903-4 .. ..	229	3
1894-5 .. ..	598	12	1904-5 .. ..	352	8
1895-6 .. ..	349	15	1905-6 .. ..	590	0
1896-7 .. ..	70	1	1906-7 .. ..	876	10
1897-8 .. ..	8	5	1907-8 .. ..	613	8
1898-9 .. ..	166	13	1908-9 .. ..	455	2
1899-1900 .. ..	390	13	1909-10 .. ..	837	13
1900-1 .. ..	312	13	1910-11 .. ..	1,760	14
1901-2 .. ..	86	4	1911-12 .. ..	666	0
1902-3 .. ..	Nil.				

Appended is a statement showing exports of butter during the seasons 1907-8, 1908-9, 1909-10, and 1910-11, giving the quantities of each grade exported—

Year.	Superfine.	1st Grade.	2nd Grade.	3rd Grade.	Pastry.	Total.
	Cases.	Cases.	Cases.	Cases.	Cases.	Cases.
1907-8 .. ..	2,363	10,818	8,032	981	2,352	24,536
1908-9 .. ..	2,494	10,252	4,110	1,327	22	18,205
1909-10 .. ..	2,676	19,403	9,488	1,728	212	36,921
1910-11 .. ..	4,633	32,273	23,668	8,038	1,816	70,428
1911-12 .. ..	2,818	11,655	7,427	4,354	387	26,641

Practically all the cheese made in South Australia is on the Cheddar system, and an article of singularly high quality is produced by the leading factories. In Cheddar cheese production the State holds a creditable position. An export business with England has not yet begun, but small trial consignments are being undertaken by the Department. The richness of the product has won the confidence of consumers, and the local market is bound to be increasingly active for many years. One authority declares that the article is equal to anything in the world. A consignment sent to Glasgow, and tested when eight months old, secured considerable praise from the highest authorities. When it is remembered that an average British cheese contains about 32 per cent. of fat, the superiority of the shipment is all the more apparent. The percentages were 43-95, 39-81, 39-50, and 40-74.

The State assists the industry in many important directions. Instruction in dairy science and practice is given at the Agricultural College, where the work of the chemical laboratory is associated with active duties in the field and in the dairy, and the dairy expert visits leading centres and conducts



demonstrations. Special facilities are afforded by the railways for the conveyance of perishable goods, and cream is forwarded by the dairymen to the city factories from districts 300 miles distant. Payment is usually made on the butter-fat percentages; and in order to afford suppliers an opportunity of checking the returns received from private factories the Government established a butter factory in connection with the export freezing works at Port Adelaide. At this factory every can of cream is sampled, and the quantity of butter it will produce is ascertained by the usual methods and the supplier paid accordingly. The general outlook for the industry is most encouraging. Everything points to satisfactory prices in the oversea markets, and as the conditions on the farms have substantially improved, and interest throughout is keen, the industry, unquestionably, has never been on a firmer basis.

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## VITICULTURE.

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**S**OUTH AUSTRALIA is pre-eminently adapted to the cultivation of the vine, and the growth of the industry during recent years has been remarkable.

The manufacture of a good, sound wine, capable of holding its own in the world's markets, can readily be obtained from a large portion of our agricultural areas. The pioneers were quick to realise that in this State the suitability of soil and climate conditions favored vigorous and successful cultivation. The great advance that has been made has been due to these happy circumstances and to the important fact that there is an entire absence of disease in the vineyards. A large fund has been built up as a financial defence against any outbreak, but, fortunately, no demand has been made upon it. Many years ago a Phylloxera Board was established under Act of Parliament, and complete machinery was created for preventing the introduction of the pest, but the whole of the vineyards are completely free from infection.

Wine was made in South Australia as far back as 1846. The vine flourished from the first, and wine made even with the most primitive appliances was pronounced by connoisseurs to be of excellent quality. Vines are grown most extensively on the sunny plains and foothills, represented by the open lands on the western slopes of the Mount Lofty, Barossa, and Stanley ranges and the flat country between these foothills and the sea. In this zone the temperatures which rule at vintage (March and April) are rarely high enough to give rise to serious trouble in the process of fermentation, whilst the grower of table fruit is seldom put to much loss through the inclemency of the weather in the shape of rain storms; but the sun heat is sufficiently high in degree and protracted in season to develop the saccharine qualities of the grape to a high standard. Grape vines under these beneficent conditions reach the highest state of perfection, both in appearance and in flavor. Throughout the history of the wine industry the growers have exhibited considerable care and skill in the selection of the right varieties, and the latest appliances have been purchased to produce wine of high quality. The advice of leading French experts has been obtained from time to time in connection with the principles of planting and manufacture, and the South Australian article has now a world reputation for purity and flavor. Enormous capital has been invested in vineyards and plant, and the industry, generally, is on a sound and extensive basis. Remarkable growth has been witnessed, and years of wonderful prosperity have succeeded periods of adversity and depression. Land suitable for vine-growing can be secured at a reasonable cost, and cultivation does not entail a heavy outlay.

The following statement shows for a period of 10 years the quantity of wine made, in stock, and exported; also the quantity of locally distilled spirits produced:—

Year.	Wine Made Year ended about March 31st.	Wine in Stock about June 30th.	Wine Exported.	Value.	All Kinds Spirits Made.	Net Excise Revenue Collected on Spirits.
	Gallons.	Gallons.	Gallons.	£	Gallons.	£
1901 .. ..	2,813,301	4,215,636	595,853	92,418	172,728	15,897
1902 .. ..	2,631,563	5,027,754	846,721	124,916	143,980	22,480
1903 .. ..	2,573,424	5,535,694	561,830	94,660	201,407	28,221
1904 .. ..	2,445,270	5,700,000	686,159	107,573	282,929	32,136
1905 .. ..	2,845,853	5,304,236	718,660	103,138	306,314	31,594
1906 .. ..	2,755,947	5,400,498	562,819	99,247	335,412	33,398
1907 .. ..	2,495,434	5,392,245	737,664	120,393	398,300	54,596
1908 .. ..	2,061,987	4,641,622	760,526	123,957	335,190	21,703
1909 .. ..	3,132,247	5,081,660	1,045,678	156,083	347,159	31,688
1910 .. ..	2,569,797	4,971,658	449,673	48,414	340,405	41,819
1911 .. ..	3,470,058	5,388,691	—	—	—	—

Fully two-thirds of our wine exports go to the other States; but as a record of inter-State trade is not now available the export figures supplied for 1910 represent only the trade with countries beyond the Commonwealth.

Viticulture has made substantial progress during the past decade. The acreage under vines has steadily advanced. In 1892 there were 12,314 acres, with 4,030,724 vines in bearing, and 3,146,564 non-producing. In 1902 the area had increased to 20,860 acres, the number of productive vines to 9,504,880, and 1,396,531 vines not in bearing, aggregating over 10,000,000 vines. During the succeeding five years there was a substantial expansion of the area under cultivation for vines. The area bearing in 1910-11 season was 20,367 acres, against 20,353 the previous year. The total, which had not reached bearing age in 1910-11, was 2,585 acres, compared with 2,088 acres in 1909-10. The total area at the latest figures was 22,952 acres, divided as follows:—

Wine-making .. ..	14,248 acres
Table use .. ..	1,786 “
Drying .. ..	6,918 “

The increasing area devoted to vines is illustrated in the following table:—

	Acres.	Grapes Sold. Cwts.
1901-2 .. ..	20,860	252,160
1902-3 .. ..	21,692	235,948
1903-4 .. ..	22,617	260,544
1904-5 .. ..	23,210	269,534
1905-6 .. ..	23,603	293,961
1906-7 .. ..	22,586	267,369
1907-8 .. ..	21,080	* 520,100
1908-9 .. ..	22,031	* 693,940
1909-10 .. ..	22,441	* 620,800
1910-11 .. ..	22,952	* 737,220

\* Total Grape Production.

The estimated value of the grape crop for the seasons 1907-8 to 1910-11 is—

	£
1907-8 .. .. .	384,344
1908-9 .. .. .	403,153
1909-10 .. .. .	398,426
1910-11 .. .. .	585,285

The total grape production in 1910-11 was 36,861 tons—31,040 the year before—or an average of 1·81 tons an acre against 1·52 tons. Of this quantity it was estimated that 21,196 tons were used in making 3,470,058galls. of wine, 13,134 tons for drying purposes, and 2,531 tons for table consumption and export. The estimated valuation of the production of vineyards was £585,285, against £398,426 in 1909-10, or 8·10 per cent. of the total valuation of all crops, compared with 5·34 the previous season.

Consistently with the development of the vine industry, brandy of high purity and quality has been produced in increasingly large quantities. About 350,000galls. of spirits are manufactured annually, and many thousands of gallons of vinegar are made from local vintages.

In addition to vines a considerable area is set apart for the production of currants and raisins. Raisins (lexias for pudding raisins) are now almost exclusively produced along the River Murray in a most prolific manner. That part of South Australia produces a surplus over the needs of the Commonwealth. Sultanas succeed better in the Murray Valley than in any other part. They are grown successfully in quantity and are fair in quality. Zante currants prosper in most of the vine-growing areas of the State, and have yielded so satisfactorily since the introduction of the cincturing process that production (combined with Victorian vineyards) is rapidly overtaking the needs of the Commonwealth.

Year.	Raisins Made. Cwts.	Currants Dried. Cwts.	Year.	Raisins Made. Cwts.	Currants Dried. Cwts.
1901-2 ..	7,340 ..	3,413	1906-7 ..	16,123 ..	12,714
1902-3 ..	11,562 ..	4,886	1907-8 ..	24,488 ..	19,958
1903-4 ..	13,063 ..	13 406	1908-9 ..	28,007 ..	24,449
1904-5 ..	8,697 ..	114,361	1909-10 ..	27,808 ..	36,052
1905-6 ..	11,919 ..	14,552	1910-11 ..	34,745 ..	40,261

The following table gives the variety of dried fruits and the divisions in which they were produced :—

	Central.	Lower North.	Upper North.	South- Eastern.	Western.	Total.
	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.
Apricots ..	1,831	3,880	5	139	—	5,855
Apples ..	1,079	40	2	39	—	1,160
Currants ..	20,624	19,423	54	—	160	40,261
Pears ..	102	140	—	18	—	260
Peaches ..	286	620	—	11	—	917
Plums and prunes	640	82	—	114	—	836
Raisins ..	11,572	23,169	4	—	—	34,745

## FRUIT-GROWING.

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THE production of fruit on a commercial scale is carried on over a comparatively widely-scattered area in South Australia. This area may, in respect to this industry, be divided into three climatic and soil zones, each possessing forms of production peculiar to itself. Owing to this range of conditions of soil and climate---as the subsequent statement will show---practically every kind of temperate and sub-tropical fruit is grown to a high state of perfection.

The temperate zone embraces districts which receive from 21in. to 40in. of rain annually, in which the minimum temperature often falls below freezing point (32 deg. F.) in winter, but seldom exceeds 100 deg. F. in summer. The soils herein vary from light to heavy loams intermixed with disintegrated shales and sandstones, with sub-soils of reddish and yellow clays, sandstone rocks, and, less often, travertine limestone crusts. In a general sense the clay subsoils predominate and are preferred by fruitgrowers, whilst the soils and subsoils, which are often rich in organic matter, are poor in lime. This area embraces nearly the whole of the arable parts of the ranges, which rise from the sea near Cape Jervis and extend in a north-easterly direction to Mount Pleasant. It also includes the Barossa Ranges, extending from Williamstown through to Angaston. This approximately represents a tract of land upwards of 100 miles long by 15 to 20 miles wide.

To the north-west of this lies the smaller range of hills, in which Kapunda is located ; again, still further to the north-west is the elevated country, beginning at Riverton and extending a considerable distance beyond Clare. Passing further in a north-westerly direction the southern spurs of the Flinders Range are met near Crystal Brook, embodying in its folds the Beetaloo and Wirrabara Forests and fruit-growing country.

The elevated land in the south-eastern portion of the State, from Frances along the Victorian border to Cape Northumberland and westward to Kingston and Millicent, and selected parts (chiefly coastal) of Kangaroo Island and of Fyre's Peninsula (county Flinders) are included in this zone. The kinds of fruit principally grown in these parts include the apple, pear, plum, quince, cherry, walnut, strawberry, raspberry, gooseberry, bush currants, blackberry. In favored positions the grapevine, fig, citrus fruits, peaches, nectarines, and apricots of high quality are also grown. Irrigation is almost unresorted to in fruit production within this zone.

The warmer temperate zone embodies a class of country receiving from 18in. to 21in. of rain, which nearly all falls during the months of April to October. The temperature of winter occasionally falls below zero, and may frequently exceed 100° F. in the shade during the months of December, January, and February, accompanied by warm, dry to hot winds. The soil

conditions consist chiefly of light sandy to moderately heavy clay loams, with occasionally alluvial areas richer in organic matter. The subsoils are mainly retentive of moisture—red clays or limestone strata.

This zone includes the whole of the Adelaide plains; the country around McLaren Vale, Morphett Vale, and Reynella, in the south; a large part of the plains immediately south of Gawler; and the open portion of the plains in the Barossa district stretching from Gawler northerly through Tanunda and Nuriootpa. It also includes portions of the flats and foothills along the range of hills around Clare.

The fruit products of these portions of the State consist of grapevines—for wine, table, and currant-making purposes—orange and lemon groves, peaches, apricots, olives, almonds, figs, nectarines, mulberries, the respective importance of each being approximately as given above. Apples, pears, and plums are grown in selected portions of these areas. Irrigation is universally applied to the citrus plantations, but only occasionally used to supplement the rainfall in the production of other choice table fruits. Otherwise thorough tillage of the soil is relied upon to secure, admit, and retain the moisture for the year's growth.

The hot and dry zone consists of country receiving from 8in. to 17in. of rainfall per annum. Lower temperatures, often below freezing point for a few hours in the cool season (June, July, and August), and frequently above 100° F.—rising to 117° in the shade—in the summer, accompanied by hot, drying winds. Soils varying from red, drifting, sandy loam through to heavy, dark, stiff loams, and subsoils gravelly (Flinders Range slopes) to limestone and stiff marly clays, along the Murray River; irrigation being absolutely necessary for maintaining the life of the fruit trees.

This zone comprises the land situated within irrigable distance of the river along the valley of the Murray above Morgan, and a few small areas on the eastern and western slopes of the Flinders Range, near Orroroo, Quorn, Stirling North, and Baroota, respectively. In this country the peach, apricot, citrus tribe (oranges and lemons), fig, olive, and grapevine (including the muscat, sultana, and zante current varieties) are produced in the greatest perfection under the influence of irrigation, combined with judicious tillage. In this connection may be viewed the production in the interior of the date palm of commerce, grown by irrigation from artesian bores at Lake Harry and Hergott Springs.

An illustration of the range of fruits grown in these different zones is given thus—

## CENTRAL DIVISION.

			Bearing Age.	Not of Bearing Age.				Bearing Age.	Not of Bearing Age.
Acreage	..	..	13,073	5,566	Plums	..	No.	108,193	27,823
Almonds	..	No.	176,177	56,386	Oranges	..	"	117,808	68,685
Apricots	..	"	128,986	44,174	Lemons	..	"	37,776	7,356
Apples	..	"	502,322	301,285	Peaches and Nectarines	..	"	90,492	52,338
Cherries	..	"	60,328	22,041	All other trees	..	"	20,376	6,121
Pears	..	"	58,678	51,534					

*Fruits Grown in Different Zones—continued.*

## LOWER NORTH.

			Bearing Age.	Not of Bearing Age				Bearing Age.	Not of Bearing Age.
Acreage	..	..	1,786	769	Plums	..	No.	7,038	2,206
Almonds	..	No.	9,966	3,863	Oranges	..	"	16,203	16,514
Apricots	..	"	43,528	5,004	Lemons	..	"	3,632	857
Apples	..	"	46,312	16,250	Peaches and Nectarines	..	"	18,545	10,314
Cherries	..	"	1,110	215	All other trees	..	"	2,879	674
Pears	..	"	9,639	13,269					

## UPPER NORTH.

			Bearing Age.	Not of Bearing Age.				Bearing Age.	Not of Bearing Age.
Acreage	..	..	635	138	Plums	..	No.	2,329	512
Almonds	..	No.	4,094	1,522	Oranges	..	"	3,546	748
Apricots	..	"	5,794	418	Lemons	..	"	904	65
Apples	..	"	28,171	6,452	Peaches and Nectarines	..	"	5,649	1,189
Cherries	..	"	426	87	All other trees	..	"	1,578	158
Pears	..	"	2,073	978					

## SOUTH-EASTERN.

			Bearing Age.	Not of Bearing Age.				Bearing Age.	Not of Bearing Age.
Acreage	..	..	810	265	Plums	..	No.	5,659	2,390
Almonds	..	No.	5,021	3,004	Oranges	..	"	420	532
Apricots	..	"	8,640	3,465	Lemons	..	"	790	237
Apples	..	"	40,346	10,089	Peaches and Nectarines	..	"	5,011	1,238
Cherries	..	"	1,863	808	All other trees	..	"	3,241	1,017
Pears	..	"	6,049	1,657					

## WESTERN.

			Bearing Age.	Not of Bearing Age.				Bearing Age.	Not of Bearing Age.
Acreage	..	..	94	78	Plums	..	No.	437	709
Almonds	..	No.	1,376	1,063	Oranges	..	"	47	129
Apricots	..	"	1,250	894	Lemons	..	"	18	42
Apples	..	"	1,677	2,157	Peaches and Nectarines	..	"	1,457	985
Cherries	..	"	15	133	All other trees	..	"	672	527
Pears	..	"	683	659					

*Fruits Grown in Different Zones—continued.*

## TOTALS.

	1910-11.	1911-12.	Increase.	Decrease.
Acreage .. .. .	22,410	23,214	804	—
Almonds .. .. . No.	266,267	262,472	—	3,795
Apricots .. .. .	245,260	242,153	—	3,107
Apples .. .. .	935,728	955,061	19,333	—
Cherries .. .. .	88,792	87,026	—	1,766
Pears .. .. .	133,047	145,039	11,992	—
Plums .. .. .	156,191	157,296	1,105	—
Oranges .. .. .	208,182	224,632	16,450	—
Lemons .. .. .	52,717	51,667	—	1,050
Peaches and Nectarines .. .. .	185,759	187,208	1,449	—
All other trees .. .. .	38,040	37,243	—	797

## USES OF FRUIT.

Amongst hard fruits the apple holds primary place. It is grown principally for export purposes (oversea and inter-State) and for domestic uses; the favorite varieties being—Cleopatra (*syn.* New York Pippin of Tasmania), Jonathan, Dunn's Seedling, Rome Beauty, London Pippin, for European trade; and Rokewood, Stone Pippin, Strawberry Pippin, Esopus Spitzenburg, Shockley, Nickajack, Dumelow's Seedling for late keeping, local trade, and export to South Africa and the East. Only a few early ripening sorts are grown solely for local market purposes, chief amongst which are Margaret, Gladstone, and William's Favorite. The drying of apples is carried on in a limited manner in this State; but as the area under this fruit increases, and a demand for the rejects from the export packing sheds arises, no doubt the drying industry, along with cider-making, will assume larger proportions, and thus a use be found for inferior though wholesome fruit. Pears are cultivated for export, canning, drying, and local fresh fruit market purposes. The planting of such varieties as Glou Morceau, Beurre Bosc, Beurre Clairgeau, Josephine de Malines, Beurre Diel, Beurre Easter, L'Inconnue, Madame Cole, and Vicar of Winkfield, all of which have been proved to stand the voyage to Europe, has been carried on with varying success upon an increased scale during the past few seasons. For canning, drying, and the local fresh fruit market, the William's Bon Chretien (*syn.* Bartlett of America and misnamed Duchess in this State) is used almost exclusively. The canned product, when carefully selected and prepared, is not surpassed by the tinned pears of any part of the world. Apricots are grown for drying, canning, jam-making, and fresh fruit consumption. They succeed over large areas, and given spraying treatment against fungus diseases produce fruit of wonderfully fine quality. Peaches and nectarines are grown for fresh fruit and for canning and drying purposes. Cherries are planted for fresh fruit markets, inter-State and, to a limited degree, New Zealand exporting; canning and jam-making but slightly. The quality of the cherry grown in the Mount Lofty Ranges is unsurpassed. Plums are grown principally for jam-making and drying. The plum does particularly well in this State—so well, in fact, as easily to glut the local markets.



Figs are consumed as fresh fruit, and are utilised for jam-making. The introduction of the fig fertilising wasp (*Blastophaga grossorum*) and the true drying fig of commerce (the Smyrna Lop type) should revolutionise the production of figs in South Australia, where they succeed so admirably. Raspberries, gooseberries, bush currants, and blackberries are grown for jam-making. The local output easily supplies local demands for factory and domestic purposes. The production of these varieties is not possible of much extension, owing to climatic disabilities in most parts of the State. Almond trees have been planted extensively on the Adelaide plains and few other places. The area has increased of late years, but there is room for greater expansion—almonds are used for local and inter-State confectionery purposes. Along the alluvial flats of the Torrens and Para Rivers, and upon the sandridge land of the Murray irrigation settlements, oranges, particularly of the navel varieties, are produced to the highest degree of perfection, both in color, texture, and flavor. All recent plantings have been made with a view to export to Europe. Lemons grow so freely under irrigation that the local demand for fresh fruit and candy peel-making has long been outstripped, and the lemon has become largely a neglected and discounted tree. Large quantities are sold to merchants at 2s. per bushel for inter-State export, or for the manufacture of candy peel.

A graphic idea of the development of gardens and orchards is supplied by the appended table—

Year.	Gardens.	Orchards.	ALMOND TREES.		APPLE TREES.	
			Number.	Produce.	Number.	Produce.
				Cwts.		Cases.
1901-2 .. .. .	9,005	16,315	159,877	5,039	—	—
1902-3 .. .. .	9,489	17,376	165,255	5,699	—	—
1903-4 .. .. .	9,964	18,725	178,535	6,585	586,217	326,324
1904-5 .. .. .	10,160	18,872	187,321	7,527	688,031	362,436
1905-6 .. .. .	10,688	19,320	200,158	8,987	753,540	405,223
1906-7 .. .. .	8,379	18,199	199,413	7,010	755,930	311,538
1907-8 .. .. .	* 2,961	20,736	218,417	6,568	800,154	467,293
1908-9 .. .. .	* 2,818	20,855	242,788	6,453	827,667	398,812
1909-10 .. .. .	* 2,784	21,760	252,868	3,076	912,721	557,130
1910-11 .. .. .	* 2,818	22,410	266,267	5,488	935,728	476,904
1911-12 .. .. .	* 2,848	23,414	262,472	5,631	955,061	583,061

\* Market gardens only.

*Development of Gardens and Orchards.—continued.*

Year.	ORANGE TREES.		LEMON TREES.	
	Number.	Produce.	Number.	Produce.
		Cases.		Cases.
1901-2 .. .. .	117,452	58,366	65,696	27,045
1902-3 .. .. .	127,762	62,814	67,557	27,057
1903-4 .. .. .	141,856	97,717	67,882	40,315
1904-5 .. .. .	151,593	103,893	69,510	37,720
1905-6 .. .. .	164,984	130,171	75,982	48,990
1906-7 .. .. .	161,300	114,150	65,955	37,378
1907-8 .. .. .	167,937	137,143	54,271	42,717
1908-9 .. .. .	178,869	176,732	54,740	41,808
1909-10 .. .. .	194,315	152,416	53,642	39,437
1910-11 .. .. .	208,182	153,464	52,717	44,799
1911-12 .. .. .	224,632	220,988	51,667	47,176

The estimated value of the produce from orchards and market gardens for the seasons 1907-8 to 1911-12 is—

	Market Gardens.	Orchards.
	£	£
1907-8 .. .. .	86,181	263,534
1908-9 .. .. .	84,228	283,070
1909-10 .. .. .	99,036	354,358
1910-11 .. .. .	97,843	343,941
1911-12 .. .. .	95,434	372,616

Statistics relating to production are shown in this table—

	Almonds.	Apricots.	Apples.	Cherries.	Pears.
	Cwts.	Bushels.	Bushels.	Bushels.	Bushels.
Central Division .. .. .	4,709	99,854	488,614	41,351	60,609
Lower North .. .. .	495	56,813	43,117	538	13,024
Upper North .. .. .	218	3,029	21,870	36	1,908
South-Eastern .. .. .	156	5,260	29,209	681	5,696
Western .. .. .	53	1,026	1,140	1	407
Total 1911-12 .. .. .	5,631	165,982	583,860	42,607	81,644
“ 1910-11 .. .. .	5,488	145,213	476,904	45,085	80,868
Increase .. .. .	143	20,769	106,956	—	776
Decrease .. .. .	—	—	—	2,478	—

	Plums.	Oranges.	Lemons.	Peaches and Nectarines.
	Bushels.	Bushels.	Bushels.	Bushels.
Central Division .. .. .	97,533	199,891	42,598	58,225
Lower North .. .. .	4,655	17,004	3,674	14,728
Upper North .. .. .	1,632	3,889	459	3,901
South-Eastern .. .. .	3,025	266	439	2,489
Western .. .. .	183	18	6	972
Total 1911-12 .. .. .	106,758	220,988	47,176	80,315
“ 1910-11 .. .. .	94,217	153,464	44,799	59,406
Increase .. .. .	12,541	67,524	2,377	20,909
Decrease .. .. .	—	—	—	—

## PROSPECTS OF EXPANSION.

With the exceptions supplied in the small bush fruits such as raspberries and bush currants there is room (so far as area of suitable land is concerned) for an immense expansion of the industry of fruit-growing in all branches in South Australia. It is not considered by the fruit expert that the dense populations of the Asiatic countries will, within any appreciable time, become consumers of our temperate fruits at prices sufficiently remunerative to sustain our growers on a civilised basis. Nearer to the wealthier fruit consumers of Great Britain and northern Europe are situated countries wherein certain fruits, which are not quickly perishable and which we grow well, have been produced equally well for generations and at enormously less cost. The production of the zante currant in Greece, the prune in France and Bosnia, the almond in Spain, Italy, and other Mediterranean regions, the raisin (lexia and table) in Spain, the lemon in Italy and Sicily, the fig and sultana in Asia Minor, and the olive over many southern European lands indicates some of the difficulties facing any attempt at stimulating an immediate expansion of the production of those kinds beyond the consuming power of the Commonwealth. The sorts of fruit to which attention should be given must be those which are capable of being placed on European and, possibly, American, Asiatic, and New Zealand markets fresh, by means of insulated storage, when the markets there are comparatively bare—apples, pears, navel oranges, grapes, Japanese plums, cherries. Then there are those which by improved processes in growing, selection, and preparation should be capable of securing remunerative prices in open competition, viz., sultana, raisin, canned and dried apricots, and canned pears.

Again, there are those kinds or their products which as yet are largely imported from outside countries, notwithstanding the protection of a high Customs tariff, viz., figs (dried), olives (pickled and as oil), and grapes for wine and spirit manufactures.

The following table indicates the growth and fluctuations of the oversea export trade in respect of fresh fruits shipped to England, South Africa, and other countries since 1896 :—

Year	Cases.	Year.	Cases.
1896	647	1905	95,493
1897	11,334	1906	88,885
1898	4,106	1907	36,998
1899	12,264	1908	164,427
1900	20,497	1909	75,760
1901	48,411	1910	148,424
1902	15,750	1911	85,321
1903	56,178	1912 (June, 1911 to	
1904	103,000	Jan., 1912	201,675

The educational aspect of horticulture is not by any means neglected in South Australia. The work of the horticultural branch consists generally of instruction and the inspection of orchards, fruits, and plants. The range of duties of the Chief Inspector and his staff is, of course, much wider. Lectures are given in the country districts, at the School of Mines, and at the

Agricultural College; pruning demonstrations and the planning and supervision of various Government orchards. There is a small garden of four and a half acres on the outskirts of Adelaide proper. This contains a labelled collection of upwards of 100 varieties of citrus trees and 80 varieties of grape vines, along with a choice selection of practically all the sorts of fruit trees grown in our latitude. These latter are planted and used for demonstration purposes in connection with classes in fruit culture connected with the School of Mines, and are used as a means of instructing individuals who are seeking some special information. Demonstrations of pruning, propagation, and general treatment of fruit trees and vines are given to teachers and scholars from the larger public schools. Almost the whole of the trees in this orchard, which was planted in 1908, bore fruit, and the citrus trees have yielded useful and interesting results. A portion of the ground is used as a nursery for propagating trees for planting in other Government orchards.

At Blackwood there is a fine orchard, containing under test thousands of varieties of fruits collected from all parts of the world. Spraying tests are carried out, and a comprehensive practical inquiry into the cause of bitter pit. The orchard at the Government Experimental Farm, Kybybolite, in the South-East, was established in 1908 to demonstrate the possibilities of apple production for export on the neighboring selections. The trees provide an illustration of how a farmer may succeed in growing a commercial fruit plantation.

At Berri, on the River Murray, a portion of the land set aside for an experiment farm at this new irrigation settlement was allotted for experimental fruit culture. The effects of varying volumes of water on apricot, peach, and citrus trees will be noted. The effect of under-drainage, manures, and different forms of tillage is also carefully tested on these trees, whilst on grapevines different manures and methods of training are tried. The suitability of different prunes, almonds, and figs, comparative values of different stocks for citrus trees, and new sorts of citrus trees have been chosen as subjects for tests.

Calculating 100 trees per acre as a conservative basis South Australia possesses—

	£
Almonds, 2,625 acres, yielding 282 tons of nuts worth at 6d. lb.	15,766
Apricots, 2,422 acres, 165,982bush., at 2s. 6d. bush. ....	20,747
Apples, 9,550 acres, 583,860bush., at 2s. 6d. bush. ....	72,985
Cherries, 870 acres, 42,607bush. at 4s. bush. ....	8,521
Pears, 1,450 acres, 81,644bush. at 3s. 4d. bush. ....	13,607
Plums, 1,573 acres, 106,753bush. at 2s. bush. ....	10,675
Oranges, 2,246 acres, 220,988bush. at 5s. bush. ....	55,247
Lemons, 517 acres, 47,176bush. at 2s. bush. ....	4,717
Peaches and nectarines, 1,872 acres, 80,315bush. at 4s. bush. ..	16,063
Unspecified, 373 acres, 5,533bush. at 2s. bush. ....	553
Bush and berry, 579 acres, 13,338bush. at 6s. 8d. bush. ....	4,444
Currants (dried), 2,334 tons 15cwts., at £37 6s. 8d. per ton (calculated at 4d. per lb.) ....	87,164
Sultanas (dried), 737 tons 3cwts., at £46 13s. 4d. per ton (or 5d. per lb.) ....	34,400
Gordo and Lexias, 995 tons 8cwts., at £28 per ton (or 3d. per lb.)	27,871
Grand total .....	<u>£372,764</u>

## OTHER INDUSTRIES.

### FORESTRY.

**D**URING recent years great activity has been displayed in forestry. In South Australia many useful varieties of timbers are grown, and the department has adopted vigorous conservation. Like other States of Australia, the earlier colonists paid little heed to the future when they demolished trees in wholesale manner and neglected to replace the deficiency by planting. There is a tremendous leeway to make up, but the department is attacking it in a thoroughly systematic manner. There are now extensive forests of valuable timber, and every year operations are becoming more extensive.

The approximate total area enclosed for planting has been as small as 33 acres, although in 1876 it was 892 acres. These figures have fluctuated in a remarkable way, but in 1911 the acreage was 1,031. Thirty-six years ago the number of trees planted for the 12 months was 100,000. Between 1886 and the early nineties planting was on rather a large scale, comparatively; but after that time there was a marked decrease, particularly from 1900 to 1904, and then a strong upward movement set in and has been maintained with considerable advantage ever since.

In 1876 the number of trees given to farmers was only 30,000, and in 1911 there were 312,522 distributed, and expenditure has grown from £6,000 to £21,000. In 1910 the financial outlay was doubled, compared with the previous year—£16,000 as against £8,000.

Since 1877 17,002 acres have been enclosed for planting, 8,730,415 trees have been planted, and 8,214,066 trees have been distributed.

Among the varieties of trees planted are yate gum, sugar gum, box gum, blue gum, spotted gum, yellow box, red gum, remarkable pine, large flowered stringybark, narrow-leaved ironbark, blackbutt, leather jacket, forest red gum, Victorian ironbark, black wattle, blackwood, Canary Island pine, and maritime pine.

The following table will give at a glance the present position :—

Area of forest reserves .. .. .	161,003 $\frac{3}{4}$ acres
Area enclosed for planting during the year .. .. .	1,073 $\frac{1}{4}$ acres
Total area enclosed for planting .. .. .	17,002 $\frac{1}{2}$ acres
Number of trees planted during the year .. .. .	515,678
Of which are growing .. .. .	453,448
Stock of trees in nurseries .. .. .	1,224,173
Revenue for year .. .. .	£4,848 17s. 5d.
Expenditure ditto .. .. .	£23,295 19s. 8d.
Value of permanent improvements .. .. .	£137,698

There were planted in 1912, 515,678 trees, of which 453,448, or 87 $\frac{3}{4}$  per cent., were living a year later. The area planted during the 12 months to June 30th, 1912, was 1,031 acres.

## POULTRY.

During recent years there has been a marked expansion in poultry-breeding throughout the State. The growing markets in the other States have absorbed year after year our exportable surplus of eggs and table poultry. In 1895 the total value of the inter-State trade in eggs and poultry amounted to £27,000; last year, 1912, the amount approximated £150,000. The average market price in Adelaide is 1s. per dozen. West Australia is our chief customer, and although the great demand of five years ago has fallen off the shipments of eggs and poultry from South Australia to West Australia are valued annually at about £70,000. New South Wales is our next best customer, and poultry products to the value of about £42,000 are sent to that State each year. In recent years Victoria has figured as a customer to the extent of close on £20,000. Occasional shipments are made to New Zealand in spite of an import duty of 2d. a dozen. A large proportion of the eggs forwarded to the other States is now sent in bulk—egg pulp. This improved method of transport means not only a saving in freight, but also guards against loss through deterioration in quality, as is the case with eggs in the shell. This method of pulping will tend to improved prices and greater demand. Eggs in the shell have been shipped successfully to England and arrived in first-class condition. In the future, when production has largely increased, we may look to a large and remunerative trade in eggs (in shell and pulp) with England and other oversea markets. Shipments of table poultry are made each year to England, and the results are highly satisfactory. For chickens and ducklings the prices received in London are from 10d. to 1s. a pound gross, which leaves a good margin on local prices. Our annual production of eggs and table poultry is valued at £700,000 and there is room for unlimited expansion. Few industries are in the happy position of having unlimited and growing demand on the world's markets, as is the case with poultry products. England requires, yearly, eggs and poultry from oversea markets to the value of eight and a half millions sterling, while the requirements of the German Empire are over 10½ millions sterling. Both markets are available for our future surplus.

## THE CLIMATE.

The climate is one of the best in the world for poultry-breeding. In the hottest portion poultry, especially fowls and turkeys, thrive amazingly. In the cooler portions all varieties of fowls, ducks, geese, and turkeys can be profitably bred. The accommodation required for farmers' flocks does not entail much expenditure, owing to the comparative mildness of the climate at all seasons.

## POULTRY FOODS.

On farms the poultry forage for the greater part of their food, which they find in the shape of fallen and shed grain, insect life, and vegetable foods. When kept in confinement, all the necessary food-stuffs, as grain, greenfood, &c., can be grown or purchased, together with mill by-products, at average rates

allowing of profitable use. When all the food is purchased at average current rates poultry can be fed as cheaply as in any other part of the world, and their productiveness is greater.

### POULTRY STOCKS.

South Australia enjoys a world-wide celebrity for the productiveness of her fowls. In the officially-conducted egg-laying competitions the results have been of a highly satisfactory nature. In the public tests flocks of several hundred Leghorn fowls have averaged 182 eggs per hen during a period of 12 months. One pen of six pullets of this breed laid 1,589 eggs in 12 months, an average of 264.9 eggs per hen, and thus established the world's record, South Australian bred fowls have won laying competitions in Queensland, New Zealand, West Australia, and South Africa. Many shipments of pure stock have been made to India, South Africa, England, and America. All the utility breeds are well represented, and good stock may be purchased at reasonable rates.

### OUR BREEDERS.

The number of expert breeders is increasing rapidly, and they are distributing stock of the highest economic value among the farmers. Scientific breeding for egg production is on a sound footing in this State, and in no part of the world are the methods more thorough. This class of breeder may be termed the stud breeders, who supply the farmers with highly productive strains of the different breeds. The farmers keep large flocks of poultry, and, while they do not give any special attention to breeding, are constantly improving their flocks by the introduction of draughts of high-class stock from the stud breeders. While a number of poultry-farmers send large quantities of high-class eggs and table poultry into the markets, it is from the general farmers that the bulk of our poultry products is received. Throughout the State the agricultural societies are helping to promote the industry. At all shows ample provision, with extensive classification and liberal prize-money, help to make poultry attractive features of the show.

In the city the Royal Agricultural and Horticultural Society and the Poultry Clubs' annual shows are well patronised by the breeders, who exhibit largely. These shows attract much public attention.

### STATE AID.

The poultry section of the Department of Agriculture is making an organised effort in imparting sound information to the producing community. Through the *Journal of Agriculture*, published monthly and issued for a nominal subscription, much information in seasonable and appropriate articles is available. Thousands of breeders avail themselves of the opportunity of receiving advice by correspondence. Bulletins of an informative nature are published and distributed post free. At country shows exhibits of great educational value are staged, and are in charge of an officer ready to impart information and distribute pamphlets. Lectures are given throughout the

country at farmer's meetings and in connection with the Agricultural Bureau system. Classes for instruction are held at the School of Mines and, as arranged, at country centres. Students can take the theoretical and practical course at the Roseworthy Agricultural College and adjoining poultry station. Three large thoroughly-equipped Government poultry stations have been established. These are situated—

*Northern.*—In the grounds of the Agricultural College, Roseworthy, 30 miles north of Adelaide.

*Central.*—Adjoining the Government Irrigation Farm at Murray Bridge, 60 miles south-east of Adelaide.

*South-Eastern.*—On the Government Experimental Farm at Kybybolite, 227 miles from Adelaide.

### EGG-LAYING COMPETITIONS.

At Roseworthy and Kybybolite Poultry Stations laying competitions and various food and other valuable experiments are in constant progress

### VARIOUS.

Under the provision of the Stock Diseases Act the control of all poultry diseases is satisfactorily effected. Investigation of diseases forms part of the current work, and breeders are regularly advised as to the best methods to adopt.

Beginners and others are rendered all reasonable assistance in regard to selecting suitable localities. Yards and houses are planned; advice given on the selection and marketing of stock and products generally. Beginners may work under supervision until they have gained the necessary experience.

From every point of view the prospects of the poultry industry are promising.

Poultry-breeding can be combined with horticulture, fruit-growing, dairying, general farming, &c. Experienced persons working on approved methods may, with a sufficient outlay of capital, obtain a good living from poultry alone. The poultry industry is destined to become one of the most important of the producing interests of the State.

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## FISHERIES.

South Australia has a coast line of 2,686 miles, and with its well-sheltered bays, islands, and coves is naturally the home of fish and the paradise of both fisherman and angler, as nearly all fishing is carried out under the most favorable conditions, shelter from hard gales for the boats being plentiful.

The principal fishing grounds are in the vicinity of Kangaroo Island, Spencer's Gulf, St. Vincent's Gulf, and the West and South-East Coasts, where hundreds of fishermen ply their calling successfully, using a fleet of



boats that is said to be the finest in Australia. They are principally cutter-rigged and motor-propelled well boats, which carry their freights to the various ports in a live state for shipment by railway to the markets.

The facilities now offered for transit by refrigerator steamers running to the fishing ports of the West Coast will make it possible for a greater number of fishermen to exploit these grounds.

Crayfishing is an important branch of the industry. During the last two years the number of men employed has been doubled, but even now the supply is not equal to the demand.

The principal sea fishes caught in the waters of our State are schnapper, whiting, butterfish, garfish, mullet, snook, salmon, flounder, bream, and barracouta, while among the crustacea, crayfish and the blue swimming crab are the most important.

The most valuable of our inland fisheries is the River Murray, which, with its lakes and backwaters, provides very large quantities of Murray cod, Mulloway, perch, bream, and Murray lobster, for which there is a good demand. Five hundred and twenty tons were carried by rail to markets for the year ending June 30th, 1912. The market price for cod reached 1s. 10d., per pound in October, 1912.

Fishing by anglers can be had on many grounds along the seacoast, and frequently large hauls are taken by yachtsmen in the gulfs. Good catches are also made in streams where fish have been placed by the department, and from the various jetties, the waters around which are protected by the Act against the use of any description of net.

The Federal investigation ship *Endeavor* has trawled, for scientific investigation, on our coast, and the Federal Director of Fisheries (Mr. H. C. Dannevig) is confident that he has discovered a good fishing ground in the great Australian Bight. Should this discovery prove of commercial value there is no doubt that trawling will be carried on for the Adelaide market.

Should the waters and nature of the sea-bottom prove suitable varieties of edible fish from the northern seas may be introduced to our State.

The Fisheries Acts of 1904 and 1909, and the regulations thereunder, express the fishing laws of the State. These provide for the supervision of the fisheries and the fostering of the industry. Fishermen who ply their calling must be either natural born or naturalised British subjects, and be licensed—the fee, 10s. per annum.

The boats used in the industry are registered with a view to protecting the indiscriminate taking of fish. Provision is made for the establishment of natural hatcheries for protection during periods of propagation, for restricting the use of harmful devices used for taking fish, and in other ways for the benefit of the industry.

A new feature of the Acts is the provision made for paying out of license fees for the destruction of fish enemies, and under this the department has paid over £4,602 for the heads of cormorants and turtles. It is believed that each

cormorant devours 5lbs. of fish daily, and the destructiveness of turtles, in regard to fish spawn, is well known. By the removal of these enemies fish life has been preserved to a great extent.

Close seasons have been proclaimed, during which it is illegal to use any description of net, while other places have been set aside as natural hatcheries.

At the request of the Government of South Australia the New South Wales Fisheries Department has closed Lake Victoria, situated a short distance outside the border of this State, which is one of the principal natural hatcheries and nursery for the Murray cod, and the whole Murray River from there to Blanchetown is closed during the months of October and November.

During the year 1911-12 there were 1,194 licensed fishermen using 881 registered fishing boats. The amount of fish carried over the South Australian Railways during the same period was 1,538 tons, with a freight value of £3,473 19s. 9d.

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## PRODUCE DEPARTMENT.

The Government Produce Department has made great advancement since it was established in April, 1895, and the sphere of activity has been extended by the addition of the important works at Light Square, which formerly belonged to the Adelaide Ice and Cold Storage Company. The provision of an Adelaide Depôt in conjunction with the killing yards and the freezing chambers at Port Adelaide had long been needed, and with the enlarged equipment the Produce Department is now one of the most progressive, largest, and most up-to-date in the Commonwealth.

The Depôt was introduced to assist producers in the exploitation of markets, and substantial success has been achieved for the primary industries of the State. The works have recently been extended and modernised in every way, and the whole system is on a sound basis. The capacity of the establishment is as follows:—Port Adelaide, 600,000 cub. ft. of refrigerating accommodation; Light Square, 150,000 cub. ft., or a total of 750,000 cub. ft. The Port Adelaide Depôt has a capacity equal to receiving, slaughtering, and freezing 8,000 lambs or sheep daily, and of cold storing 200,000 carcasses. The Light Square building has a freezing capacity of 3,000 lambs or sheep per day, and cold storage for 65,000 carcasses.

The seaport Depôt is used for all export trade, and the department reserves the Light Square Works for cold storage of all kinds of perishable produce required, and for holding consignments for local and inter-State business.

For the year which ended in June, 1912, the department made a profit of £2,076 10s. 11d., after paying interest on the capital cost of the works, amounting to £7,482 12s. 9d.

The following table of the annual value of the produce shipped since the inception of the Depôt will serve to show the progress that has been made. The falling off of values for 1911-12 is accounted for largely by the large

shrinkage in butter exports and the shortage of lambs occasioned by the unfavorable weather experienced, and the consequent shortage of grass during the spring of 1911 :—

	£	s.	d.		£	s.	d.
1895-6 .. ..	50,408	14	7	1904-5 .. ..	177,449	11	5
1896-7 .. ..	23,976	9	2	1905-6 .. ..	201,330	13	6
1897-8 .. ..	29,366	11	7	1906-7 .. ..	210,694	19	0
1898-9 .. ..	74,063	1	8	1907-8 .. ..	282,817	4	3
1899-0 .. ..	116,132	3	5	1908-9 .. ..	230,366	19	10
1900-1 .. ..	141,259	15	1	1909-10 .. ..	257,336	0	6
1901-2 .. ..	63,968	3	2	1910-11 .. ..	408,499	14	5
1902-3 .. ..	74,756	17	4	1911-12 .. ..	307,934	11	4
1903-4 .. ..	97,148	3	4				
					<u>£2,747,509</u>	<u>13</u>	<u>7</u>

In connection with these figures it should be pointed out that the original policy of the department, as laid down in 1895 by the controlling Minister, was "To provide facilities at the least possible expense to the taxpayer for the development of those producing industries which were languishing because of the absence in South Australia of any sufficient refrigerating or kindred accommodation for exploiting the world's markets." Taking that as the guiding policy, the department considers that it is fair to claim that, valuing the plant at cost, the taxpayers have been very amply protected, as the total results at June 30th, 1912, showed a profit of £3,070 19s. after interest to the extent of £47,142 19s. 5d. and all working expenses have been paid. From this standpoint also there can be claimed that the increased prosperity of the State, which is represented by the total export of £2,747,509 13s. 7d. worth of produce, has been the means of adding materially to revenue in other directions, which must be considered as a fair "set-off" against any depreciation in the plant.

For the purpose of protecting the interests of all producers, and giving everyone an opportunity of selling their produce on the English market, the department is represented in London by a Trade Commissioner. In addition to the actual business of selling produce, the Trade Commissioner's duties include a yearly programme of advertising South Australia and its products, reporting and advising on the general requirements of the trades for which we are catering, and exploiting new markets for the advantage of the producers of this State, and his efforts along these lines have been of the very greatest advantage to South Australia.

## IRRIGATION AND RECLAMATION.

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THE birth of practical irrigation in South Australia dates from the advent of Messrs. Chaffey Bros., at Renmark, in 1887. Previously a number of our progressive settlers had practised the aid of artificial watering, but not on an extensive or properly established system.

The pioneer firm of irrigators were practical Americans, hailing originally from Canada, afterwards migrating to California, where they established successfully two irrigation settlements in Etiwanda and Ontario. These eminent irrigationists were sanguine as to the great future possibilities to be derived from the artificial application of water as the prime factor in successful cultivation, and the closer settlement movement of our semi-arid country along the banks of the Murray wherever the water supply was sufficient to meet such requirements.

As in every great movement, initial mistakes were made, but the optimism of these promoters of irrigation never flagged, despite the army of pessimists they had to contend with. The results of to-day amply justify that optimistic spirit, and the State is now awakening to the true value of its irrigation inheritance.

Ten years ago national irrigation in the arid and semi-arid States of America was a dream of the distant future—to-day it is a pronounced fact. Country which was considered as desert, as hopeless as the Sahara in one sense of the term, with the successful and economical application of water, now supports tens of thousands of prosperous settlers.

South Australia does not aspire to extensive irrigation areas, but there is room for many lesser schemes apart from those along the Murray Valley.

Scattered over our dry and semi-arid districts, wherever natural waters are available, as at Pekina, we possess quite a number of areas ranging from a few hundreds up to several thousand acres in extent, which could be profitably irrigated by the gravitation system from headworks. Artesian water supplies also promise a large share in the prosperous occupation of considerable areas of at present practically worthless country, wherever the quality of the water is suitable. At present very valuable and interesting experiments are being carried out by the New South Wales authorities and others in the neutralising of the injurious alkalis contained in some of their artesian flows; and we are sanguine that practical scientific research work in this direction will, at a no great distant period of time, enable us to profitably and successfully use water which at present contains such an excess quantity of certain solids as to render it positively dangerous to plant life. Still we have many instances of artesian water being used with success in the growth of fruit trees, vines, date palms, and foddors. Fruit from the date plantations at Hergott Springs is, during the season, on sale, and its quality compares

more than favorably with the very best imported article, while the price is within the reach of all. There is room for very considerable areas of this valuable product, and there is no doubt as to the market in this direction for years to come; in fact, as population increases, so will the demand for this (when grown in South Australia) clean, wholesome, and popular fruit.

Lucerne and fodder grasses can be produced in abundance on our dry lands with the judicious use of water, and country at present carrying not more than a sheep to five or 10 acres rendered capable of successfully grazing from 15 to 20 sheep to the acre. The value of such irrigated pastures is the better realised and appreciated during the periods of drought, when thousands of stock which would, under natural conditions, perish, can then either be carried over the lean years or fattened and marketed with a considerable margin of profit to the owner.

### RESULTS OF IRRIGATION.

Renmark, which came into existence in 1887, has a population of over 2,000. It is situated on the Murray River, 351 miles from the mouth, by river, 174 miles above Morgan, 43 miles below the Victorian border, and 265 miles below the junction of the Darling River with the Murray at Wentworth. By land, Renmark is 75 miles from Morgan, the nearest railway terminus, and 179 miles by rail and road from Adelaide. Renmark is an irrigation colony, and was founded under the Chaffey Bros. Irrigation Works Act of 1887. Since 1897 the irrigation works have been administered by the Renmark Irrigation Trust No 1, a body elected periodically from among themselves by the ratepayers of the settlement. The original grant of land to Chaffey Bros. comprised 250,000 acres, and extended to the New South Wales border. In 1902 the area actually controlled by the Irrigation Trust was reduced to 13,348 acres; but in addition to this 15,652 acres have been dedicated to the Trust for commonage purposes. Renmark, now recognised, together with the sister settlement of Mildura, as one of the most successful irrigation settlements in the world, is the outcome of the enterprise and energy of Messrs. Chaffey Bros. The early settlers paid from £20 to £25 an acre for uncleared land with attached water right, believing that the efficiency of the pumping service was guaranteed by the Government. The failure of the promoters left the works in a very unsatisfactory state. In 1896 and 1900 loans of £3,000 and £16,000, respectively, were granted by the Government to enable the Trust to put the machinery and channels into a state of efficiency. This money is now being paid in half-yearly instalments of principal and interest. The following table will serve to illustrate the gradual progress of the settlement to its present satisfactory condition:—

Year.				Acres Irrigated.	Estimated Value Produce. £	
1896	..	..	..	2,700	..	6,878
1897	..	..	..	2,800	..	16,869
1898	..	..	..	3,200	..	11,968
1899	..	..	..	3,200	..	18,167

*Gradual Progress of the Settlement—continued.*

Year.	Acres Irrigated	Estimated Value Produce. £
1900	3,200	22,086
1901	3,200	28,167
1902	3,250	35,000
1903	3,300	39,250
1904	3,500	40,250
1905	3,700	41,550
1906	3,838	52,000
1907	3,860	85,000
1908	4,182	60,000
1909	4,900	85,000
1910	4,993	100,000
1911	5,175	100,000
1912	5,173	130,000

The following are the figures for the dried fruits in Renmark during the last two seasons :—

	1911.	1910.
Apricots	233 tons	162 tons
Peaches	50 "	28 "
Nectarines	— "	3 "
Pears	9 "	8 "
Currants	607 "	501 "
Sultanas	597 "	471 "
Malagas	— "	12 "
Lexias	561 "	614 "
London Layers	7½ "	6 "

Renmark has now 5,173 acres of irrigated land, which previous to 1887 would not carry more than 2,000 sheep during the most favorable season. Water is here pumped from the river at a cost of 1d. per 19,000galls., and is delivered on the irrigation level through a second pump at a cost not exceeding a penny for 9,000galls. The annual average irrigation requirements along the river settlements is from 20 acre inches to 30 acre inches per acre. The cost of pumping the necessary water for irrigation purposes on the majority of the settlements with the higher irrigation lands averages from 30s. to 40s. per acre per annum.

Private irrigation settlements along the river include Murtho, with a pumping plant capable of delivering 48,000galls. per hour. W. Lewis, of Gurra Gurra, who, with his family, is making a splendid living from less than 20 acres of irrigated land, which, under its natural condition would have starved a sheep, provides a splendid ocular demonstration as to the true value of irrigation when correctly practised. The Pyap Proprietary Co. holds about a thousand acres of soil well adapted for artificial watering, and are already irrigating 200 acres of orchards, vineyards, and foddors. The highest level irrigated is 120ft., and the capacity of the plant 175,000galls. per hour. Moorook, which was one of the original settlements, is most successful in its production of dried fruits, apricots in particular. An extended irrigation scheme is proposed, which will cover 1,200 acres. Holder Estate, another

ex village settlement, contains 6,900 acres, about 250 of which are being successfully irrigated. Following Waikerie and Ramco down stream, we next visit "Murray View," Messrs. Metters' property, of 2,000 acres where several hundred acres are under irrigation. The supply is pumped with three gas producer plants, giving a joint capacity of 360,000galls. per hour. Mr. H. H. Dutton's estate, near Morgan, contains 19,000 acres, of which at least 550 can be profitably irrigated. At present a considerable area is supplied with water, through the medium of a gas producer plant, with a delivery of 180,000galls. per hour. The Nor'-West Bend Estate contains 2,422 acres, of which about 400 are under the water command ; a further 500 acres could be irrigated with profit. Pumping plants with a capacity of 407,500galls. have been erected. Brenda Park, the property of S. Willcox, Esq., contains 10,438 acres, of which 700 are reclaimed from river floods and irrigated. The full pumping plant has a capacity of 520,000galls. per hour. Both Brenda and Nor'-West Bend consist partly of areas reclaimed against river floods, and at certain seasons of the year can be irrigated from sluice gates by gravitation from the river. A number of other irrigation farms and plots are to be found along the river banks throughout its length.

With judicious cultivation and irrigation, crops of two tons of currants and raisins per acre are no exception. Lucerne crops yield up to 12 tons of dry or 36 tons of green fodder per acre, while with systematic grazing from 10 to 30 sheep per acre can be carried at a profit.

What promises to be the most successful class of closer settlement in the State, is on the reclaimed swamp and overflow lands of the lower Murray. The valley of the River Murray contains approximately 250,000 acres of land of varying quality, all rich in organic matter, and the bulk of which may be utilised with a very decided margin of profit. The upper lands can in many places be either wholly or partially reclaimed, and when the river water falls below the level to permit of gravitation irrigation, owing to the low lift, effective and economical pumping plants can supply the balance of water required for intense culture at a minimum cost. Firewood is to be had in abundance, and charcoal as a motive power can be produced at a low figure. The soils on the lower reaches of the river of which there is a very considerable area that can be reclaimed, have proved both from analysis and actual results to be some of the richest in the known world. They are composed of layer upon layer of rich river silt, intermixed with immense bodies of decomposed vegetable (aquatic and semi-aquatic) growth, added to the droppings of fish, water birds, &c., and deposits of decayed animal matter, to a total depth in many places in the lower Murray of over 40ft. There can be no possible shadow of doubt, but where such lands as described are properly reclaimed against the inroads of flood waters, and effectively drained, they will become some of the most productive in Australia, and will hold their own with the best in the older countries of the world.

The overflow swamps of the Murray, from its discharge into Lake Alexandrina up stream to Mannum, contains approximately 25,000 acres of the richest organic soils in Australia, proved by analyses, which gave the

phenomenal result of 41,275lbs. nitrogen, 5,200lbs. phosphoric acid, and 39,325lbs. potash to the acre foot (dried at 105 per cent. c.). Practical results include a crop of 30 tons of onions to the acre, grown by Messrs. H. W. Morphett & Co., of Woods Point;  $3\frac{1}{2}$  tons of lucerne hay per acre from at least two local farms from one cut. The annual average lucerne hay crop is from 7 to 10 tons; the plant continues growing during winter; in addition to wonderful yields of malting barley, oats, mangolds, pumpkins, beans, &c.

The following list gives the respective areas reclaimed, with general particulars:—

1881. Sir W. F. D. Jervois, of Wellington Station (then Governor of the colony), and now owned by Mrs. M. Bowman, started with a low embankment and reclaimed 3,320 acres against ordinary river floods; partly sown with grasses, &c., and almost exclusively devoted to stock grazing.

1882—1908. Messrs. W. H. Morphett & Co., of Woods Point, area approximately 2,000 acres. The first swamp, fully reclaimed in 1889, contains 650 acres, over one-half of which is continually cropped with lucerne, onions, English Barley, &c., the first-named predominating; the balance is used for grazing and crops also. Besides carrying a large number of sheep, about 300 cows are milked.

1896. The late Mr. Macfarlane, of Wellington Lodge, reclaimed over 700 acres at a cost exceeding £10,000. This land is now used for grazing and carries a very heavy stocking.

1898. Hon. J. Cowan, M.L.C., of Glen Lossie, reclaimed 800 acres, part of which is used for intense culture, although the bulk of the land is devoted to stock-grazing. Some phenomenal heavy hay and fodder crops have been harvested from this area.

1905. Mobilong area, about 480 acres, was protected by the Government from the river overflow with the completion of a levee commenced in 1884. It is divided into 39 blocks, varying from 10 to 25 acres in extent. In this, as in all other reclaimed areas, wherever the naturally drained lands are cropped splendid returns follow.

The Government Experimental Farm, which contains 40 acres, was established in 1906, with a view of assisting the settlers to successfully solve the problems of drainage and intense culture on this class of country, and under the peculiar natural conditions obtaining. Up to the present many useful lessons have been learnt from the practical experiments conducted on the farm, and with the experience gained still better results may be expected in the near future.

Dairying is the principal industry on Mobilong, as well as on the other areas reclaimed by the Government.

1905. Burdett area, 120 acres, was also reclaimed by the Government. It is divided into 17 blocks, all of which are occupied, and command a high premium, as do all other lands of this class.



1907. Long Flat area was added to the list by the Government. This covers 360 acres, subdivided into 20 blocks.

1909. Monteith area, of about 1,000 acres, was protected from the river overflow by the State, and allocated to 37 applicants. This is one of the richest swamp areas within the Murray Valley, and with proper management on the part of the owners will become one of the show places of Australia in the matter of crop and fodder record yields per acre. Several other swamps of lesser areas than those enumerated have been partly reclaimed, whilst others (including Mypolonga, of over 2,000 acres, by the Government) are being converted into rich and fertile estates.

Areas which will be reclaimed at an early date are—Pompoota, 600 acres ; and Wall Swamp, 700 acres. At Mypolonga 2,000 acres swamp lands, 1,200 acres of high lands will be irrigated, in addition to which over 3,000 acres will be available for farming blocks.

At Berri an area of 6,000 acres are irrigable, of which 1,595 acres divided into 71 blocks are let on perpetual lease ; 79½ acres has been set apart for irrigation experimental work, to assist in securing the highest results from the river lands. The site includes all classes of soil common to the Murray Valley. It is intended to carry on fairly extensive trials with fruit trees and vines of new and approved marketable varieties, fodders and other economic plants, and no doubt many valuable lessons will result. A dry farming plot of 157½ acres is attached to the irrigation farm, the former being above the line of water command. At Mypolonga there will be 2,000 acres of reclaimed swamp lands, 1,200 acres will be irrigated, and 3,000 acres will be available for farming. At Kingston Village Settlement approximately 500 acres are irrigable. This settlement contains some exceptionally fine country for successful irrigation. At Lyrup 540 acres are available for irrigation. Last season the orchards and vineyards produced 310 tons of dried fruit. Waikerie and Ramco were originally village settlements, but the irrigation area has been increased to slightly over 2,000 acres, the whole of which is in occupation. The irrigation works are not yet completed on this area.

The village settlements were established on the Murray in 1894, mainly from the ranks of the then unemployed. Settlements, including Murtho, New Era, Gillen, New Residence, Holder, and Pyap, were gradually eliminated. In 1899, after an exhaustive inquiry by a Royal Commission, the system on which they were established was abolished, and the remaining settlers were permitted to occupy independent leases, while the water was supplied on a co-operative basis, as at Renmark and elsewhere.

Despite the fact that the village settlements did not turn out an unqualified success, the efforts of the Government of the day in the direction of fostering the irrigation movement resulted in the settlers in question demonstrating the value of river lands for wheat production, with the result that practically a new and particularly prosperous farming district is firmly established on the banks of the Murray.

## MANUFACTURES.

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THE State of South Australia enjoys a reputation for the excellence of its manufactures and for the ideal conditions of its factory life. Naturally the most highly developed and specialised are the factories devoted to the making of agricultural machinery. The reaping machine (stripper) and stump-jumping plough were invented in South Australia, while other farm implements have been improved, all tending to help the primary producer to reduce his cost of production. The State is also noted for its flour mills, from which large quantities of breadstuffs are sent throughout the Commonwealth and overseas. The discovery of minerals largely helped engineering firms, and the general expansion of all forms of industry has encouraged manufacturers to extend their factories, so that the number of establishments increased from 646 in 1885 to 1,314 in 1911, and the hands employed from 9,300 to 27,907 in the same period. Extensive locomotive workshops belonging to the Government are situated near Adelaide, and most of the work, including engines, required by the railways is done there. Locomotives and rolling-stock are also built by private firms at Gawler and Adelaide.

The eight-hours system is strictly observed in all South Australian factories ; while wages boards, on which sit representatives of employers and employés, regulate wages. There is constant inspection and supervision by Government inspectors, and every known provision is observed in the prevention of accidents and preservation of health.

In his last available annual report the Government Statist gives a statistical summary of the principal details collected respecting the manufactories and works of the State of South Australia for the year 1911 in comparison with the four preceding years.

It shows the number of factories and hands employed, expenditure in wages, fuel, light, and material, gross value of output, the estimated value of plant, machinery, land, and buildings used for factory purposes, &c.

Every establishment (factory, workshop, or mill) employing four hands or upwards in manufacturing or repairing articles, whether for the trade (wholesale or retail) or export, also every similar establishment, even if employing less than four hands, where machinery worked by power is used, is classed as a factory and furnishes an annual return for statistical purposes.

*Particulars of Manufactures and Works in the State of South Australia for the Years 1907 to 1911, and Comparisons between the Years 1910-11 and 1907-11.*

Particulars.	Unit of Quantity.	Years.				
		1907.	1908.	1909.	1910.	1911.
Number of establishments .....	No.	1,086	1,237	1,265	1,278	1,314
Number using machinery	"	728	839	863	899	926
Hands employed—						
Males .....	"	18,423	19,640	20,753	21,864	22,651
Females .....	"	4,278	4,596	4,956	5,146	5,256
Total .....	"	22,701	24,236	25,709	27,010	27,907
Proportion per cent. of each sex employed—						
Males .....	%	81.16	81.04	80.72	80.95	81.17
Females .....	"	18.84	18.96	19.28	19.05	18.83
Total power employed—						
Full capacity ....	H.P.	21,029	25,987	29,215	32,604	41,504
Aver. actually used	"	15,752	19,172	24,607	26,855	30,080
Kinds of power and full capacity—						
Steam .....	"	14,807	18,461	19,644	20,751	28,115
Gas .....	"	2,721	3,401	4,584	5,918	6,525
Electric .....	"	1,728	2,195	2,839	3,570	4,582
Oil .....	"	1,585	1,736	1,954	2,171	2,086
Other.....	"	188	194	194	194	196
Wages and salaries paid	£	1,734,394	1,924,974	2,028,691	2,323,398	2,645,386
Value fuel and light used	"	281,532	309,466	269,646	313,731	332,805
Value material used ..	"	5,893,355	6,689,376	6,004,459	6,695,255	7,509,739
Gross value of output..	"	9,436,723	10,471,671	9,928,105	11,184,695	12,580,851
Proportion per cent. to gross value of output of—						
Wages and salaries paid .....	"	18.38	18.38	20.43	20.77	21.03
Fuel, &c., used ...	"	2.98	2.96	2.72	2.81	2.64
Material used ....	"	62.45	63.78	60.48	59.86	59.69
Margin for profit and miscellaneous expenses, &c. ...	"	16.19	14.78	16.37	16.56	16.64
		100.00	100.00	100.00	100.00	100.00
Average annual earnings per employé .....	"	80.00	83.67	83.08	90.44	99.55
Value machinery and plant .....	"	1,873,061	2,035,284	2,106,890	2,225,718	2,506,000
Value land and buildings	"	2,168,199	2,340,463	2,460,968	2,648,658	2,954,855
Value added to material by process of manufacture .....	"	3,543,368	3,782,295	3,923,646	4,489,440	5,071,112

## CHAMBER OF MANUFACTURES.

Considerable assistance has been given to manufacturers in this State by an active organization known as the South Australian Chamber of Manufactures. The Chamber, whose offices are situated in its own building, in Pirie Street, Adelaide, is the oldest institution of its kind in Australia. It was established in 1869, and has steadily progressed with the growth of the State. By means of free public lectures, practical demonstrations, and the distribution of literature, the public has had the opportunity of being informed and instructed by the best recognised authorities on a variety of subjects through its agency. Parliamentary Bills and regulations and methods of administration affecting manufacturers and producers are constantly being placed before those interested, and many valuable suggestions emanating from the Chamber have reached and been given effect to by the powers that be. Periodically the Chamber holds exhibitions of manufactures, products, arts, and industry, the educational and practical advantages of which it is impossible to gauge. The next one will be held in 1915 (March-May). Recently the Chamber established in this State a "Manufacturers' Celebration," when the shopkeepers throughout the city and suburbs of Adelaide displayed articles of Australian make in their shop windows on certain selected dates. The event proved so successful in illustrating to the public the good qualities and great variety of Australian productions, that the function was repeated annually for a number of years. It has been decided, however, to drop the fixture for a year or two and to revive it after the forthcoming exhibition has been held.

The Chamber is governed by an honorary council of 30 members, representing a variety of trades. Its objects are—"To promote the development of South Australian manufactures and products, and in furtherance of such objects; (a) to hold meetings at which lectures may be delivered, papers read and discussed, and, where deemed of sufficient value, published for distribution amongst members; (b) to hold exhibitions for the display of manufactures and products and such of the arts as may be deemed advisable; (c) to offer premiums or prizes for new inventions, and to encourage skill in connection with any work appertaining to the objects of the Chamber; (d) to establish a library and industrial museum, accessible to the members of the chamber; (e) to closely watch all legislation and decisions of the courts on matters affecting the objects of the Chamber, and to take such action as may be deemed necessary." These objects have been observed with splendid consistency, and the Chamber enjoys a reputation for enterprise and energy in administration. It has ever been prominent in pursuing a vigorous policy in advertising the State, and its influence has been a fine impetus to industrial progress and efficiency. The Chamber has had a loyal following since

its establishment, and when action has had to be taken, there has been a fearless yet tactful defence of its principles. In 1910, there were 1,278 factories in South Australia, and in 1911, 1,314. The gross total output in 1910 was £11,184,695, and in 1911, £12,580,851. The value of plant, machinery, land, and buildings in 1910 was £4,874,376, and in 1911, £5,460,855. The Chamber publishes a monthly journal, known as *The Journal of Industry*, which deals with matters of interest to the manufacturing community.

*Return showing Particulars of each Class of Manufactures and Works in the State of South Australia for the Year 1911 in Comparison with the Year 1910.*

Class of Industry.	Factories.		Number of Hands Employed, including Working Proprietors.		Salaries and Wages Paid.	
	1910.	1911.	1910.	1911.	1910.	1911.
	No.	No.	No.	No.	£	£
Treating raw material . . . . .	126	131	1,011	1,078	72,120	89,870
Oils, fats, &c. . . . .	13	11	261	272	22,674	22,926
Stone, clay, glass, &c. . . . .	80	87	1,120	1,269	94,119	122,810
Working in wood . . . . .	98	101	1,716	1,880	158,912	194,679
Metal works, machinery, etc., Government and tramway workshops. . . . .	177	181	7,854	7,971	847,653	969,201
Food, drinks, &c. . . . .	256	241	3,514	3,425	300,999	321,550
Clothing, textile fabrics, etc. . . . .	217	226	5,427	5,426	281,399	311,764
Books, paper, printing, etc. . . . .	65	66	1,792	1,839	164,932	164,619
Musical instruments . . . . .	2	2	*—	*—	*—	*—
Arms and explosives . . . . .	<i>Nil.</i>	—	—	—	<i>Nil.</i>	<i>Nil.</i>
Vehicles, saddlery, harness, &c. . . . .	145	152	1,728	1,673	139,213	146,145
Ship and boat building and repairing . . . . .	7	10	110	161	14,403	20,706
Furniture, bedding, &c. . . . .	38	46	893	1,040	77,691	94,801
Drugs, chemicals, &c. . . . .	11	12	575	696	47,747	60,873
Surgical and other scientific instruments . . . . .	2	2	†27	†30	†2,624	†2,512
Timepieces, jewellery, and platedware . . . . .	14	15	157	173	17,207	18,918
Heat, light, and energy . . . . .	9	14	596	764	68,390	88,930
Leatherware (N.E.I.) . . . . .	4	4	29	29	1,709	2,407
Minor wares (N.E.I.) . . . . .	14	13	200	181	11,606	12,675
Grand total . . . . .	1,278	1,314	27,010	27,907	2,323,398	2,645,386
Increase . . . . .	—	36	—	897	—	321,988

\* Included in surgical and other scientific instruments.

† Including musical instruments.

Return showing Particulars of each Class of Manufactures and Works in the State of South Australia for the Year 1911 in Comparison with the Year 1910—continued.

Class of Industry.	Value of Material Used.		Gross Value of Output.		Value Added to Material by Process of Manufacture.	
	1910.	1911.	1910.	1911.	1910.	1911.
	£	£	£	£	£	£
Treating raw material . . . . .	423,741	581,960	556,115	728,132	132,374	146,172
Oils, fats, &c. . . . .	117,592	146,946	192,512	221,698	74,920	74,752
Stone, clay, glass, &c. . . . .	32,555	39,394	211,160	278,412	178,605	239,018
Working in wood . . . . .	668,022	763,244	955,138	1,084,110	287,116	320,866
Metal works, machinery, &c., Government and tramway workshops . . . . .	1,723,490	2,198,174	3,247,118	3,967,375	1,523,628	1,769,201
Foods, drinks, &c. . . . .	2,477,076	2,396,495	3,356,726	3,289,911	879,650	893,416
Clothing, textile fabrics, &c. . . . .	509,634	536,162	958,420	1,048,592	448,786	512,430
Books, paper, printing, &c. . . . .	150,401	157,338	391,478	414,386	241,077	257,048
Musical instruments . . . . .	*—	*—	*—	*—	*—	*—
Arms and explosives . . . . .	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.
Vehicles, saddlery, harness, &c. . . . .	190,262	192,053	437,605	443,640	247,343	251,587
Ship and boat building and repairing . . . . .	9,038	9,523	27,342	35,458	18,304	25,935
Furniture, bedding, &c. . . . .	77,732	101,565	193,209	243,864	115,477	142,299
Drugs, chemicals, &c. . . . .	220,310	275,680	321,770	424,756	101,460	149,076
Surgical and other scientific instruments . . . . .	†2,070	†2,451	†7,600	†6,458	5,530	4,007
Timepieces, jewellery, and platedware . . . . .	19,550	22,478	49,977	53,514	30,427	31,036
Heat, light, and energy . . . . .	53,876	62,246	237,374	293,215	183,498	230,969
Leatherware (N.E.I.) . . . . .	4,821	4,763	8,708	9,062	3,887	4,299
Minor wares (N.E.I.) . . . . .	15,085	19,267	32,443	38,268	17,358	19,001
Grand total . . . . .	6,695,255	7,509,739	11,184,695	12,580,851	4,489,440	5,071,112
Increase . . . . .	—	814,484	—	1,396,156	—	581,672

\* Included in surgical and other scientific instruments.

† Including musical instruments.

## MINING.

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THAT South Australia is well endowed with minerals has already been proved by actual mining work, and there are still areas of hundreds of square miles occupied by metal-bearing rocks, over which either prospecting has been most hurried and casual, or else absolutely no prospecting whatever has been done. Copper is the chief mineral production, and its presence has been detected, at varying intervals and in varying percentages, from the sea coast, south of Adelaide, to the Neales River in the north, a meridional distance of about 430 miles, and from the New South Wales border on the east to Tarcoola on the west, an east and west distance of about 330 miles; and most of the copper, particularly that from the north-eastern district, contains an appreciable quantity of gold. The oldest copper mine in the State is the Kapunda, which was discovered by Messrs. F. S. Dutton and C. S. Bagot in 1842. It is situated about 50 miles north of Adelaide, and was worked by the Kapunda Company until 1878, when, owing to an influx of water with which the pumping appliances of that date were unable to cope and the fluctuation of the copper market, the company ceased operations. About £1,000,000 of copper had then been obtained from this mine, which, on account of its purity, commanded a special price in the world's market. Since 1878 the mine has been full of water up to about 80ft. from the surface, and the only work done has been intermittent ore-stopping to the water level by tributers. The main shaft is 80 fathoms (480ft.) deep, there are numerous lodes strong and good under foot at the various bottom levels, and the reopening of this valuable mine is strongly recommended by official and other experts. The next South Australian copper mine to become celebrated was the Burra Burra, and the peculiarity and richness of its deposits made it world-famed. It was discovered by a shepherd in 1845, and is situated about 100 miles north of Adelaide. The mine stopped working in 1877; the large bodies of carbonate ore lying at shallow depths had been quarried out, but large and good lodes have been proved to exist beneath, and a second Burra Burra may be developed in the future from the lodes below the huge carbonate deposit. During the 29½ years the mine was in active work £2,241,167 was spent in general expenses; the output of ore during the same period amounted to 234,648 tons, equal to 51,622 tons of copper, worth at the average price £4,749,224. The original capital of the company was £12,320.

The Wallaroo and Moonta Mining and Smelting Company, with its extensive mines at Moonta and Wallaroo and large up-to-date smelting works at Port Wallaroo, ranks high amongst the large copper mines in the world; also the Moonta Mine, which for the first 30 years was worked independently,

has the distinction of being the first mine in Australia to yield in dividends a total of £1,000,000, notwithstanding that the rich gold reefs of Victoria had been operated on years before Moonta was discovered. The Wallaroo Mine was found in 1860; it is situated on the north end of Yorke Peninsula, about 10 miles northward from Moonta, and six miles east from Port Wallaroo. The Moonta was discovered in 1861, near the east shore of Spencer's Gulf, about 10 miles along the coast from Port Wallaroo; the mines and the port are connected by the Government railway from Adelaide. At Wallaroo Mines the lodes traverse a metamorphic schistose rock, and strike approximately east and west. The various ore-bearing strata at Moonta are composed chiefly of porphyritic rock, and the general bearing of the lodes is north and south. The deepest shaft at Wallaroo is 2,310ft., and at Moonta 2,520ft., and the values of the vein stuff at the deepest levels have been satisfactorily maintained.

Up to date about £16,000,000 worth of copper has been extracted, and at the smelting works, in addition to the high-class copper of the well-known "Wallaroo" brand, sulphuric acid and bluestone are produced.

There are many other copper mines to which special and interesting reference could be made, notably, the Paramatta and Yelta (purchased by the Government in 1911), the Mount Lyell Consols, Wallaroo (Bingo), and the Hamley, on Yorke Peninsula; the Balhannah, near the township of that name; the Reedy Creek, or Kitticoola, near Palmer; the Blinman, the Sliding Rock, the Yudnamutana, the Mount Fitton South, and the Parabarana, in the North; and the copper section of the official "Record of the Mines of South Australia" (procurable free of charge at the Mines Office, Adelaide) contains the names and details as to the workings and prospect of about 500 copper mines and prospecting shows ranged all over the State within the limits mentioned herein, the majority being situated in the north country traversed by the Great Northern railway line.

The total copper production of the State from its foundation to the end of last year is nearly £29,000,000 in value, and the future of South Australia as a copper-producing country is hopeful.

### GOLD.

The first find of gold was made in January, 1846, 10 miles north-east of Adelaide, near the Montacute. Expectations ran high, and a company was at once formed to work what proved to be, so far as can be ascertained, the first gold mine in Australia. Quartz mining was little understood in those days, and it is stated that after obtaining 24ozs. of gold, part of which was made into a brooch and forwarded to Her Majesty Queen Victoria, the company ceased operations. The Echunga Goldfield, situated about 18 miles south-east from Adelaide, was discovered in the early part of 1852. Gold was first found at the foot of a tree, laid bare by the dripping of water from the branches;  $\frac{1}{2}$ oz. was picked up, and a good many ounces were afterwards



obtained from the earth at the roots of this tree. The rich auriferous areas were not very large, but in 1871 an official estimate by the then warden of goldfields gave £300,000 as the value of the gold found on this field up to date. Since that time fossickers have occasionally made good finds. Some of the numerous quartz reefs in the district have been imperfectly tested to shallow depths, and at present a local company is working the old Queen Mine, between Echunga and Meadows, with every prospect of success. The Woodside group of gold mines, near the township of that name, is only a few miles north from Echunga, along the main range. Here a great deal of mining work has been done, and a considerable quantity of gold obtained. The principal mines are the Bird-in-Hand, the Two-in-the-Bush, the New Era, the Ridge, and the Eureka. None of these are at present working, the main causes of their idleness being want of capital and influx of water. From the Bird, which was the first mine started, and may be regarded in many ways as representative of the others, about £31,000 worth of gold has been obtained; the deepest shaft is 410ft. The last crushings of the original company, in 1889, were from the bottom levels, and 4,170 tons of stone yielded 2,776ozs. of smelted gold, or 13dwts. 7½grs. of gold per ton. This may be taken as a fair indication of the value of the reef, from 4ft. to 8ft. wide, untouched below the 350ft. level, and a large company formed to take over and work the Bird-in-Hand and adjoining mines would have every reasonable prospect of success. These mines are only a short distance from the railway, there is abundance of fresh water for cyanide treatment, and wood is plentiful in the district.

A number of other reefs in the vicinity have been tested, and encouraging results obtained from some of them. The Balhannah Mine is situated a few miles nearer the city and a mile from the Balhannah Railway Station. This is a remarkable mine; it ceased working in 1876 owing to an influx of water, with which the imperfect appliances then in use were unable to cope. It is known to contain large deposits of gold, bismuth, and copper, but the capital required for its proper reopening and systematic working is not yet forthcoming.

To the north of Woodside is the old Mount Torrens Mine, at which is situated the Government Battery and Cyanide Works, which were established in the central place of a highly auriferous country as an aid to the mining industry in providing convenient and economical means of testing trial parcels of stone and treating the ore raised by small holders and companies. It has proved of great value to the public, and so far 10,070 tons of stone have been treated for 5,880ozs. of gold, valued at £22,274. Northward again along the main range many mines have been worked and much gold won in the Blumberg and Mount Pleasant district; exceedingly rich specimens have been obtained here, and some of the richest samples of gold in quartz shown at the Jubilee Exhibition came from this locality. Barossa Goldfield—still to the north in the main range—is about eight miles east of the town of Gawler; it was discovered in 1868, and some of the claims were very rich. In 1871 an

official estimate gave the value of the gold found on this field up to that time as £180,000. Nothing but desultory prospecting has been done for some time back. Rich reefs are known to exist here, but attempts to work them have so far resulted in failure.

Gold has also been found at Ulooloo and Wonna, 140 miles north of Adelaide; thence north-east, Mount Grainger, Waukaringa, Mannahill, Wadnaminga, and Olary. It is in the north-east that the best find of alluvial gold yet unearthed in this State was made, at Teetulpa, in October, 1886. The place is situated about 200 miles north-east by north of Adelaide. The rich area was small, not exceeding a square mile, but it is estimated that £300,000 worth of gold has been obtained from it. There is a vast extent of similar country in this north-east land of large spaces, but up to the present Teetulpa remains the solitary rich patch located.

A Government Battery and Cyanide Works are erected at Petersburg, at the junction of the north and north-east railway lines, for the convenience of prospectors in those districts; 4,580 tons of stone have been treated for 4,208ozs. of gold, valued at £15,682.

At Tarcoola, about 300 miles north-west of Port Augusta, rich gold reefs were found in 1900. One mine, the Tarcoola Blocks, has crushed 30,929 tons of ore for 43,585ozs. of gold, valued at £131,665. The great distance of this place from the settled districts has made mining very expensive and difficult. A Government Battery and Cyanide Plant is also established here, and 3,801 tons of stone have yielded 5,482ozs. of gold, valued at £19,340. At Glenloth, about 50 miles south-east from Tarcoola, are numerous gold-bearing reefs; the battery there—recently taken over by the Government—has crushed 1,832 tons of ore for 1,936ozs. of gold, valued at £6,498.

Immense areas of likely and unprospected country exist in this north west district. Gold has also been found in the Peake and Denison Ranges and near Yudnamutana, at the north end of the main range.

### SILVER.

The first mineral to which the attention of the early settlers was called was silver-lead, and this happened by the breaking down of an outcrop of galena on a spur of the Mount Lofty Range near Glen Osmond, three and a half miles south of Adelaide, by the wheel of a passing dray. The glittering ore was thus exposed, and the State's first mine, named the Wheal Gawler—after the then Governor, Colonel Gawler—was started in May, 1841; indeed, it is practically certain that this mine is also the very first mine ever worked in Australia.

There are numerous lodes here, small, as compared with those of the Barrier, but giving high percentages of lead and a fair amount of silver. For instance, the O.G. lode produced galena and carbonate of lead of an average value of 21ozs. of silver per ton and 71 per cent. lead. It was worked by an English company from 1847 to 1850, during which time it yielded £30,000 worth of silver and lead. The Glen Osmond group of mines ceased work

on the outbreak of the Victorian gold diggings, in 1851. Little has been done on them since the early days, and nothing at all during the last 17 years. From the city the old dump heaps can be seen. The old smelting works chimney is a well-known landmark. Cattle and sheep graze over the lode outcrops now, but assuredly some day the place will again be a scene of mining activity.

The Talisker Mine is the most southern one in the State, being situated about three miles east of Cape Jervis. It was opened in 1862, and worked for 10 years, during which time the gross proceeds of the silver-lead sold amounted to £29,866, but want of capital compelled cessation of operations in 1872. There is a series of lodes on the property, but only one, the Talisker, was worked upon. It varies in width from 1ft. to 22ft., and consists of quartz, arsenical pyrites, indurated slate, and galena, very suitable for concentration. The lead, according to the old records, carried on an average 1oz. of silver per unit. The deepest shaft is 432ft. Several small attempts have been made to rework this valuable property since the original company stopped, but in each instance the amount of funds raised was quite inadequate. The mine is situated in timbered country, and is close to the sea.

Northward from Cape Jervis along the main range and south-east from the city are many silver-lead mines, notably the Aclare, Almanda, Kangarilla, old Strathalbyn, and Scott's Creek, from which good returns were obtained in the early days, but upon which nothing beyond a little intermittent work has been done since.

Numerous other veins and lodes of galena are also known to exist throughout the hills district.

In the north-east, mainly in the vicinities of Mannahill and Olary, many shows have been prospected with varying results; and, as very similar geological formations occur here as at Broken Hill, situated a short distance across the New South Wales border, the possibilities of this district are great.

In the north the most important deposit of silver-lead ore, so far as known at present, is at Ediacara, about 17 miles west from Beltana Railway Station. The ore-bearing bodies are almost horizontal; at one place a shaft or drive, at a distance of 400ft. on the underlie, is only 70ft. from the surface. Work, with varying success, has been carried out on the large ore bodies here for about 20 years. A 50-ton water-jacketted blast furnace has been erected recently, and good results have been obtained from it. There is a considerable area of metalliferous country in this locality, which will doubtless be prospected and proved in the near future.

At Avondale, 15 miles east from Lyndhurst Siding Railway Station, a large quantity of very pure galena has been obtained from time to time, the deepest shaft being 140ft. About 50 miles to the north-east of this place, at the Duck Ponds, Freeling Waters, a good lode, named the Gilead P. Beck, has been prospected, but only to a shallow depth. Veins and outcrops of silver-lead ores, so far unworked, exist in many other places in the North.

Little has been done in silver-lead mining recently, and the value of that class of ore marketed during the last 10 years is small.

## IRON.

Iron ore occurs to a greater or lesser extent throughout South Australia, except in the South-East district. Large workable deposits have been found from near Port Victor, in the south, to above Quorn, in the north; also in the North-Eastern district and in the country west of Port Augusta. The most remarkable outcrops are at the Iron Knob and Iron Monarch, situate about 41 miles west-south-west of Port Augusta; these may be regarded as one deposit, and at this place there is exposed a vast quantity of high-grade iron ore which the Government Geologist estimated at 21,000,000 tons in 1908. Further investigation has much increased this estimate, its magnitude and importance being so far not equalled in Australasia. At present the ore is being used as flux in the Broken Hill Proprietary's smelting works at Port Pirie. A railway line has been made from Iron Knob to Hummocky Hill, on the eastern shore of Spencer's Gulf; the ore is conveyed by this from the quarries to the coast, and thence by barges and steamtug to Port Pirie a distance of 30 miles. A trial shipment of 2,000 tons of ore from this place was forwarded to England by Messrs. Elder, Smith, & Co. in 1907. All reports received concerning the parcel were good; it was found to contain 97 per cent. iron oxides carrying 68 per cent. metallic iron, and was disposed of in Scotland at a satisfactory price; but as a general thing over-sea freights are too high to admit of continuous business. Steps are being taken by the Broken Hill Proprietary Company to establish iron works in connection with this large deposit of iron ore; but as it is cheaper to carry the iron ore to the coal than the coal to the iron ore, the works will be situated at Newcastle, New South Wales.

Near Oodlawirra and Cutana, on the North-Eastern railway line, large quantities of iron ore were quarried and forwarded to Broken Hill for fluxing purposes at the time when the smelting operations were carried on there; and at Koolka, on the Bimbowrie run, large outcrops exist which, so far, remain unworked. A valuable and extensive deposit, known as Donnelly's Quarries, is situated about 14 miles northward from Quorn Railway Station. There are five chief outcrops, and a considerable quantity of ore was forwarded to Port Pirie before the Iron Knob was opened up. About half a million tons are readily available here.

At Peralilla and Mount Jagged, near Port Victor, large quantities of ore are obtainable. In 1873 small smelting works were erected at Mount Jagged, and pig iron was produced by means of locally-made charcoal. From Burra and Gum Creeks flux was obtained for the Burra Mine smelters in the early days. There are numerous other deposits in various parts of the State containing, in some cases, very large bodies of ore, and generally it may be said that South Australia's supplies of iron ore are abundant, and in many instances of particularly high grade.

## PHOSPHATES.

The existence of mineral phosphates in South Australia has only been lately demonstrated. In order to stimulate the search for deposits of phosphate

rock within the boundaries of the State, a reward for its discovery in workable quantity was offered by the Government. This bonus was successfully claimed for the Clinton discovery at the north-eastern end of Yorke Peninsula, and since then phosphate has been found in many other places. The rock is found almost invariably in connection with the crystalline limestones and other rocks belonging to the Cambrian system. In some cases it appears in deposits apparently filling in cavities in the limestone, and in others it is partly interstratified with the soft argillaceous rock which accompany the limestone. In all cases it occurs in segregated masses, boulders, and nodules. Numerous deposits exist, and the occurrence of rock phosphate at intervals has been demonstrated for about 200 miles along the main range from Mount Magnificent, in the south, to Bendleby, in the north, the averages of the highest and lowest analysis being 69 per cent. to 42 per cent. tricalcic phosphate. These deposits are already of economic value, about 54,000 tons of crude rock having been marketed since the first discovery. They are not yet able, however, to successfully compete with the imported rock from Christmas and Ocean Islands, but we may with every confidence look forward to the time when they will be of the greatest importance and value, not only to the State of South Australia, but to the Commonwealth generally.

#### COAL.

With regard to coal, from time to time announcements have been made of supposed discoveries of coal, which in most instances have proved to be, at best, merely Tertiary lignites of no value for fuel. In two cases, however, namely, at Kuntha Hill, 110 miles north of Hergott, and at Leigh Creek, on the northern railway, a better class of brown coal has been found. At Leigh Creek, near the centre of the basin, at a depth of 1,496ft., was struck a coal seam 47ft. 10in. in thickness; coal seams 2ft., 3ft., and smaller were met with below. A shaft was sunk nearer the edge of the basin, and a considerable amount of coal raised from a depth of 300ft. About 8,000 tons were sold; and, although disintegrating after being exposed for some time, it was considered a useful coal for domestic requirements, as it gave little smoke and burned out thoroughly. It was tested in the Government railway locomotives, and condemned as unsuitable for the engines in use. The coal from the bore was more compact than that taken from the shaft, and fragments of core have been kept for years without disintegration. The age of the coal is Mesozoic, equivalent to the Ipswich coal measures of Queensland. At Kuntha Hill, which is very remotely situated, being 110 miles from the railway line, three shafts and two bores were put down by a company formed to prospect the property, the depths of the former being respectively 70ft., 84ft., and 150ft., and of the bores 298ft. and 112ft., and three seams of coal were passed through 2ft. 6in., 2ft., and 5in. in thickness. The coal, on analysis, proved to be similar to the Wyoming brown coal of western North America. Near the township of Noarlunga a lignite deposit, 14ft. thick, has been worked upon. It consists of a brown coaly shale containing

carbonised wood, compressed leaves and resin, with small seams and bunches of brown coal of good quality. It is possible that richer beds exist in the locality, but so far boring has not located them. At Lake Phillipson, about 320 miles north-westward from Port Augusta, a bore was sunk for the purpose of testing the country for artesian water, and several seams of brown coal similar to that of Leigh Creek were met with at intervals from 166ft. to 551ft. These varied in thickness from a few inches to 28ft. From 551ft. downwards the bore passed through blue shale, with occasional thin sandstone, grit, and calcareous bands. This shale was more or less bituminous at intervals to about 2,240ft., and yielded petroleum on distillation. The stratification was horizontal all through.

#### VARIOUS.

Manganese ore of high grade has been found in many places. The chief localities where mines have been worked are near Willochra and Gordon in the north, near Tumbay Bay on Eyre Peninsula, and at Cuttlefish Bay, Kangaroo Island.

Cobalt, in small quantity, generally accompanied by nickel, has been found at various places, and is frequently associated with copper lodes. Rich cobalt ore has been taken from time to time from Cooke's Cobalt Mine, situated about eight miles northward from Bimbowrie; but the deposits there have not yet been properly exploited.

Gypsum occurs at intervals throughout the State from Lake Alexandrina to Lake Eyre. Large and readily worked deposits, from which the present supplies for local use and export are drawn, exist at Lake Fowler, and near Marion Bay, Yorke Peninsula.

South Australia is well provided with salt, and the industry is steadily growing. About 500,000 tons of crude salt have been scraped during the last 10 years, and the exports, both of refined and crude salt, are large and increasing. The chief sources of supply are the salt lakes of southern Yorke Peninsula, of which Lake Fowler is the largest, and Lake Bumbungie, in the hundred of Cameron. There are also valuable salt lakes on Kangaroo Island, notably in the hundred of Haines. Lake Hart, about 60 square miles in area, situated about 120 miles north-west from Port Augusta, contains immense supplies of salt of good quality, which at present, owing to the distance from a market, is of no economic value. The Castle Salt, the Standard Salt, and the Commonwealth Salt Companies are in active operation. Most of the salt exported is shipped from Edithburgh, near the south-eastern corner of Yorke Peninsula.

Tin has so far been only found at one place in the State, namely, near Erea Dam, about 30 miles south-east from Tarcoola, or about 260 miles from Port Augusta. The find was made in a mud lake bed, the tin oxide occurring in decomposed granitic dykes and in veins and bunches of quartz; tin ore has also been found in shafts in the sandhill country adjoining. Nothing but general and desultory prospecting has been done, but the possibilities of the place are great.

Large deposits of china stone (silica and felspar), pure quartz, felspar (hard and decomposed), and firebrick clay are found at Hog Bay, Kangaroo Island. The Kangaroo Island China Stone and Clay Company has erected brickworks for the manufacture of firebricks at Hog Bay, and a crushing and grinding mill at the mine. All the materials for high-class pottery exist here. There is no doubt as to their purity and suitability, nor of the large quantities readily available; and perhaps the time may be looked forward to when possibly the main china and pottery supplies of the Commonwealth may come from the Hog Bay district—the future Staffordshire of Australia. At this place, also, erratic pockets of very fine tourmalines have been unearthed from time to time. The varieties found, which may be regarded as gems, include pink tourmaline (rubellite), blue tourmaline (indicolite), and green tourmaline. Two different colors are often associated in the same crystal—the green crystal having a pink centre, and the blue and green colors showing in the same crystal. The shades of color range from light to dark.

Large lodes of magnetic titaniferous iron, magnetite, and quartz in association with black mica, containing radio-active carnotite, have been discovered about 20 miles east-south-east of Olary, and are now being successfully worked by a Sydney company.

Rich patches of autunite and torbenite have been found at Mount Painter. Some prospecting work has been done in a large formation, through which these very highly radio-active patches were dispersed.

Monazite sand in small quantity has been found in the Eleanor River, Kangaroo Island; in the hundred of Para Wirra, near Adelaide; at King's Bluff, in the north-east; and near Mount Painter, in the north.

No gem discoveries of importance have been made, although more than 50 good saleable diamonds have been found in the Echunga district since the first discovery of gold there many years ago. The best one was known as Glover's diamond, and was valued at £70. Small sapphires and other gems have been found near Williamstown.

A remarkable, and as yet unworked, deposit of corundum occurs in the steep and rugged ranges near Mount Painter, from which large quantities of corundum could be obtained, and it will doubtless eventually prove of importance and value. Small fragments of clear blue sapphire, oriental ruby, oriental emerald, and red transparent rutile were also detected when testing samples of this corundum.

Examination of the monazite sand from the Eleanor River showed that, in addition to monazite and rutile, the following small gems were found to occur in the finer silicious sand:—Oriental ruby (red), oriental sapphire (blue), oriental amethyst (violet), oriental topaz (yellow), leuco sapphire (colorless), sapphire (blue), cyanite (blue); zircon and tourmaline were also present.

Common opal is found in many places. At Charley's Swamp, about 30 miles south from Booppeeche Railway Siding, some veins of opal have been prospected which may be regarded as an inferior variety of the precious opal; the common white and black opal, opalised wood, and chalcedony are associated in these veins.

## THE DEPARTMENT OF MINES.

The Department of Mines is under the direction of the Hon. Minister of Mines, and, as at present constituted, embraces two main branches which have to deal respectively with geological and mining matters.

The functions of the department are manifold, and are here tabulated separately—

### (A) GENERAL ADMINISTRATION OF THE MINING ACTS.

The whole of the work of administration of the several Mining Acts, and the Mining on Private Property Act, is controlled by the department. The granting of rights for prospecting, mining, and occupation, and the subsequent registration of all claims, leases, and licences are effected by the department. The settlement of all questions and disputes, having to do with such matters as lie within the scope of the Mining Acts, is either effected by the Warden, or referred by him to the Hon. Minister for decision.

### (B) THE GEOLOGICAL SURVEY.

The geological survey of South Australia was first established at the end of 1882, and from that date to the end of 1911 all the work of the department was carried out by Mr. H. Y. L. Brown, as Government Geologist, except during two short periods of six months each, when he was provided with an assistant.

The present staff consists of the Government Geologist, the Assistant Government Geologist, and a draughtsman.

The area over which the operations of the survey extend was limited in January, 1911, by the severance of the Northern Territory from the State of South Australia, and is now bounded on the north by the 26th parallel of latitude, on the east by the boundaries of Victoria, New South Wales, and Queensland, on the west by Western Australia, and on the south by the Southern Ocean.

The functions of the geological survey may be broadly stated to include—

*Firstly.*—The scientific and systematic examination of the geology of the State in general, and of certain areas of importance in particular.

*Secondly.*—The investigation of definite economic problems, undertaken with the object of affording assistance to the mining, pastoral, or agricultural industries.

*Thirdly.*—The guidance of the efforts of those who are endeavoring to develop the natural resources of the State.

*Fourthly.*—The publication from time to time of the results of investigations, with such illustrations and maps as may assist to illustrate and elucidate these reports.

*Fifthly.*—The gathering, arrangement, and maintenance of the type collections necessary for reference by the officers of the survey and the general public.

The immediate object of any particular investigation undertaken by the geological survey is the elucidation of some economic problem, and the areas



examined from time to time are, therefore, those to which attention has been directed by the public requirements.

At the same time the economic discussions are based upon a sound scientific examination sufficiently complete for the immediate purposes for which it is undertaken, and for purposes of correlation when circumstances may demand the investigation of the neighboring areas.

The greater part of the work of the geological survey thus consists in the examination of the various mining fields of the State, and the investigation of questions dealing with underground water supply, and the preparation of illustrated reports upon the results of such inquiries.

### (C) THE INSPECTION OF MINES.

The Chief Inspector of Mines exercises supervision over the inspection of, and reporting on all mines, mining properties, and quarries, both on Crown lands and private lands in all parts of the State. He makes inquiries into all matters relating to the safe operation of the mines and works in connection therewith, and is empowered to direct that all defects shall be remedied. The storage of explosives on the mines is also under his control.

Advice is provided to the miners, and reports upon the progress of the mines are made public.

### (D) STATE AID TO MINING.

Government assistance towards prospecting or mining is given in various ways, the applications for assistance having received the recommendation of the Government Geologist or the Inspector of Mines.

(a) Prospecting by boring is carried on in search of minerals, and also, in some cases, of water for use in connection with mines which are situated in dry localities. The boring is carried out by the department, and is directly under the control of the Chief Inspector of Mines, who is also Departmental Supervisor of Boring Operations.

(b) Money grants are made in aid of deep-sinking, prospecting, or mining.

(c) Mining and smelting operations are also carried out on behalf of the State under the supervision of the Chief Inspector of Mines.

(d) Government crushing and cyaniding plants are maintained for the treatment of auriferous ore at four localities, viz.—Mount Torrens, Petersburg, Tarcoola, and Glenloth.

### (E) RECORDS AND STATISTICS.

The Department of Mines keeps full records of the output of the various mineral products of the State, and issues half-yearly a statistical statement of the progress of the mining industry. This statement is compiled by the Chief Registrar and Recorder, who also prepares from time to time a condensed description of the mines of South Australia as a guide to the mineral resources of the State.

The department undertakes the work of disseminating information regarding the mines, the mining possibilities, and the geological features of the State.

## COMMERCE.

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THE trade and commerce of South Australia has been continuous and substantial. Seventy-five years after the proclamation there was a population of 430,090 persons ; a public revenue of £4,450,739 ; a combined annual trade, imports and exports (oversea), equal to £16,588,758 ; 1,939½ miles of railway had been built ; 19,861 miles of telegraph and 17,146 miles of telephone wires employed ; 4,340,435 acres of land cultivated ; 22,382 acres under vines ; over 6,171,907 sheep, 393,566 cattle, and 259,719 horses in the State ; whilst the export trade (oversea only), amounts to £9,615,279.

Even such a record of industrial expansion does not convey an adequate idea of the work accomplished in colonising and developing so vast a territory.

In 1841 there was a deficiency in the accounts of nearly £300,000, and bills drawn by Governor Gawler upon the Imperial Government were dishonored. The effect of this was to stop all public works, dislocate trade, and throw a number of persons out of employment. At a special meeting of the Adelaide Chamber of Commerce, held on April 28th, 1841, the following resolution was unanimously carried :—“ That this meeting regards the present financial position of the colony, arising from the dishonor of the bills drawn by His Excellency Colonel Gawler on the Colonisation Commissioners, with the deepest regret, and at the same time expresses the fullest conviction that these bills will be eventually paid ; that, confident in the stability and resources of the colony, this meeting is persuaded that the pressure resulting from these circumstances, and that which may be anticipated from the diminution of the current expenditure, will be but of temporary duration, provided that mutual confidence and forbearance be exercised by the commercial community.” The chamber further resolved that should the Governor see fit to draw on the Treasury they would accept such bills in payment of their ordinary business transactions.

The check was not of long duration, for a few years later discoveries were made of rich copper deposits, and the new settlement began to forge ahead on the high road toward prosperity. Within a very little time the public income was more than sufficient to cover all outgoings. In three years the revenue more than doubled itself. The pastoral industry was rapidly expanding, agriculture was extending, mining was in a buoyant condition.

The forties provided a copper boom, the fifties were known as the golden decade. The population having exceeded the prescribed limit fixed by the Imperial Act, the first Constitution Bill was passed, and a Parliament, consisting of two chambers, established. At about the same time railways connecting Adelaide with Port Adelaide, also with Gawler and Kapunda, were begun, and the first telegraph line was erected. The extension of the

telegraph went on apace, and within three years from that time wires were stretched between Adelaide and Melbourne. The ten-year period ending with 1859 was an important one in the history of the province, and progress from 1836 to that time, though spasmodic, was considerable, as is shown by the following comparisons :—

Year.	Population.	Land under Cultivation.	Revenue.	Total Trade.	Total Shipping.
		Acres.	£	£	Tons.
1836 .. .. .	546	—	—	—	—
1840 .. .. .	14,600	2,687	30,618	335,436	83,787
1845 .. .. .	21,759	26,218	32,433	333,278	26,558
1850 .. .. .	63,700	64,728	238,983	1,416,389	174,000
1855 .. .. .	96,982	140,000	453,641	2,359,153	226,000
1859 .. .. .	122,735	361,884	511,927	3,163,370	216,000

The sixties provide one of the brightest chapters in the history of South Australia. In opening Parliament in 1864, the then Governor was able to make this official pronouncement—"I believe I am warranted in saying that at no other period of the colony's history have we had greater evidence of substantial prosperity." It was a period of great activity, of splendid achievements on the part of explorers, and glorious triumphs in the work of developing natural resources. Rich copper deposits were again discovered, this time on the northern end of Yorke's Peninsula. By 1864 exports of staple produce had reached an annual value of £3,000,000, or over £20 per head of the population—a splendid achievement for a handful of people to accomplish within a period of 28 years. Shipments of cereal products amounted in that year to £1,464,000; wool contributed £775,000; metals and minerals, £691,000. In an official report dealing with trade in 1864 it was stated—"Agricultural, pastoral, and mineral produce formed, as usual, the great bulk of the year's exports, and wool and copper were shipped in quantities of nearly equal value; but the breadstuffs exported were worth as much as the pastoral and mineral produce put together. This was, however, the result of exceptional circumstances, the value of cereal produce usually averaging from 10 per cent. to 15 per cent. higher than that of the other two staples. In fact, comparing the average yearly exports of each class during the past five years with the averages for the preceding similar period, it will be found that the shipments by agriculturists bore a less percentage to the value of the total exports during 1860-64 than in the years 1855-59. For instance, in the two periods, breadstuffs, &c., have decreased from 39.3 per cent. to 38.8 per cent. of the total exports of produce; minerals from 27.1 per cent. to 25.7 per cent.; and, on the other hand, wool has increased from 31.5 per cent. to 31.8 per cent."

The population increased from 124,112 in 1860 to 181,146 by the end of 1869, and the public revenue rose from £438,827 to £777,351 in the same period. In 1865, income exceeded a million sterling. Agricultural expansion

was of steady growth. In 1860 the cultivated area was 428,816 acres, by 1869 the acreage tilled had risen to 850,576 acres. At the end of that year the total trade turnover was valued at £5,747,805. There were 4,436,000 sheep, 119,000 cattle, and 73,000 horses in the colony. Staple produce exported was valued at £2,722,438.

This forward movement was well maintained during the next decade. The industrial expansion, though less sensational in the seventies, was substantial, and in other directions some remarkable work was accomplished. In the face of numerous difficulties, and at great expense, the province—then comprising less than 200,000 inhabitants—ran a telegraph wire through the heart of the continent, a distance of 2,000 miles. The cost exceeded half a million.

Trade steadily improved, until combined exports and imports reached an annual value of £17,000,000 in 1870. Staple produce worth £4,670,000 was sent away to oversea customers in 1888. Total acreage under cultivation rose to 2,864,000 acres in 1889, in which year 1,610 miles of railway were open to traffic. In 1887, the aggregate value of imports had reached a total of £119,644,000, while exports amounted to a total of £102,000,000. Toward this latter sum shipments of wheat and flour contributed £36,000,000; other agricultural produce, £1,300,000; wool, £29,000,000; and copper, £19,000,000. At the end of 50 years of colonising efforts 1,950,000 acres were under wheat, 360,000 utilised for hay, and 610,000 acres were devoted to other crops. The sheep in the province mustered 6,700,000; cattle, 389,000; and horses, 168,000.

The eighties witnessed one of the most important industrial developments in the history of South Australia. Valuable mineral deposits were discovered near the border of the province (Broken Hill in New South Wales) which led to a remarkable improvement in trade and exercised far-reaching influence. There was a growth in the general trade of South Australia during the period 1881-91 which can only be characterised as "marvellous." Mr. Coghlan, when Government Statist of New South Wales, drew special attention to the "marked impetus," and said that South Australian trade in 1891 represented a trade of £64 3s. 4d. per inhabitant, "being almost without parallel in any important country." By 1890 the population had grown to 314,195 inhabitants, the public revenue reached £2,557,732, total land under cultivation stood at 2,649,098 acres, total trade amounted to £17,090,051, exports of staple produce had risen to £4,410,062.

The last decade of the century proved disastrous in many directions for the whole of Australia, and South Australia suffered in common with its neighbors. Early in the nineties financial troubles began to appear on the surface, and the year 1893 witnessed the suspension of several banks. The seasons were unfavorable, and the rainfall was below the average. South Australia came through the crisis remarkably well, and, considering the severity of the drought production was well maintained.

The seventh decade opened full of promise. Confidence was restored in financial and commercial circles and trade improved.

SEVENTY YEARS OF INDUSTRIAL PROGRESS.

Wool and wheat have been the two great staple products from the first. In later years wine has come rapidly to the front. Fluctuation in market prices reduced the monetary returns in recent years, but a diminution in the cost of production has helped to compensate the grower. The following figures show exports since 1840 :—

Year.							Wool.	Breadstuffs.	Wine.
							£	£	£
1840	..	..	..	..	..	..	8,740	—	—
1850	..	..	..	..	..	..	131,731	38,312	—
1860	..	..	..	..	..	..	573,977	499,102	1,430
1870	..	..	..	..	..	..	902,696	470,828	12,097
1880	..	..	..	..	..	..	1,716,171	2,469,720	8,481
1890	..	..	..	..	..	..	1,353,762	2,018,719	50,738
1900	..	..	..	..	..	..	1,003,391	863,463	78,153
*1910	..	..	..	..	..	..	1,943,455	4,404,664	48,414
*1911	..	..	..	..	..	..	1,933,579	3,844,681	66,617
*1912	..	..	..	..	..	..	2,032,383	3,245,289	53,763

\* Oversea only.

The bulk of the trade in wine is "Inter-State" for which export figures have not been available since 1909.

In minerals copper has easily led—

PRODUCTION.

Year.			Copper.	Minerals— Total Value of.	Year.			Copper.	Minerals— Total Value of.
			£	£				£	£
1840	..	..	—	—	1890	..	226,992	284,893	
1850	..	..	353,890	365,464	1900	..	394,446	448,289	
1860	..	..	420,905	446,537	1910	..	306,120	415,842	
1870	..	..	568,780	574,090	1911	..	332,500	450,054	
1880	..	..	346,174	347,246	1912	..	—	443,114	

The number of sheep, cattle, and horses in the State at the periods named is shown as under—

Year.							Sheep.	Cattle.	Horses.
1840	..	..	..	..	..	..	200,160	15,100	1,060
1850	..	..	..	..	..	..	984,199	60,034	6,488
1860	..	..	..	..	..	..	2,824,811	278,265	49,399
1870	..	..	..	..	..	..	4,400,655	126,832	83,744
1880	..	..	..	..	..	..	6,463,897	307,177	157,915
1890	..	..	..	..	..	..	7,004,642	359,938	187,688
1900	..	..	..	..	..	..	5,235,220	214,761	166,790
1910	..	..	..	..	..	..	6,267,477	384,862	249,326
1911	..	..	..	..	..	..	6,171,907	393,566	259,719

South Australians have always enjoyed a high reputation as traders. On a *per capita* basis of comparison there are few countries in the world that have a better trading record than South Australia. The following statement is an instructive comparison—one which bears eloquent testimony to the progress and prosperity of the State:—

Year.	VALUE OF IMPORTS.		VALUE OF EXPORTS.	
	Total.	Per Inhabitant.	Total.	Per Inhabitant.
1840 .. ..	£ 303,357	£ s. d. 20 15 6	£ 32,097	£ s. d. 2 5 3
1850 .. ..	845,572	13 5 5	570,817	8 19 2
1860 .. ..	1,639,591	13 4 1	1,783,716	14 7 4
1870 .. ..	2,029,793	11 1 11	2,419,488	13 4 8
1880 .. ..	5,581,497	20 17 8	5,574,505	20 17 2
1890 .. ..	8,262,673	26 10 1	8,827,378	28 6 4
1900 .. ..	8,034,552	22 11 7	8,029,157	22 11 3
*1910 .. ..	5,976,543	14 18 0	10,243,197	25 10 9
*1911 .. ..	6,245,849	15 5 9	10,174,963	24 18 1
*1912 .. ..	6,973,479	16 10 9	9,615,279	22 16 1

\* Oversea only.

The expansion of the export trade in articles the produce of the State is an inspiring record—

Year.	Staple Exports.	Average per Head of Population.	Year.	Staple Exports.	Average per Head of Population.
	£	£ s. d.		£	£ s. d.
1838 .. ..	5,040	0 16 10	1875 ..	4,442,100	21 11 0
1839 .. ..	9,165	0 18 4	1880 ..	4,829,577	18 0 11
1840 .. ..	15,650	1 1 5	1885 ..	4,385,599	14 6 5
1845 .. ..	131,800	6 1 2	1890 ..	4,410,062	14 0 8
1850 .. ..	545,040	8 11 2	1900 ..	3,610,517	10 2 2
1855 .. ..	686,953	7 1 8	1910 ..	7,712,830	19 4 7
1860 .. ..	1,576,326	12 18 6	1911 ..	6,943,206	17 0 0
1865 .. ..	2,574,657	17 11 9	1912 ..	Not recorded	separately.
1870 .. ..	2,123,297	11 11 0			

The value of "total trade per head" stood for South Australia at £35 9s. 10d. in 1881; £64 3s. 4d.—the highest for Australasia—in 1891; and £42 19s. 7d. in 1901. On a *per capita* basis of comparison ranks second highest among the States for exports of staple produce and total trading.

The growing trade of the State required the services of a large fleet of ships, and in no direction has there been a more remarkable evolution than in the class of vessels trading to South Australian ports. The number and tonnage of vessels entering and leaving South Australian ports is set out below:—

Year.	Number of Vessels.	Tonnage.	Year.	Number of Vessels.	Tonnage.
1840 .. ..	425	83,787	1890 ..	2,122	2,190,442
1850 .. ..	559	174,455	1900 ..	2,013	3,552,636
1860 .. ..	662	209,036	1910 ..	2,610	7,090,748
1870 .. ..	916	287,989	1911 ..	2,611	7,252,376
1880 .. ..	2,156	1,200,904			

IMPORTS AND EXPORTS.

The following shows the import and export trade of the State and will show at a glance the increasing turnover :—

Year.	Total Trade.	IMPORTS.			EX. ORTS.		
		Inter-State.	Oversea.	Total.	Inter-State.	Oversea.	Total.
	£	£	£	£	£	£	£
1838	165,024	—	—	158,582	—	—	6,442
1840	335,436	—	—	303,357	—	—	32,079
1850	1,416,389	—	—	845,572	—	—	570,817
1860	3,423,307	526,366	1,113,225	1,639,591	910,744	872,972	1,783,716
1870	4,449,281	625,941	1,403,852	2,029,793	1,039,270	1,380,218	2,419,488
1880	11,156,002	1,928,509	3,652,988	5,581,497	1,166,795	4,407,710	5,574,505
1890	17,090,051	4,753,806	3,508,867	8,262,673	3,501,268	5,326,110	8,827,378
1900	16,063,709	4,145,609	3,888,943	8,034,552	3,892,720	4,136,437	8,029,157
1901	15,387,477	3,444,382	3,927,206	7,371,588	3,583,111	4,432,778	8,015,889
1902	13,772,296	2,948,688	3,125,094	6,073,782	3,967,897	3,730,617	7,698,514
1903	14,919,072	3,443,869	3,174,758	6,618,627	4,767,821	3,592,624	8,300,445
1904	16,115,716	4,161,038	3,289,678	7,450,716	3,955,555	4,769,445	8,665,000
1905	17,930,276	5,207,005	3,232,604	8,439,609	4,088,029	5,402,638	9,490,667
1906	21,635,435	5,719,547	3,982,717	9,702,264	5,062,272	6,870,899	11,933,171
1907	26,018,637	7,304,593	4,815,459	12,120,052	5,928,038	7,970,547	13,898,585
1908	25,010,004	6,259,480	4,971,990	11,231,470	6,111,237	7,667,597	13,778,534
1909	23,982,370	6,239,267	5,096,402	11,335,669	4,177,986	8,468,715	12,646,701
1910*	16,219,740	Record ceased	5,976,543	5,976,543	Record ceased	10,243,197	10,243,197
1911*	16,420,806	Record ceased	6,245,840	6,245,840	Record ceased	10,174,966	10,174,966
1912*	16,588,758	Record ceased	6,973,479	6,973,479	Record ceased	9,615,279	9,615,279

TRADE PER INHABITANT.

The following return shows the total value of trade—imports and exports—and value per inhabitant decennially from 1860-1900 and for each year from 1907 to 1912 :—

Year.	Total Trade.		Imports.		Total Exports.		Staple Exports.		Mean Population.
	Total Value.	Per Head.	Total Value.	Per Head.	Total Value.	Per Head.	Total Value.	Per Head.	
	£	£ s. d.	£	£ s. d.	£	£ s. d.	£	£ s. d.	No.
1860	3,423,307	27 11 5	1,639,591	13 4 1	1,783,716	14 7 4	1,576,326	13 13 11	124,159
1870	4,449,281	24 6 7	2,029,793	11 1 11	2,419,488	13 4 8	2,123,297	11 12 3	182,876
1880	11,156,002	41 14 10	5,581,497	20 17 8	5,574,505	20 17 2	4,829,577	18 1 4	267,273
1890	17,090,051	54 16 5	8,262,673	26 10 1	8,827,378	28 6 4	4,410,062	14 2 10	311,730
1900	16,063,709	45 2 10	8,034,552	22 11 7	8,029,157	22 11 3	3,610,517	10 2 11	355,857
1907*	26,018,637	70 0 8	12,120,052	32 12 6	13,898,585	37 8 2	8,802,038	23 13 10	371,532
1908*	25,010,004	65 10 8	11,231,470	29 8 7	13,778,534	36 2 1	8,551,351	22 8 2	381,649
1909*	23,982,370	61 3 8	11,335,669	28 18 4	12,646,701	32 5 4	8,845,483	22 11 4	391,977
+1910*	16,219,740	40 8 9	5,976,543	14 18 0	10,243,197	25 10 9	7,712,830	19 4 7	401,103
+1911	16,420,806	40 3 10	6,245,840	15 5 9	10,174,966	24 18 1	6,946,206	17 0 0	408,558
+1912	16,588,758	39 6 10	6,973,479	16 10 9	9,615,279	22 16 1	Not recorded separately.		

\* Including Northern Territory .

+ Oversea only.

## ADELAIDE CHAMBER OF COMMERCE.

The Adelaide Chamber of Commerce, Incorporated, was inaugurated in its first form as the "South Australian Chamber of Commerce," in 1850. The objects of the Chamber are—(1) to promote and protect the general interests of the trade, commerce, shipping, and industries of the State of South Australia, and to consider all questions connected therewith; (2) to collect, record, and disseminate information on all matters affecting the mercantile interests of the State; (3) to provide facilities for the settlement by arbitration of commercial disputes; (4) to use every means in its power for the removal or redress of grievances in connection with the trade of the State, and to communicate with any public authorities, bodies, associations, or individuals thereon, and to take such steps in reference thereto as may appear necessary; (5) to do all other things incidental to the attainment of the above objects.

The affairs of the Chamber are conducted by a council, consisting of 20 elected and eight ex-officio members.

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## SHIPPING.

SEVENTY years of progress is shown in the following table of entries and clearances at South Australian ports :—

Year.	INWARDS AND OUTWARDS.					
	Total.		British.		Foreign.	
	No. Vessels.	Tons.	No. Vessels.	Tons.	No. Vessels.	Tons.
1849 .. ..	425	83,787	394	75,086	31	8,701
1850 .. ..	559	174,455	518	158,751	41	15,704
1860 .. ..	727	218,058	663	190,278	64	27,780
1870 .. ..	1,060	303,224	1,032	291,014	28	12,210
1880 .. ..	2,156	1,100,904	1,966	1,097,131	190	103,773
1890 .. ..	2,122	2,190,442	1,822	1,744,703	300	445,739
1900 .. ..	2,013	3,552,636	1,734	2,929,487	279	623,149
1901 .. ..	2,154	3,964,198	1,967	3,516,080	187	448,118
1902 .. ..	2,038	3,959,352	1,887	3,511,153	151	448,199
1903 .. ..	2,070	4,086,154	1,905	3,622,864	165	463,290
1904 .. ..	2,398	4,765,984	2,206	4,256,217	192	509,767
1905 .. ..	2,537	5,258,230	2,292	4,660,123	245	598,107
1906 .. ..	2,605	5,564,308	2,323	4,866,699	282	697,609
1907 .. ..	2,606	5,863,111	2,294	5,023,902	312	839,209
1908 .. ..	2,674	6,106,148	2,322	5,181,244	352	924,904
1909 .. ..	2,442	6,234,350	2,084	5,302,039	358	932,311
1910 .. ..	2,610	7,090,748	2,222	6,068,453	388	1,022,295
1911 .. ..	2,611	7,252,276	2,237	6,221,836	374	1,030,440

The most significant change in the shipping industry was the superseding of sail power by steam. The bulk of South Australia's oversea traffic is now conducted by large steamers, and these almost invariably bring cargo for more than one State. Consequently their stay in port is only a fraction of the time which used to be spent by the old style traders which ran direct between Port Adelaide and the United Kingdom. The evolution from sail to steam and the growth of tonnage is illustrated by the following table of arrivals in South Australia :—

	Sail.	Steam.	Total.
	Tons.	Tons.	Tons.
1848 .. ..	}	All sail	46,640
1858 .. ..			98,802
1868 .. ..			136,051
1878 .. ..			452,738
1888 .. ..			973,479
1898 .. ..	225,098	748,381	973,479
1898 .. ..	156,753	1,565,605	1,722,358
1902 .. ..	155,014	1,789,598	1,944,612
1907 .. ..	204,408	2,721,384	2,925,792

The first steam communication between England and South Australia was opened in 1852, *via* the Cape of Good Hope. The service did not last long. The same year, however, a branch line was established by the P. & O. Company between Singapore and Australia. In 1857 the need of an improved connection with the outside world was felt. The Chamber of Commerce, in a petition to Parliament, expressed the opinion that direct steam communication with Great Britain, combined with emigration and a postal service, would prove highly advantageous. The opening of the Suez Canal now effected a complete revolution in ocean traffic between Europe and Australia. Branch lines became trunk services, and South Australia occupied a more prominent part in the time table of ocean steamers.

### THE INTER-STATE SERVICE.

The inter-State shipping business furnishes a picturesque chapter in South Australian history. Until the building of the Adelaide-Melbourne railway, water carriage was the only means of maintaining relations with the other settled portions of the island continent. The bulk of the goods traffic between the States is still carried on by sea, the proportion being over 60 per cent. of the carrying trade of each portion of the mainland. In 1847 no fewer than 115 ships out of 150 arriving in South Australia came from British colonies. The discovery of gold in Victoria in the fifties led to a rush for berths on every available craft which could be pressed into service.

In 1859 clearances for the adjoining State of Victoria numbered 199 ships, of 30,967 tons, out of a total of 319 vessels, of 73,789 tons, including river traffic. Gradually trade became established, a tourist movement was encouraged by the purchase of modern steamers, and, notwithstanding the construction of railways, the coastal service has steadily expanded. Fast and well-appointed steamers trade between South Australia and all the chief Australian ports. The inter-State service includes steamers of 7,000 tons and 400ft. in length, and these come into the inner harbor.

The shipping trade has always occupied and must retain an important position in the development of South Australia. It cannot be otherwise with a producing country of extended coastline situated thousands of miles from the chief markets of the world. Notwithstanding a splendid inter-State railway system, the bulk of the produce exchanged with other parts of the island continent is transported by water. South Australia has 2,000 miles of coastline within her own borders, thus making necessary the employment of a large fleet of coasting vessels. The development in the maritime branch of industry within the short period of the State's existence has been no less marvellous than in other directions, and the achievements are as worthy of being recorded, even though they form part of a world-wide movement. Especially is this true of the bringing into existence of a distinctly Australian mercantile marine, in which South Australian enterprise and capital have played an important part. The history of South Australian shipping is the record of the rise and development of long-distance steam communication by water.

## PIONEER TRADING VESSELS.

What may be regarded as the first trading vessel to touch these shores was the *Duke of York*, the pioneer ship chartered by the South Australian Company. This barque, of 197 tons, anchored in Nepean Bay, Kangaroo Island, on July 27th, 1836. She brought 36 immigrants, and was followed on August 2nd by the *Rapid*, with Colonel Light on board, by the *Lady Mary Pelham* and the *John Pelham* about the same time, and by the *Buffalo*, with Governor Hindmarsh, in December of the same year. At that time over 100 days was required to complete the voyage from England to South Australia. Mails are now delivered within the month. The commerce of South Australia was first carried on by means of wooden sailing vessels. A vessel of 500 tons was considered a large craft. These ships with bluff bows have passed out of recollection. About the sixties composite vessels, having iron frames and wooden planking, began to become popular. Amongst the best-known of these were the *Glen Osmond*, *Beltana*, *Collingrove*, and *Torrens*. In the wake of the composite vessels came those constructed of iron, and native names were perpetuated in the *Barossa*, *Barunga*, and *Kadina*. The last stage in the evolution of sailing vessels was the substitution of steel as the material of construction.

## INNER HARBOR ACCOMMODATION.

South Australia has participated in the benefits arising from the increase in the size of ships during the past 50 years. Of 102 vessels which arrived in 1858, the largest was 600 tons, and for many years the greater number fell beneath 1,000 tons. Of 315 arrivals in 1868, only one exceeded 1,100 tons, while in 1878 the limit was 2,700 tons. Ten years later no fewer than 40 vessels which reported in South Australia were from 3,000 to 3,500 tons register. Now the majority of merchantmen calling here are of mammoth proportions. The construction of a first-class harbor at the chief ports of the State has been effected by the outlay of a large sum of money. Total expenditure upon deepening the ports of South Australia to December 31st, 1910, £1,119,300—of which Port Adelaide has absorbed £866,000 and Port Pirie £185,000. The channel leading to the wharves of Port Adelaide, a distance of about 9 miles, is deepened to 23ft. low water springs, but ordinary high water springs give from 29ft. to 32ft. of water. The width of the channel is nowhere less than 250ft., and in some places it is as much as 300ft. The work of deepening and widening certain portions so as to straighten out curves and make the channel still more easily navigable by steamers of great length is still in progress. No harbor tolls have been charged to ships to meet this heavy outlay.

Port Adelaide has  $2\frac{3}{4}$  miles of wharves, mostly privately owned. Three swinging berths, each 600ft. long, deepened to 23ft. at low water, meet the convenience of large vessels otherwise unable to turn in the harbor, and a mooring berth 700ft. long, with a depth of 26ft. at low water, is available for special occasions, and has been utilised by visiting war boats. Four patent slips, privately owned, are capable of taking on vessels of from 300 tons to 1,500 tons.

### AN OUTER HARBOR.

In 1903 a Bill was passed through Parliament authorising the construction of an outer harbor. The work was put in hand at once, but difficulties were experienced in carrying out details, and it was not until January 16th, 1908, that the harbor was declared open to the shipping of the world. There is ample accommodation for the largest steamer visiting Australia to berth in perfect safety alongside the wharf. The wharf now has a frontage of 2,200ft. The entrance channel is 400ft. wide, and there is a swinging berth 3,000ft. in length by 1,126ft. wide. The depth of water in the entrance channel, swinging berth, and alongside wharf is 33ft. L.W.S. throughout. The railway has been extended from Largs Bay, and a commodious railway station is in close proximity to the wharf. Post and telegraph office, refreshment rooms, commodious Customs sheds, and all necessary facilities for handling and disposal of cargo are provided. An up-to-date acetylene gas plant has been installed for the efficient lighting of wharf and railway. The Railway Department have provided a convenient service of trains for the benefit of passengers *en route* by the mail steamers who may desire to visit Adelaide, or go overland to the Eastern States. In view of the increased demand for space by ocean steamers using the Outer Harbor, the wharves are to be further extended at an early date, and the work is already in hand, in addition to which a revetment mound is being erected on the northern side of harbor, which, when completed, will serve to break the force of north and north-westerly winds

### PRINCIPAL OUTPORTS.

There are over 47 proclaimed ports around the coastline of South Australia. Port Pirie, situated in Spencer's Gulf, ranks next in importance to Port Adelaide. The channel at this port has been deepened and widened, and the harbor is able to accommodate the largest vessels. Port Pirie is known as the Liverpool of South Australia. The greater portion of the Broken Hill traffic passes through Port Pirie. The silver-smelting works at Port Pirie are said to be the largest of their kind in the world. At Port Germein, situated 10 miles from Port Pirie, is a jetty of 5,459ft. long, frequented by many large vessels which load wheat drawn from the Upper North and Middle divisions of the State. Victor Harbor is the natural outlet for the River Murray trade, and a splendid breakwater there gives protection to the largest steamers in all weathers.

Port Augusta is at the head of Spencer's Gulf, where, owing to its geographical situation and fine harbor, it occupies a most important position. It is the nearest seaport to the vast interior of the continent, comprising the eastern parts of New South Wales and Queensland, and a large portion of the Northern Territory and of Western Australia. It will in the near future be a most important station on the national trunk line from Perth to the eastern States, as well as being the terminus to the great transcontinental railway from Port Darwin *via* Pine Creek and Oodnadatta, of which,

under the Northern Territory Transfer Act, the Federal Government have guaranteed the construction. Wallaroo, further south than Port Pirie, assumes importance as a wheat and copper shipping port, and is a regular calling-place with many inter-State and oversea steamers. There are large copper-smelting works at Wallaroo, that metal being mined extensively at Moonta, Kadina, and Wallaroo. Kingston, on the south-eastern coastline, forms the outlet for most of the wool grown in that part of the State, which finds its way direct to London. For some time efforts have been made to ensure the construction of a secure harbor for the South-East, capable of accommodating deep-sea steamers. Edithburgh, on the south-eastern point of Yorke's Peninsula, has come into prominence in recent years owing to the development of a salt and lime and gypsum industry in the neighborhood. Large quantities of these products are shipped to New South Wales and New Zealand ports.

The development of the country to the west of Spencer Gulf known as Eyre Peninsula during the last few years has necessitated the equipment of a port or ports for shipment oversea of the produce of this vast country.

The practice for many years was to ship by small craft from the various ports on the coast to Port Adelaide or Wallaroo, and tranship to oversea vessels at those ports; this was both a cumbersome and expensive method, and involved considerable delay. As soon, therefore, as the railway inland from Port Lincoln was decided upon a jetty, having berthing accommodation for modern deep-sea ships, was erected at that port, and has been of great service to shippers.

Port Lincoln possesses one of the finest harbors in the world; it is easy of access, completely land-locked, and has ample space and depth of water. The port is fed by the railway line tapping the fertile areas inland, and which, when completed, will extend westerly and northerly beyond Darke's Peak in one direction, a distance of 106 miles, and to Décrés Bay, in a more westerly direction, about 270 miles.

Décrés Bay is in a position which affords good shelter for shipping, with ample water. Close in shore, arrangements are nearing completion for the construction of jetties or wharves at this port, provided with up-to-date equipment.

In addition to the ports mentioned above, a considerable number of wheat ships are loaded and dispatched each season from Streaky Bay and Denial Bay on the West Coast; Tumbly Bay, Port Broughton, and Port Victoria, in Spencer Gulf; and Port Wakefield in St. Vincent Gulf.

An expansion of the outport trade will almost certainly follow the construction of the proposed extension of the South Australian railway system into Victoria, as the geographical position of South Australian ports shows a considerable saving in mileage from the lands so served on goods for shipment oversea.

### THE LIGHTHOUSE SERVICE.

The coastline of South Australia is remarkably well lighted, especially considering the comparatively short time that the State has been established. The earliest guiding beacon set up was exhibited from the masthead of an old vessel moored outside the entrance to the Port Adelaide River. This light was first shown on July 17th, 1840, and it was 12 years later before a permanent mark was erected. Lighthouse construction dates from 1852, when a revolving light on Cape Willoughby, situated on the eastern extremity of Kangaroo Island, was set up. Thenceforward, as trade increased, and, unfortunately, in some instances as disastrous wrecks demonstrated the necessity, fine lighthouses were constructed around the shores of the State. To-day from 16 towers gleaming rays of light, warn of hidden dangers and guide the way into the desired haven. This number is exclusive of many smaller local lights. The aggregate expenditure on lighthouses to June 30th, 1911, amounted to upwards of £87,000. At the close of the current year it is expected that all the more important lights will pass to the control of the Federal Government.

### LIGHT DUES, PORT DUES, WHARFAGES, AND PILOTAGE.

Facilities for expeditiously handling cargo have greatly increased with the growth of trade. In the fifties the landing of 130 tons of goods at McLaren Wharf, Port Adelaide, in 10 hours was considered a smart piece of work. Nowadays, South Australian stevedores, who have won a reputation for smartness, can handle as much as 800 tons of goods in the same time.

### THE MARINE BOARD.

Among the early Acts passed in the colony in the first year of the reign of the late Queen Victoria was one entitled "An Act for the Better Preservation of the Ports, Harbors, Havens, Roadsteads, Channels, Navigable Creeks, and Rivers in Her Majesty's Province of South Australia, and for the Better Regulation of Shipping and Entering Crews in the Same." Originally the Marine administration was practically in the hands of Captain Lipson, who was appointed in England as naval officer and harbormaster, and who arrived in the *Cygnets* in September, 1836. It was subsequently found necessary to subdivide his duties between four departments—Customs, Trinity Board, local Marine Board, and Harbor Trust. The Trinity Board was constituted in 1851, and Captain Lipson was selected as first master of the body. He held office for only three years. The functions of the board were chiefly to licence pilots, fix rates, superintend lighthouses, regulate wharves, and supply ballast to ships. Later on the board was charged with deepening operations. Deepening in the Port Adelaide River was started in 1849, but not vigorously prosecuted till 1854. The Trinity Board, finding itself hampered for want of funds, secured a grant of £100,000, and to administer this the four senior members were appointed to give effect to the Act. Thus the Harbor Trust was brought into existence. A few years later the Commissioners passed under the control of the parliamentary head of the Public Works Department, and to-day all harbor improvements are under the

direction of the Engineer-in-Chief. The local Marine Board, of which the late Captain Douglas was first Chairman, and Mr. Arthur Searcy is now President, took over and performed for some years the duties discharged by the harbor-master as shipping master ; but in 1860 all earlier enactments were repealed, and the Marine Board of South Australia constituted to generally administer marine matters. For years the Government nominated members, but in 1881 that system gave way to semi-election, and at present three members of the board are appointed by the Government, representation being conceded to seamen and engineers ; two are elected by shipowners, and one each by the Chamber of Commerce and the Marine Underwriters.

#### THE HARBORS DEPARTMENT.

An additional department of the public service has lately been inaugurated, as it was considered that some of the functions of the Marine Board could be more properly given effect to under a separate control.

The Harbors Department is under the control of Mr. Arthur Searcy as Controller of Harbors—the management of the Outer Harbor and Ocean Steamers Wharf having previously been under his authority. The Controller is, by an Order in Council, also charged with the management and superintendence of all matters relating to ports hitherto imposed on the Marine Board, as well as the establishment of light, jetty, tonnage, mooring, and other dues.

#### HARBOR TRUST.

A Bill has been introduced to Parliament providing for the purchase of all wharves and river frontages now privately owned, and the control of the same by a department of the Public Service.

#### PORT DUES, WHARFAGE, AND PILOTAGE.

The large expenditure incurred by the Government in providing adequate lights and seamarks on the extended coastline, required the imposition of special dues to recoup some of the expense. Light dues were therefore introduced, and were for many years collected for the above purpose. Of late, however, the funds so obtained have been used principally for the improvement of harbors, deepening, and similar purposes. Light dues were abolished during the year 1911 and Port dues introduced, and are now collected on all shipping trading in or visiting the State.

It should be mentioned in connection with this matter that the cost incurred by the Government on deepening and other improvements at Ports Adelaide and Pirie has been very considerable. The expenditure at Port Adelaide alone approximating £1,000,000 sterling.

In addition to port dues, a charge is made on oversea ships for pilotage. If a vessel is registered in the Commonwealth the shipmaster is required to employ a pilot to bring his ship from the anchorage to the harbor, unless he has obtained an exemption certificate, the charges ranging from a minimum of £2 10s. to a maximum of £12. At Port Adelaide the sea pilots are Government servants, the fees being paid into revenue.

Wharfage rates on goods landed and shipped over the various wharves are levied by the respective wharflowners. With the exception of an enumerated list of goods, the wharfage rate is uniform at 1s. 8d. per ton dead weight, 2s. per ton measurement of 40 cubic feet, or on oversea goods, 2s. 6d.

Berthing or tonnage dues are also levied by wharflowners upon vessels loading or discharging at the wharves, the rate being 2d. per ton.

## WAGES.

Average wages per month paid to seamen by sailing ships and steamers from South Australian ports—

	SAILING SHIPS.		
	Home Trade.	Inter-State.	Foreign-going.
First Mates .. .. .	£9 to £12	£9 to £12	£9 to £20
Second Mates .. .. .	£10	£7 to £8	£6 10s.
Third Mates .. .. .	—	£4 to £6	—
A.B.'s .. .. .	£6	£4 to £6	£4 10s. to £8
O.S. .. .. .	£3	£4	£2
Boatswains .. .. .	—	£7	—
Sailmakers .. .. .	—	—	—
Carpenters .. .. .	—	—	£6
Stewards .. .. .	—	£9	—
Cooks .. .. .	£7 10s.	£7 to £9	£7
Cooks and Stewards .. .. .	£8	£7 to £9	—
First Engineers .. .. .	—	—	—
Second Engineers .. .. .	—	—	—
Third Engineers .. .. .	—	—	—
Donkeymen .. .. .	—	—	—
Firemen .. .. .	—	—	—
Trimmers .. .. .	—	—	—
Pursers .. .. .	—	—	—
	STEAMSHIPS.		
	Home Trade.	Inter-State.	Foreign-going.
First Mates .. .. .	£16 to £24	£14 to £20	£16
Second Mates .. .. .	£11 to £14	£13 to £15	£9 to £13
Third Mates .. .. .	£11 to £12	£9 to £13	—
A.B.'s .. .. .	£6 to £12	£8	£2 5s. to £8
O.S. .. .. .	£2 to £4	£6	£2
Boatswains .. .. .	£9	£8 10s. to £9	—
Sailmakers .. .. .	—	—	—
Carpenters .. .. .	£12	£9	—
Stewards .. .. .	£2 to £14	£2 to £13	—
Cooks .. .. .	£3 to £13 10s.	£3 to £13 10s.	£3 to £13
Cooks and Stewards .. .. .	£6 to £13	£6 to £13	£9
First Engineers .. .. .	£18 to £24	£20 to £26	—
Second Engineers .. .. .	£14 to £18	£16 to £20	—
Third Engineers .. .. .	£14 to £15	£13 to £17	—
Donkeymen .. .. .	£3 to £9	£9 to £11	£5 to £7 10s.
Firemen .. .. .	£8 to £10	£10	£5 to £10
Trimmers .. .. .	£8	£8	£4 to £10
Pursers .. .. .	£10	£10 to £13	—



## **RAILWAYS AND TRAMWAYS.**

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### **RAILWAYS.**

**T**HE railway systems are all State owned and State controlled, except the railway between Port Augusta and Oodnadatta (478 miles, 3ft. 6in. gauge) which was transferred to the Commonwealth, but was subsequently leased by the South Australian Railways Commissioner as from January 1st, 1911. To South Australia belongs the honor of having put down the first railway track in Australia and built the first State-owned railway in the British Empire. The first line of rails actually laid down was between Goolwa and Port Elliot. It was six and a quarter miles in length, was opened in May, 1854, and initiated rail communication, not only in this State, but in Australasia. In September of the same year the Goolwa railway was operated by horse traction and conveyed passengers as well as freight. The line was constructed and worked by a private company. In August, 1864, the line was extended to Victor Harbor, and subsequently incorporated in the State railways. In 1848 a company was formed, and legislative authority obtained two years later, for the construction of a railway from Adelaide to Port Adelaide. The Government reserved the right to purchase the line, and a limitation was placed upon the grant of lands. Negotiations were suspended, and the Legislature came forward with a guarantee of 5 per cent. for 10 years on the estimated cost of construction. The company promoters were not satisfied, and the Government stepped in and did the work; thus laying the foundation for the extensive system of State-owned railways in Australia. It was not until April, 1856, that the seven and a half miles of track connecting Adelaide and Port Adelaide was opened, as the result of an expenditure of £191,344—or over £25,770 per mile. Platelayer and bridge-builder then began to work in earnest in South Australia. They turned their faces northward. The first section was 25 miles, to Gawler. That line was opened in 1857, and the little province owned at the end of that year  $41\frac{1}{2}$  miles of railway. The next step was to Kapunda, where copper had been discovered. The north-eastern section was available in 1860, and for many years Kapunda remained a terminus, and was greatly frequented by northern settlers when visiting the city or returning to their homes. For 10 years it represented the "outpost" of the railway system, but in 1870 the Burra was connected. The opening up of the northern areas a few years later took the railway to Crystal Brook and Port Pirie. The northward movement steadily continued, until Port Augusta, 260 miles from Adelaide, was connected. Two engineering feats in connection with railway-building in South Australia were the construction of the great northern system, which has its terminus at Oodnadatta, and the line through the Mount Lofty Range, across the River Murray, connecting with the inter-State system, which now extends to Longreach in Queensland—3,301 miles

from Oodnadatta. The mountain ranges between Quorn and Port Augusta—in which is situated the bold and strikingly grand Pichi Richi Pass—tested the skill of the engineers. Greater difficulties were experienced in finding a passage through the Mount Lofty Range. Nine tunnels, aggregating a total length of nearly 2,000yds., and a wrought-iron skeleton-looking viaduct, 620ft. long and 108ft. high, were necessary in the first 30 miles. To cross the River Murray a bridge, consisting of five 120ft. spans—each containing 140 tons of ironwork—and 23ft. spans each 60ft. long, across a swamp, had to be built.

From south to north these railways extend for over 1,000 miles. The total railway mileage open for traffic during 1912 was 1,939½ (inclusive of the Port Augusta to Oodnadatta Railway).

There are two gauges in the railway systems of the State—5ft. 3in. and 3ft. 6in. The question of bringing about uniform railway gauge for the whole of Australia is under consideration.

#### COMPARATIVE STATEMENT SHOWING WORKING RESULTS.

Year ended June 30th.	Miles Open at end of Year.	Capital Cost Average Miles Open.	Earnings.	Working Expenses. Amount.	Per cent. to Gross Revenue.	NET REVENUE.	
						Amount.	Per- centage on Capital Cost.
		£	£	£		£	
1888.....	1,500	9,395,533	883,713	432,274	48·92	451,439	4·80
1890.....	1,610½	10,234,749	1,043,878	529,005	50·68	514,874	5·03
1895.....	1,722	12,520,378	960,155	568,973	59·26	391,182	3·12
1900.....	1,786½	13,014,428	1,166,987	657,841	56·37	509,146	3·91
1906.....	1,745¾	13,610,520	1,349,765	764,385	56·63	585,380	4·30
1907.....	1,832½	13,699,029	1,575,368	868,005	55·10	707,363	5·16
1908.....	1,879½	13,558,699	1,741,259	969,530	55·68	771,729	5·57
1909.....	1,888	14,157,245	1,639,259	940,828	57·39	698,431	4·93
1910.....	1,912½	14,352,602	1,840,399	1,069,140	58·09	771,259	5·37
1911.....	1,475½	13,644,155	2,015,182	1,222,439	60·66	792,743	5·81
1912.....	1,461½	13,240,175	2,090,563	1,293,987	61·89	796,576	6·02

The year 1887 was the last year in which the State railways were under direct Ministerial supervision and control. In the year 1888 the railways were placed under the administration of a board of three Commissioners, who continued in office until 1895, since when the railways have been under the control of one Commissioner, who is aided by a board comprised of the three principal railway officers (the General Traffic Manager, the Chief Engineer, and the Chief Mechanical Engineer).

Two projects of the Commonwealth are before the public at the present time for bridging the continent with railways, northward to connect with the Pine Creek railway, and westward from Port Augusta to join the West Australian line at Kalgoorlie. The preliminary survey of the latter line has

been completed, and the ceremony of turning the first sod was performed at Port Augusta by the Governor-General on September 18th, 1912. The estimated cost of constructing a line of 4ft. 8½in. gauge is, approximately, £4,000,000. The distance to be covered is 1,063 miles.

For some time past it has been proposed to extend the great northern system of railways—the terminus of which is situated at Oodnadatta, 688 miles from Adelaide—to Pine Creek, the terminal point of the railways in the Northern Territory. In accordance with The Northern Territory Surrender Act, 1907 (State Act), and the Northern Territory Acceptance Act, 1910 (Commonwealth Act), the railway from Port Augusta to Oodnadatta was transferred to the Commonwealth on January 1st, 1911, but is at present worked for the Commonwealth authorities by the State Railways Commissioner. The last Act mentioned ratified and approved the agreement under which the Northern Territory was transferred to the Commonwealth from the State of South Australia, and also provided for the transfer of the Palmerston and Pine Creek railway.

The Railway Department has a fine record, very few accidents having occurred during more than half a century of working. In his annual report, the Commissioner has been able to state—"In no case during the year has any serious accident occurred for which the department could be held to blame."

Splendidly equipped workshops have been established at various centres. From the main works at Islington, a few miles from Adelaide, locomotives, carriages, and wagon stock are constructed.

There are approximately 8,569 hands employed by the Railway Department.

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## TRAMWAYS.

It was in 1876 that the first Tramways Act relating to Adelaide became law, and the urgent need for means of transit resulted in a steady growth of horse tramways operated by several companies. In 1906 the Government agreed to purchase all the tramways for the sum of £284,000, and passed an Act to authorise the Government to purchase certain tramways and for the creation of a Municipal Tramways Trust to construct and work tramways and for other purposes, under which provision was made for all the said tramways to be vested in a Municipal Tramways Trust.

## THE SYSTEM.

The system adopted was the overhead trolley system, the power being conveyed from the power station at Port Adelaide by overhead cables at a pressure of 11,000 volts to the terminal house at North Adelaide, at which point it is conveyed underground to No. 1 converter station on East Terrace. From the junction house at Croydon a branch line runs to No. 2 converter station at Torrensville, and provision is made for extensions to the Government Workshops at Islington.

### CAR DEPOT.

The main car depot, accommodation block and administrative building workshops, paint store, general store, emergency house, permanent way depot, &c., are concentrated on one site covering an area of nine acres about one mile from the centre of the city on the outer boundary of the park lands with an entrance from Hackney Road. On account of the administrative building being situated as above, a great saving in time has resulted, by the concentration of departments and officers in one place. In addition to the usual fire-hose equipments, the whole of the buildings in the main car depot are equipped with the Grinnell automatic sprinkler, and chemical fire extinguishers, and every possible device for saving labor has been adopted. In close proximity are the necessary offices for the ordinary running work, such as marshals' room, inspectors' and examiners' room, motormen and conductors' room, traffic staff lavatory, clubroom, machine-room, running-store, running-staff messroom, &c., and everything is done to provide for the comfort of the men.

### WORKSHOPS AND STORES.

At the rear of the car depot are the workshops, which consist of a paint shop, car-building shop, electrical shop, machine shop, truck shop, and smithy, all of which are provided with the most up-to-date machinery. In close proximity are the general stores, and some distance away the oil and paint store, this latter being absolutely fireproof. Within the depot grounds there are two five-room cottages for the use of the depot master and the overhead foreman in order that they may be always available; and in close proximity to the road is an emergency house with provision for the storage of two-horse tower wagons with stalls for the necessary horses, and a garage for the motor tower wagons.

### THE EMPLOYEES.

One of the most interesting features of the undertaking is the Adelaide Electric Tramways Club, which, by resolution of the men themselves, has been made compulsory for all permanent men in the service to join who have attained the age of 19 years. The funds of the club consist of—(1) General fund; (2) Sick, accident, and funeral fund.

The subscription is 3d. per member per fortnight to the general fund, and 6d. per member per fortnight to the sick, accident, and funeral fund, and each of these subscriptions is subsidised £1 for £1 by the Trust. The sick, accident, and funeral fund is strictly earmarked for the purposes indicated by its title; and the general fund is applied to the general benefit of the members. The clubroom has been provided and furnished by the Trust, the furniture, including three billiard-tables, piano, cardtables, reading-tables, &c., the principle, broadly, being that the Trust provides the furniture, the charges thereon and the cost of maintenance being borne by the club. In addition to the clubroom, the general fund is utilised for subsidising where

necessary a large number of subsidiary recreation clubs, a rifle club, which has the use of a miniature rifle range on the premises ; a house and social committee, which attends to social entertainments ; a quoit club, which has the use of a quoit ground on the premises ; and a library, which is housed in the clubroom.

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## **WATERWORKS AND SEWERAGE SYSTEMS.**

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**A**DELAIDE, the capital of South Australia, is situated about four miles west of the Mount Lofty Range and about six miles east of the sea. The ground level at the General Post Office (which is about the centre of the city) is 154ft. above sea level. The water supply for the city and suburbs is obtained from the rain that falls on the watersheds of the Torrens and Onkaparinga Rivers, the catchment areas of which comprise about 305 square miles. The average annual fall for the past 20 years on the Torrens catchment has been 30in., and on the Onkaparinga 34in. Selected water only is taken from the catchment areas and stored in the three reservoirs that supply the metropolitan area. Two of the reservoirs, Thorndon Park and Hope Valley, are situated about seven miles north-east of the city, and the other, Happy Valley, about 12 miles to the south.

Thorndon Park was the first reservoir from which the city was supplied; it was constructed in the year 1857, has a holding capacity of 139 million gallons, and the water is obtained from the Torrens River. In the year 1872 Hope Valley reservoir was constructed, to hold 746 million gallons. This reservoir is situated about a mile from the one at Thorndon Park, and is filled from the same catchment.

From these two reservoirs Adelaide and its suburbs obtained a supply until the year 1896, when owing to the rapid increase in the population and the extension of the water carriage system of drainage a further supply became essential. After various schemes had been considered, it was decided to obtain the additional supply from another watershed. The construction of the Happy Valley reservoir was commenced in the year 1891 and the new supply brought into operation in October of the year 1896. This reservoir has a holding capacity of 2,949 million gallons of which 2,558 million gallons are available for the City. It is filled with water from the Onkaparinga River, which is conveyed through a tunnel three and a half miles in length into the reservoir. An embankment, half a mile in length, was constructed across the valley. Two masonry towers have been built, one of which controls the supply to the city, which is conveyed through an outlet tunnel one and a half miles in length, and thence by a 3ft. steel main that supplies three smaller mains leading to the city. The other tower commands the Scour Tunnel through which the pipes to supply the Noarlunga district are also led. Three 18in. cast-iron mains are laid from the old reservoirs for the supply of the city and suburbs.

The high levels, such as Burnside, Mitcham, Magill, &c., obtain their supplies for many months in the year from local creeks, and this is augmented in the summer months by pumping from the main supply. Balance or service reservoirs are constructed in different parts of the district.

The consumption varies from six million gallons per day in the winter to over 16 million gallons per day in the summer time. The water is of excellent quality, and is delivered to the consumers under a good working pressure of 80lbs. to 90lbs. to the square inch. The meter system is in general use, and all premises, where the main is available, are rated on the assessed annual value. For every 15d. paid in rates 1,000galls. of rebate water is allowed, and for excess above the quantity allowed for rebate the low price of 6d. per thousand is charged for the low levels and 1s. for the high levels.

The population now supplied is about 200,000 persons. The total length of mains laid is about 764 miles, and the area embraced in the Adelaide Water Districts is 147 square miles. Ample provision has been made throughout the system for fire brigades to easily obtain a good supply.

The total cost of the works to date amounts to £1,843,607, and the net revenue for the year ending June 30th, 1912, was 3·68 per cent. on the capital cost.

#### COUNTRY WATER DISTRICTS.

The principal country water districts are the Beetaloo, Bundaleer, and Barossa, in which a number of towns, as well as country lands, are supplied. In these districts there are three large reservoirs, one of which is constructed as a concrete gravity dam, another with an earthen embankment, and the third as an arched concrete dam. The holding capacities are 800, 1,320, and 993 million gallons respectively. Many miles of concrete channels and tunnels convey the water to these storage reservoirs from their different catchment areas of about 724 square miles, upon which the average rainfall for the past 20 years has been 26in. on the Beetaloo, 19in. Bundaleer, and 28in. Barossa. The length of steel and cast-iron mains laid at present in the three districts amounts to 1,896 miles. The present water rate levied is 4d. per acre on all land within the first mile abutting a main, and a special rate is adopted in the towns.

#### WATER DISTRICTS.

The water districts reticulated with mains of different sizes extend from Aldinga in the south to Port Augusta in the north, and include an area of about 2,822,000 acres. The total length of mains at present laid amount in the aggregate to 2,975 miles. A good supply has been provided in each of the districts for all landholders, which is of immense value to the farmers as well as to the State. This comprehensive scheme of reticulation is unique in the history of waterworks, and there is probably no other part of the world where so large a district of agricultural land is supplied in so complete a manner for domestic, stock, and other farming purposes.

Several Murray River townships are supplied with water that is pumped from the river into small reservoirs or tanks. Mount Gambier in the South-East is supplied with excellent water pumped from a soakage well at the Blue Lake. Other small schemes have to be carried out for the supply of various country towns, and some of these have been leased to different trusts.

The total capital expenditure on waterworks in this State is £4,671,804, and the percentage of net revenue on capital cost is about 2·55 per cent.

## SEWERS.

It having been decided to introduce the water-carriage system of drainage for the city and suburbs, an Act of Parliament was passed in the year 1878 making provision for the necessary expenditure. The construction of the main sewers was immediately commenced, and also the preparation of land at the Sewage Farm for the disposal of the sewage. The first lot of sewage was distributed in the year 1881 on the farm, and upon these premises it has been satisfactorily disposed ever since by a system of broad irrigation combined, during the winter months, with intermittent and downward filtration through properly prepared filter beds.

The Sewage Farm is situated about four miles to the north of the city, and at present contains 967 acres. All the land has been properly prepared, graded, and flumed. It is divided into a number of grazing paddocks, to which a good water supply is laid from the city mains. Crops of all descriptions have been grown upon the premises, the best of which for grazing purposes are prairie, pannicum, and Italian rye grasses. Good lucerne is also grown, and a number of acres have been let to various lessees. A great number of cattle and sheep are fattened on the premises for market, and horses, etc., taken in to graze for different owners. Pig-breeding is also carried on extensively. The homestead consists of the manager's residence, stables, cow-byre, implements shed, &c.

All the sewage from the city and suburbs gravitates to the farm; the drainage from a few of the low-lying suburbs is pumped into these gravitating sewers. It is all strained before being distributed on the land.

Few sewage farms (if any) are worked in a better manner and with such good results as the one in this State.

The Adelaide Drainage District is being extended from time to time. The area now embraced covers 23 square miles. The length of sewers already laid amounts to  $309\frac{1}{2}$  miles. The number of houses at present connected total 29,894, and the population at present served is over 124,000.

The drainage system is being extended to Port Adelaide, the principal port of the State, and also to the Semaphore and surrounding districts, amounting to about four square miles in all, whence the sewage will be pumped to the farm and disposed of in conjunction with that from the city. The residential seaside town of Glenelg has a separate system; the sewage is pumped into septic tanks and the effluent disposed of through sand filter beds and on lucerne plots. The population of this district within the present drainage area is 4,840, but it is much greater in the summer months. The length of sewers laid is about  $12\frac{1}{2}$  miles.

The total expenditure on sewerage works in this State is at present £874,195.

Adelaide was the first city in Australia for which a complete sewerage system combined with a sewage farm for the disposal of the sewage was adopted, and may fairly lay claim to being one of the best drained cities in the world.



## **PUBLIC AND PRIVATE FINANCE.**

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### **PUBLIC FINANCE.**

**T**HE functions of Government in South Australia are similar to those of other Australian States. The principal sources of income are—

Taxation.

Public works and services.

Sale of and rental from Crown lands.

Commonwealth revenue returns to the States.

Miscellaneous, comprising fines, fees, interest and such-like.

Of these sources the largest revenue producers are the group embraced in public works and services, the main contributor being the railways. Next in magnitude comes the payment of revenue by the Commonwealth, followed by taxation and land revenue. Latterly, owing to a succession of propitious seasons the accounts have been swollen to a record degree, and in consequence it has been possible to set aside large sums annually for the repayment of the public debt.

### **INTERDEPENDENCE OF STATE AND COMMONWEALTH REVENUE.**

The establishment on the 1st January, 1901, of the Commonwealth of Australia wrought important changes in public finances. Chief of these was the transfer to the Federal authorities of the administration of the Customs and Excise Department. This was taken over at the inception of the Commonwealth, and by proclamation the Postal, Telegraph, Telephone, and Defence Departments were taken over on the 1st March of the same year, and Patents and Trade Marks, &c., followed suit at a subsequent date.

Section 87 of the Commonwealth Constitution Act entitled the Federal Treasurer to one-fourth of the net proceeds of Customs and Excise services for the purpose of defraying the expenses of the Commonwealth, the balance—and as much more as the Treasurer did not require—being distributed amongst the States. Each State's proportion represented the difference between the collections and disbursements by the Commonwealth on behalf of the State. Under this arrangement South Australia had returned for the financial year ended June 30th, 1900, £648,701; 1901, £657,869; 1902, £615,868; 1903, £578,929; 1904, £556,949; 1905, £555,692; 1906, £559,411; 1907, £645,121; 1908, £792,686; 1909, £707,959; and in 1910, £848,507.

By a referendum taken in 1911 the basis of the return of moneys to the State Treasurers was altered to 25s. per inhabitant; so, until the population of the State expands to a considerable extent, the sums so derivable will be appreciably less than in the past.

### THE TREASURY.

The Treasury is the controlling department in connection with all financial transactions of the South Australian Government, and receives revenue from all sources of the public income, either from the public direct or through the various revenue collecting departments, and classifies the receipts under their proper heads.

All public expenditure is paid in cash at the Treasury under a system by which the various departments issue cheques or orders on the Treasurer in payment for services or supplies to the State. Surplus funds are invested with banks and other reliable financial institutions. The Treasury conducts the floating of loans and performs daily all work in connection with the Public Debt in the State, and redeems Government securities as they fall due.

The office of the Agent-General in London is controlled by the Treasurer, who furnishes the necessary funds to meet all liabilities in connection with the payment of the interest and redemption of the Public Debt registered at the office of the Agent-General.

Out of a Public Debt of £29,000,000 (South Australia proper), £12,000,000 is due to Australian investors, thus showing the confidence of the local capitalists in the resources of the State. Five-sixths of the debt has been expended on railways, waterworks, and other revenue-producing undertakings, and they form a valuable asset of the State.

During the year ended June 30th, 1912, £6,874,155 was received in cash in the Treasury, compared with £4,129,892 ten years ago.

On application to the department, intending investors in Government securities can obtain all information required, and can deposit their savings on either short or long terms as they feel disposed, at the market rate of interest.

### HOW REVENUE HAS EXPANDED.

From the modest beginning of £5,283 in 1837 the "general expenditure" of South Australia has grown to £4,098,605, and from a few hundred pounds in 1838 public revenue has expanded to £4,450,739. For years deficits had to be faced, and more than once financial disaster was imminent; but the sound common sense which marked the development of the natural resources of the colony manifested themselves in the financial arena also, and recent years have provided a succession of comfortable surpluses. South Australia enjoys, in common with the other States of the Commonwealth, financial autonomy. The power of the purse is in the hands of a representative Chamber elected on adult suffrage.

The growth of the State's finances is adequately portrayed in the following statement of revenue, expenditure, and population inclusive of Northern Territory until 1887, but for South Australia only since 1888, divided into quinquennials from January 1st, 1838, to June 30th, 1912, with the average results for the periods indicated :—

	Revenue.	Expenditure.	Population.
	£	£	
1837 .. .. .	—	5,283	3,000
1838-42.. .. .	20,125	88,526	12,000
1843-47.. .. .	39,583	40,429	23,034
1848-52.. .. .	179,185	145,080	58,094
1853-57.. .. .	504,788	494,006	96,619
1858-62.. .. .	505,538	540,904	125,489
1863-67.. .. .	832,547	823,998	156,135
1868-72.. .. .	725,293	770,287	183,818
1873-77.. .. .	1,176,310	1,166,835	215,163
1878-82.. .. .	1,908,432	1,918,411	271,133
1883-87.. .. .	2,076,806	2,312,522	312,185
1888-92.. .. .	2,522,013	2,426,738	316,878
1893-97.. .. .	2,513,951	2,573,035	251,172
1898-1902 .. .. .	2,636,440	2,678,506	356,061
1903-1907 .. .. .	2,978,528	2,804,765	371,738
1908-1912 .. .. .	3,964,774	3,616,722	406,029

The buoyancy of the accounts in recent years is indicated by the fact that since July 1st, 1904, there has been transferred surplus revenue for the redemption of the public debt amounting to £2,201,112. For the last decade expenditure compares with revenue as follows :—

Year ended June 30th.	Revenue.	Expenditure.	Excess of Revenue over Expenditure.	Excess of Expenditure over Revenue.
	£	£	£	£
1903 .. .. .	2,483,095	2,479,603	3,492	—
1904 .. .. .	2,510,955	2,543,185	—	32,230
1905 .. .. .	2,725,724	2,650,020	75,704	—
1906 .. .. .	2,806,011	2,718,537	87,474	—
1907 .. .. .	3,195,285	2,897,612	297,673	—
1908 .. .. .	3,654,666	3,171,143	483,523	—
1909 .. .. .	3,551,189	3,259,417	291,772	—
1910 .. .. .	3,985,806	3,513,051	472,755	—
1911 .. .. .	4,181,472	3,964,411	217,061	—
1912 .. .. .	4,450,739	4,175,589	275,150	—

#### SOURCES OF REVENUE.

As already pointed out, the sources of the State's revenue are chiefly direct taxation and public services. Under the former is embraced income tax, land tax, stamp duties, probate and succession duties and licences, while the public works and services include education, marine, railways, waterworks,

and such-like, the most important being railway receipts, which account for about half the revenue of the State. Below is contrasted the income from all sources in the financial year to June 30th, 1912, with the figures for 1911—

	1911.		1912.
	£		£
<b>TAXATION—</b>			
Probate and Succession Duties .....	109,698	..	95,667
Land and Income Tax .....	304,321	..	326,141
Stamp Duties .....	109,274	..	106,910
Licences .....	22,693	..	23,276
	<hr/>		<hr/>
Total Taxation .....	545,986	..	551,994
	<hr/>		<hr/>
<b>PUBLIC WORKS AND SERVICES—</b>			
Education .....	9,949	..	11,797
Marine .....	94,424	..	101,390
Railways .....	2,033,781	..	2,145,634
Waterworks .....	156,031	..	168,685
Rents of Public Buildings, &c. ....	4,263	..	5,687
Reimbursements, Fees, &c. ....	173,151	..	167,737
	<hr/>		<hr/>
Total Public Works and Services ...	2,471,599	..	2,600,930
	<hr/>		<hr/>
<b>OTHER RECEIPTS—</b>			
Interest and Exchange .....	105,942	..	187,021
Miscellaneous Receipts, Fines, Fees, &c..	73,780	..	120,295
	<hr/>		<hr/>
Total other Receipts .....	179,722	..	307,316
	<hr/>		<hr/>
<b>TERRITORIAL—</b>			
Land Sales .....	274,137	..	261,592
Interest.....	66,594	..	85,836
Rents, Licences, &c., Crown Lands ....	129,1982	..	126,471
Rents of Endowed Lands .....	3,862	..	4,881
	<hr/>		<hr/>
Total Territorial .....	473,791	..	478,780
	<hr/>		<hr/>
COMMONWEALTH .....	510,374	..	511,719
	<hr/>		<hr/>
Total Revenue .....	4,181,472	..	4,450,739
	<hr/>		<hr/>
Net Increase (1911) .....	195,666	(1912)	269,267
	<hr/>		<hr/>

Taking the comparison over the last decade it will be found that the latest increases form but the climax to a period of unexampled prosperity, and for the immediate future expansion in like ratio is practically assured.

## CHIEF SOURCES OF REVENUE.

Year ended June 30th.	State Taxation.		Territorial Revenue.		Railways.	Waterworks	Payment to State by Common- wealth.
	Amount.	Rate per Head.	Land Sales.	Rents, &c.			
	£	£ s. d.	£	£	£	£	£
1903 ..	397,045	1 2 3	35,767	125,416	1,074,765	114,665	566,229
1904 ..	349,242	0 19 7	31,319	139,428	1,161,155	108,665	542,699
1905 ..	439,048	1 4 5	30,765	151,482	1,264,009	118,740	512,919
1906 ..	367,379	1 0 3	48,045	155,714	1,351,699	119,851	539,879
1907 ..	408,155	1 2 3	53,287	175,518	1,552,919	123,568	627,102
1908 ..	472,752	1 5 3	61,745	189,667	1,746,495	135,783	764,983
1909 ..	444,717	1 3 0	80,855	193,331	1,655,027	142,086	706,173
1910 ..	476,477	1 4 3	155,387	212,663	1,819,545	146,639	793,179
1911 ..	545,986	1 6 10	274,137	199,654	2,033,781	156,031	510,374*
1912 ..	551,994	1 6 6	261,592	217,188	2,145,634	168,685	511,719

\* Under the Commonwealth Act, No. 8 of 1910, the States now receive payment at the rate of 25s. per capita. Previous to this year the net revenue of the transferred departments was paid over to the States.

## LAND TAX.

The administration of the land tax in South Australia is governed by the Taxation Act, 1884, and several amending Acts and the Increase of Taxes Act of 1902. On November 14th, 1884, the principal Act was assented to. This provided for a tax on the unimproved value of any land in the State. The principal Act declared a tax of  $\frac{1}{2}$ d. for every £1 sterling in the amount of the taxable value, and an amending Act in 1894 imposed an additional tax of  $\frac{1}{4}$ d. for every £1 exceeding the amount of £5,000 of the total assessed unimproved value owned by any party. Under the provisions of the Increase of Taxes Act of 1902 the general rate was augmented by  $\frac{1}{4}$ d. in the £1 for the year 1903 only. This was repeated in 1904 for the year 1905 only. The last-mentioned Act also increased by  $\frac{1}{4}$ d. the tax payable on land valued at over £5,000, as provided in the Act of 1894 for the one year only. The present rate on property exceeding £5,000 in value is therefore 1d. for every £1 of the total assessed unimproved value over that amount.

In the case of absentees an addition of 20 per cent. to these rates is provided for under the amending Act of 1894. Under this Act absenteeism consisted of absence from the State for the period of two years prior to the date on which the tax became due, but the duration of absence was reduced to 12 months by the amending Act of 1904. The subjoined is a list of lands that are free from taxation—

Land of the Crown which, for the time being, is not subject to any agreement for sale or right of purchase.

Park lands, public roads, cemeteries, and reserves.

Land used solely for religious or charitable purposes, or by any public institute.

The net receipts to Treasury from the land tax, showing also the amounts per taxpayer, for South Australia and the Northern Territory for the last decade are indicated below :—

Year ended June 30th.	ORDINARY LAND TAX.			ADDITIONAL LAND TAX.		
	Number of Taxpayers.	Amount of Tax Received.	Average per Taxpayer.	Number of Taxpayers.	Amount of Tax Received.	Average per Taxpayer.
		£	£ s. d.		£	£ s. d.
1903 ..	55,615	86,237 <sup>a</sup>	1 11 0	544	15,927	29 5 6
1904 ..	56,786	60,039	1 1 1	550	15,783	28 10 3
1905 ..	57,860	88,691 <sup>d</sup>	1 10 8	556	23,227 <sup>d</sup>	41 16 5
1906 ..	58,479	71,994 <sup>e</sup>	1 4 7	734	20,192 <sup>e</sup>	27 10 2
1907 ..	60,102	71,002	1 3 7	722	17,283	23 18 9
1908 ..	61,557	73,168	1 3 9	727	18,552	25 10 4
1909 ..	63,203	72,810	1 3 0	739	17,367	23 10 0
1910 ..	64,556	75,473	1 3 4	736	16,983	23 1 5
1911* ..	66,408	106,522 <sup>f</sup>	1 12 0	1,727	27,280 <sup>g</sup>	15 15 11
1912 ..	71,958	98,349 <sup>i</sup>	1 7 4	1,662	19,064 <sup>j</sup>	11 9 3

Year ended June 30th.	ABSENTEE LAND TAX.			TOTAL LAND TAX.		
	Number of Taxpayers.	Amount of Tax Received.	Average per Taxpayer.	Number of Taxpayers.	Amount of Tax Received.	Average per Taxpayer.
		£	£ s. d.		£	£ s. d.
1903 ..	693	2,860 <sup>b</sup>	4 2 6	55,615	105,024	1 17 9
1904 ..	683	1,547 <sup>c</sup>	2 5 3	56,786	77,369	1 7 3
1905 ..	673	3,114 <sup>d</sup>	4 12 6	57,860	115,032	1 19 9
1906 ..	651	2,188 <sup>e</sup>	3 7 2	58,479	94,374	1 12 3
1907 ..	626	1,915	3 1 2	60,102	90,200	1 10 0
1908 ..	604	2,049	3 7 10	61,557	93,762	1 10 5
1909 ..	608	1,980	3 5 1	63,203	92,157	1 9 2
1910 ..	574	1,668	2 18 1	64,556	94,124	1 9 1
1911* ..	511	1,811 <sup>h</sup>	3 10 10	66,408	135,613	2 0 10
1912 ..	411	1,311 <sup>k</sup>	3 3 10	71,958	118,729	1 12 11

\* Excluding Northern Territory, which was transferred to Commonwealth on 31st December, 1910.

<sup>a</sup> Increased by  $\frac{1}{4}$ d. in the £1 sterling. <sup>b</sup> Increased by the extra  $\frac{1}{4}$ d. in the £1 on the ordinary land tax. <sup>c</sup> Absentee land tax collected in 1903 on the extra  $\frac{1}{4}$ d. refunded in 1904. <sup>d</sup> Rate increased by  $\frac{1}{4}$ d. in the £1 sterling. <sup>e</sup> New assessment in 1905. <sup>f, g, h</sup> New assessment, 1910.

### INCOME TAX.

The imposition of a tax on income was brought about on November 14th, 1884, when the principal Act—The Taxation Act—was assented to. The rates of duty enforced thereby were superseded in order by the Additional Income Tax Act of 1893, the Amendment Act of 1894, the Increases of Tax Act of 1902, and the Amendment Act of 1903, the scale enacted by the latter Act still remaining in operation. Under the last-mentioned Act the income of every person of the value of £150 or over is subject to a tax of  $4\frac{1}{4}$ d. for every £1, up to and inclusive of £800, and 7d. for every £1 above that amount

if the income be derived from personal exertion ; but if the income consist of the produce of property, the rate is 9d. for every £1 up to and inclusive of £800, and 13½d. for every £1 above the sum of £800. A tax of £5 on every £1,000 received by foreign shipping companies is imposed under the Act of 1908.

The following incomes are not subject to the payment of income tax :—

Income of every person under the value of £200.

Income of municipal corporations and district councils.

Income of companies, public bodies, and societies not carrying on business for the purpose of gain, to be divided among the shareholders, and the income of all friendly societies.

Income derived from land on which land tax is payable, provided that such income does not exceed 5 per cent. of the actual value thereof.

Income derived from land and produced by personal exertion where the land does not exceed £1,000 in unimproved value.

All expenses actually incurred by a taxpayer in the production of his income are deducted from the gross amount of his income. If he has been out of South Australia for 12 consecutive months prior to the date on which the tax falls due, or if his net income from all sources exceeds £400, no deduction of any kind is allowed. In the case of an income which exceeds £200 that sum is deducted from the net amount of income derived from the produce of property, but if such income does not amount to £200 the difference is taken from that derived from personal exertion. No deductions are allowed for cost of maintenance of a taxpayer and his family, or establishment, cost of implements, &c., for the purposes of the trade, except renewals for wear and tear ; or domestic and private expenses.

Below is shown the net amount of income tax to the Treasury for the last 10 years together with the number of taxpayers and average per taxpayer. As in the case of the land tax the figures are for the Northern Territory as well as for South Australia proper—

Year ended June 30th.	Number of Taxpayers, including Companies.	Amount of Tax Received.	Average per Taxpayer.
		£	£ s. d.
1903 .. .. .	15,901 <i>a</i>	114,720	7 4 3
1904 .. .. .	14,048 <i>b</i>	121,468	8 12 11
1905 .. .. .	15,838	136,865 <i>c</i>	8 12 9
1906 .. .. .	15,882	128,755	8 2 2
1907 .. .. .	19,140	166,582	8 14 1
1908 .. .. .	19,554	212,643 <i>d</i>	10 17 5
1909 .. .. .	16,522 <i>e</i>	160,772	9 14 7
1910 .. .. .	14,609 <i>e</i>	180,923 <i>d</i>	12 7 8
1911* .. .. .	14,572 <i>e</i>	168,707 <i>d</i>	11 11 6
1912 .. .. .	16,079 <i>e</i>	207,416 <i>d</i>	12 18 0

\* Excluding Northern Territory, which was transferred to Commonwealth on 31st December, 1910.

*a* Exemption reduced to £135 ; no exemption where income exceeded £400. *b* Exemption £150. *c* Includes 10 years' balances of companies. *d* General improvement due to good seasons. *e* Exemption £200.

## COST OF COLLECTING LAND AND INCOME TAX.

In view of the fact that the Northern Territory has passed from South Australian control it is important that the land and income tax receipts for the upper and lower portions of the Central State should be dissected. This is done below, and in addition the aggregate cost of the collection of the tax is also set forth—

Year ended June 30th.	NET RECEIPTS.				COST OF COLLECTION.	
	South Australia Proper.		Northern Territory.		Amount.	Per £100 Collected.
	Land.	Income.	Land.	Income.		
	£	£	£	£	£	£ s. d.
1903 ..	104,687	113,854	337	866	10,113	4 12 6
1904 ..	77,155	118,434	216	3,034	11,204	5 12 8
1905 ..	114,699	135,028	333	1,837	11,833	4 13 11
1906 ..	94,375	127,433	226	1,323	*14,005	6 5 4
1907 ..	89,990	163,930	211	2,651	13,312	5 3 8
1908 ..	93,544	208,795	217	3,848	13,810	4 10 1
1909 ..	91,930	156,223	228	4,549	14,939	5 18 1
1910 ..	93,879	177,538	247	3,385	16,889	6 2 9
1911 ..	135,614	168,707	—	—	*19,745	6 9 9
1912 ..	118,721	207,416	—	—	17,735	5 8 8

\* Includes cost of new assessments for land tax.

## STAMP DUTIES.

The Stamp Act of 1886, with amendment in 1902, provides for the payment of duty on notes, bills of exchange, deeds, leases, policies, receipts, transfers, and so-forth, all of which are required to be stamped, either by an impressed or adhesive stamp, as the case may be. An exception was made in the case of banknotes, which were taxed at the rate of 10s. per cent. per quarter on their note circulation, but as the trading banks' notes have been displaced by Federal paper money the revenue derivable from this source is such a rapidly dwindling quantity as to be now infinitesimal. On bills of exchange and promisory notes the duty for every £25 is 6d. if the bill is negotiable in the Commonwealth, but when a bill is drawn in South Australia and payable in any place beyond the Commonwealth 1s. is charged for every £100, in which case an adhesive stamp only is to be used. The chief exemptions are Government debentures, Treasury notes, drafts on account of Public Service, drafts by banker on banker, and letters of credit in the State. The charge made for a bill of lading, or copy thereof, is 6d. The duty payable on receipts given on payment of the amount of £2 or upwards is 1d. Among the principal exemptions from this tax are Savings Bank accounts, municipal rates, money orders and postal notes, wages received by laborers, and such-like.



For the last decade these duties have yielded the following sums —

Year ended June 30th.	NET RECEIPTS.		COST OF COLLECTION.	
	South Australia Proper.	Northern Territory.	Amount.	Per £100 Collected.
	£	£	£	£ s. d.
1903 .. .. .	55,283	306	1,277	2 5 11
1904 .. .. .	61,354	545	1,325	2 2 9
1905 .. .. .	60,474	316	1,212	1 19 10
1906 .. .. .	66,122	258	1,233	1 17 1
1907 .. .. .	74,636	405	1,194	1 11 10
1908 .. .. .	79,189	255	1,108	1 7 10
1909 .. .. .	88,825	250	938	1 1 1
1910 .. .. .	97,401	475	1,084	1 2 2
1911 .. .. .	109,274	185	1,030	0 18 10
1912 .. .. .	106,910	—	1,488	1 7 10

### PROBATE AND SUCCESSION DUTIES.

Naturally the revenue derivable from this source is a very varying quantity. The rates of duty are—On the property derived by any beneficiary the duties are assessed on the net value, and the following scale applies where the person taking the property is widow, widower, descendant or ancestor of the deceased; and likewise where the property is given or accrues to any of the above-mentioned persons under a settlement or deed of gift:—Under £500, nil; over £500 and up to £700,  $1\frac{1}{2}$  per cent.; over £700 and up to £1,000, 2 per cent.; over £1,000 and up to £2,000, 3 per cent.; over £2,000 and up to £3,000,  $3\frac{1}{2}$  per cent.; increasing by  $\frac{1}{2}$  per cent. for each £2,000 up to £7,000; over £7,000 and up to £10,000, 5 per cent.; increasing thence by  $\frac{1}{2}$  per cent. for each £5,000 up to £20,000; for each £10,000 up to £40,000; for each £20,000 up to £100,000; and for each £50,000 up to £200,000. The duty from £150,000 to £200,000 is  $9\frac{1}{2}$  per cent.; and above £200,000 the duty is 10 per cent.

Where the person taking the property is a brother, sister, descendant of a brother or a sister, or any person in any other degree of collateral consanguinity to the deceased person, or where the property is given or accrues to any of the aforesaid persons under a settlement or a deed of gift, the duty is reckoned on the net present value of such property, and is payable at the following rates:—Under £200, 1 per cent.; up to £300,  $1\frac{1}{2}$  per cent.; up to £400, 2 per cent.; up to £700, 3 per cent.; up to £1,000,  $3\frac{1}{2}$  per cent.; up to £2,000, 4 per cent.; thence increasing 1 per cent. up to each of the following amounts:—£3,000, £5,000, £10,000, £15,000, and £20,000; above £20,000 10 per cent. is payable. If the person taking the property either by will or under a settlement or deed of gift is a stranger in blood to the deceased, or the settlor or donor, as the case may be, duty is charged at the rate of 10 per cent. on the net present value of the property. Duty at one-half the rates shown above is levied when the person who takes is the child under 21 years of age, or the widow of the deceased, or the settlor or donor, provided that the net value of the whole estate be under £2,000.

## EXPENDITURE.

Expenditure is embraced under eight political heads thus—Legislature, Chief Secretary, Attorney-General, Treasurer, Commissioner of Crown Lands and Immigration, Commissioner of Public Works, Minister of Education, and Minister of Industry and Agriculture; Special Acts, and contributions to meet expenses and discounts in floating loans, and redemption of public securities, the surplus revenue being set aside under Act of Parliament of 1906 for the redemption of the public debt. A summary of expenditure for the financial years to June 30th, 1911 and 1912, follows:—

	1911.		1912.
	£		£
SPECIAL ACTS .....	1,157,093	..	1,162,206
The Legislature .....	18,103	..	28,760
Chief Secretary .....	303,301	..	346,154
Attorney-General .....	32,9863	..	34,866
Treasurer .....	81,174	..	97,793
Commissioner of Crown Lands and Immigration .....	323,040	..	387,260
Commissioner of Public Works .....	1,660,564	..	1,701,815
Minister of Education .....	229,046	..	270,341
Minister of Industry and Agriculture ..	109,104	..	121,394
Contribution to meet Expenses and Discounts in Floating Loans .....	50,000	..	25,000
	<hr/>		<hr/>
	3,964,411	..	4,175,589
Redemption of Public Securities— Surplus Revenue set apart under Act 911 of 1906 .....	217,061	..	275,150
	<hr/>		<hr/>
TOTAL .....	4,181,472	..	4,450,739
	<hr/>		<hr/>
Net increase in the year (exclusive of Revenue Surplus) .....	£451,360	..	211,178

Expenditure on railways last year—included in the Commissioner of Public Works Department—was £1,395,839, which was an increase of £82,084 on the total for 1911. The outlay on education increased by £20,610 to £223,732. Interest on the public debt—included in Special Acts—absorbed £1,008,686, or an increase of £2,383, while £70,840 was appropriated for the reduction and redemption of the public debt compared with £69,991 in 1911.

## THE PUBLIC DEBT.

It is not possible to understand South Australian public finance without reference to the system of borrowing, which was inaugurated in 1854. On the 1st July, 1912, the public debt of the State stood at £29,487,013, exclusive

of borrowings amounting to £3,657,386 on account of the Northern Territory, and of £2,240,011 loans for the construction of the Port Augusta to Oodnadatta railway, for which the Commonwealth is responsible under the Northern Territory Acceptance Act. The growth of South Australia's public debt (including the Northern Territory) is shown below—

£			£				
1854	..	..	135,000	1895	..	..	23,405,250
1860	..	..	870,000	1900	..	..	26,131,780
1870	..	..	1,944,700	1905	..	..	28,727,895
1880	..	..	9,865,500	1910	..	..	31,397,519
1885	..	..	17,020,900	1911	..	..	34,264,263
1890	..	..	20,401,500	1912	..	..	*31,727,024

\* Excluding Northern Territory.

It is interesting to note that the population of South Australia at the end of 1854 was 92,545; in 1880, 267,573; in 1900, 357,099; and in 1912, 423,352.

Dealing only with South Australia proper, the following details of the public debt for the last decennial are informative:—

Year ended June 30th.	Amount.	Rate per capita.	Interest Charged.	
			Total.	Per capita.
	£	£ s. d.	£	£ s. d.
1903 .. .. .	25,316,870	70 4 6	933,711	2 11 10
1904 .. .. .	26,005,495	71 10 11	958,173	2 12 9
1905 .. .. .	26,068,695	70 16 7	974,869	2 13 0
1906 .. .. .	27,200,985	72 17 0	996,398	2 13 4
1907 .. .. .	27,636,468	72 15 4	1,019,534	2 13 8
1908 .. .. .	27,219,266	70 5 9	1,020,653	2 12 8
1909 .. .. .	27,706,341	68 18 9	1,005,745	2 10 0
1910 .. .. .	29,207,743	70 18 7	1,027,849	2 10 0
1911 .. .. .	30,606,877	75 8 3	1,036,433	2 11 1
1912 .. .. .	*29,487 013	70 15 6	1 041,007	2 9 11

\* Excluding £2,240,011 raised for the construction of the Port Augusta to Oodnadatta Railway, for which the Commonwealth is responsible under the Northern Territory Acceptance Act.

To the old world critic obligations will appear to be abnormally large, but there is the important distinction in the case of South Australia, and also of the other States of the Commonwealth, that whereas the loans of European countries have disappeared largely in the finance of costly wars, in these lands Government borrowings have been undertaken for the construction of permanent reproductive works, such for instance as railways, harbors, waterworks, and telegraphs. If submitted for sale these assets would far exceed in monetary return the amount borrowed for their construction. In the light of these facts there is nothing appalling in an indebtedness per head of population of £70 15s. 6d., or of an interest charge of £2 9s. 11d. *per capita*. Below is shown how the borrowed money has been invested together

with the return per centum from the revenue-earning departments. The figures are to the 1st July, 1912—

Loans Raised for	Amount.	Capital Cost, including Expenditure Charged to Revenue.	Earnings for Year 1911-12.	Cost of Maintenance, Management, &c., for Year 1911-12.	Percentage of Net Profit Over Working Expenses on Capital Cost.
	£	£	£	£	
Railways .. .. .	13,876,401	13,240,175	2,090,563	1,293,987	6.02
Telegraphs .. .. .	1,015,456	—	—	—	—
Waterworks, &c. .. .	5,655,307	5,530,398	171,170	50,753	2.18
Sewers .. .. .	912,463	874,195	49,946	15,500	3.74
Jetties and Lighthouses, &c.	341,354	657,256	75,547	31,673	6.52
Improvements on Pastoral Leases .. .. .	1,066,500	956,204	8,648	363	0.86
Land Repurchase and Homestead Blocks ..	1,690,920	1,812,790	61,852	956	3.36
Vermin-proof Fencing ..	505,633	373,354	12,795	1,373	3.40
Outer Harbor (original Wharves) .. .. .	527,724	519,645	9,013	5,312	0.71
	25,591,758	23,964,017	2,479,534	1,399,917	4.50
Roads and Bridges ..	1,497,885				
Defences .. .. .	316,919				
Drainage, &c. .. ..	463,651				
Harbor Improvements ..	1,606,835				
Public Buildings and Schools .. .. .	1,016,028				
Other Works .. .. .	489,526				
Municipal Tramways Trust	1,307,866				
Aid to Revenue .. ..	1,699,925				
Redemption of Public Securities .. .. .	9,504,933				
Total borrowed ..	43,495,326				
Less Redeemed £3,882,447					
Reissued and Cancelled £10,172,763					
£14,055,213					
Less Unpaid .. £46,900					
	14,008,313				
Public Debt on July 1st, 1912 .. .. .	29,487,013				

These undertakings, &c., not being directly reproductive, and in some cases "in progress," the net profit cannot be given.

### REPAYING LOANS.

Reference to South Australia's policy of public borrowing would not be complete without a word as to the provision which exists for repaying loans as they fall due. When South Australia first entered the money market as a borrower the form of security adopted was 6 per cent. bonds, the money having been required for the Adelaide to Port Adelaide railway. This rate of interest continued to rule until 1871, when it became possible to borrow at 5 per cent., and the tendency since has been to enjoy the advantage of lower interest charges until a few months ago when rates stiffened slightly in sympathy with the world-wide hardening of the money markets. Up to 1866-7 £1,135,000 had been borrowed, and the whole of

this has been redeemed out of revenue. Other loans since contracted for have been either in whole or in part redeemed out of revenue, the total amount which has been thus dealt with to date having been £3,882,447. Some other loans, as they have become due, have been reissued as consolidated stock and Treasury bills, the total having amounted to £10,172,766. The splendid seasons which are being experienced are rendering the work of redemption comparatively easy, and those who in the past have been unkind enough to suggest that South Australia would repudiate when it suited her, should know by now that such an idea is altogether foreign and repugnant to the self-governing people of these parts. In 1877 the Imperial Government passed the Colonial Stock Act, which provided for the inscription and transfer of stock raised in the United Kingdom. Certain steps were necessary to be taken before advantage of this Act could be enjoyed, but in 1882 South Australia passed the Inscribed Stock Act. In 1896 a sinking fund was established, and  $\frac{1}{4}$  per cent. of the principal of the public debt has since then been annually set aside out of revenue. Then it is provided that all surpluses on the year's finances shall be similarly devoted, and, as indicated earlier in the chapter, over £2,200,000 has been so provided in the last few years. As showing the accretion of strength in local financial resources, the following comparison between the proportion of South Australia's debt payable in Australia and in London must create a favorable impression:—

Description of Security.	Total Debt.	Payable in Australia.	Payable in London.
	£	£	£
In circulation July 1st, 1912—			
Bonds bearing interest at 6 per cent. ..	173,700	1,900	171,800
“ “ “ “ 5 “ “ ..	165,500	—	165,500
Bonds and Stock bearing interest at 4 per cent. ..	8,889,400	14,100	8,875,300
Treasury Bills bearing interest at 4 per cent. ..	158,907	158,907	—
Stock bearing interest at $3\frac{3}{4}$ per cent. ..	6,212,535	5,128,535	1,084,000
Treasury Bills bearing interest at $3\frac{3}{4}$ per cent. ..	2,503,756	2,349,756	154,000
Stock bearing interest at $3\frac{1}{2}$ per cent. ..	6,907,760	2,130,960	4,776,800
Treasury Bills bearing interest at $3\frac{1}{2}$ per cent. ..	780,337	776,337	4,000
Stock bearing interest at 3 per cent. ..	5,935,129	2,442,257	3,492,872
	*£31,727,024	£13,002,752	£18,724,272

\* Including £2,240,011 loans for Port Augusta to Oodnadatta Railway, for which the Commonwealth is responsible.

During the ensuing 10 years there will fall due £11,143,074 worth of public securities, thus:—1912–13, £773,700; 1913–14, £1,121,200; 1914–15, £502,425; 1915–16, £2,114,750; 1916–17, £2,211,888; 1917–18, £1,716,156;

1918-19, £534,650; 1919-20, £324,830; 1920-21, £757,000; 1921-22, £1,086,475. The repayment of these, or their re-issue on terms more satisfactory to the State, should offer no serious obstacle, and though the incurring of fresh indebtedness is tolerably certain for years to come the stability of the State as a whole is such as to occasion no fears for the successful consummation of such ambitions.

### THE STATE BANK.

The State Bank of South Australia was established under the State Advances Act, 633 of 1895, for the following objects:—

For the raising by mortgage bonds of a State Advances Fund to be placed at the disposal of the Bank for State Advances.

For the making of State advances out the State Advances Fund to farmers and other producers, to local authorities, and in aid of other industries, at reasonable rates on convenient terms, and upon proper securities.

Under the amending Act of 1896 the advantages of the bank were extended to all persons possessed of the necessary securities, and not only to farmers and other producers.

The bank commenced operations in March, 1896, by borrowing money upon the security of its mortgage bonds at from  $3\frac{1}{2}$  per cent. to 4 per cent., and has lent out money at one uniform rate, viz.,  $4\frac{1}{2}$  per cent.

The total value of bonds sold up to March 31st, 1912, was £1,904,190, of which £1,067,310 worth had been redeemed, leaving the value of the bonds current £836,880. Details follow:—

Period Ended—	Mortgage Bonds.			
	Issued.	Redeemed.	Current.	Rate.
	£	£	£	Per cent.
March 31st 1899 .. .. .	88,800	32,000	415,300	$3\frac{1}{2}$
“ 1900 .. .. .	72,200	33,300	454,200	$3\frac{1}{2}$
“ 1901 .. .. .	87,700	37,700	504,200	$3\frac{1}{2}$
“ 1902 .. .. .	86,550	61,600	529,150	$3\frac{1}{2}$
“ 1903 .. .. .	68,290	54,440	543,000	$3\frac{1}{2}$
“ 1904 .. .. .	100,490	55,510	587,980	4 & $3\frac{1}{2}$
“ 1905 .. .. .	35,340	54,570	568,750	4 & $3\frac{1}{2}$
“ 1906 .. .. .	76,690	64,110	581,330	4 & $3\frac{1}{2}$
“ 1907 .. .. .	96,890	85,620	592,600	4 & $3\frac{1}{2}$
“ 1908 .. .. .	104,510	106,030	591,080	4 & $3\frac{1}{2}$
“ 1909 .. .. .	121,100	123,380	588,800	4 & $3\frac{1}{2}$
“ 1910 .. .. .	191,130	73,960	705,970	4 & $3\frac{1}{2}$
“ 1911 .. .. .	217,870	138,430	785,410	4 & $3\frac{1}{2}$
“ 1912 .. .. .	186,430	134,930	836,880	4 & $3\frac{1}{2}$

## EXPANSION OF BUSINESS.

From its inception to March 31st, 1912, the bank had made advances to the extent of £2,064,583, of which sum £1,097,913 had been repaid, leaving the total amount of advances current on the above date £966,670. The following table will show at a glance the operations of the bank to March 31st, 1912 :—

*Advances and Repayments since the State Bank's Inception in March, 1896.*

Period.	Advances.	Repaid.	Balance Outstanding at End of Year.
	£	£	£
Five months—June, 1896 .. ..	30,425	2	30,423
One year—June, 1897 .. ..	231,595	2,007	260,011
Nine months—March, 1898 .. ..	110,500	9,709	360,802
One year—March, 1899 .. ..	91,632	32,137	420,296
One year—March, 1900 .. ..	65,729	31,474	454,551
One year—March, 1901 .. ..	90,824	37,967	507,408
One year—March, 1902 .. ..	92,023	62,525	536,905
One year—March, 1903 .. ..	81,280	56,441	561,745
One year—March, 1904 .. ..	95,967	55,071	602,641
One year—March, 1905 .. ..	35,095	55,522	582,214
One year—March, 1906 .. ..	86,038	65,887	602,365
One year—March, 1907 .. ..	98,252	86,887	613,731
One year—March, 1908 .. ..	123,902	106,219	631,414
One year—March, 1909 .. ..	152,889	115,767	668,535
One year—March, 1910 .. ..	158,793	117,012	710,317
One year—March, 1911 .. ..	241,817	132,315	819,819
One year—March, 1912 .. ..	277,820	130,969	966,670

The amount of principal and interest that had accrued under the half-yearly instalments to March 31st, 1912, was as follows :—

	Principal. £	Interest. £	Total. £
Accrued .. ..	337,397	380,653	718,050
Paid .. ..	334,320	380,425	714,745
Arrears .. ..	<u>£3,077</u>	<u>£228</u>	<u>£3,305</u>

In connection with these arrears, it must be borne in mind that many applicants elected to take loans for short terms—five, eight, and ten years—which made the amount accruing due for principal more than in all cases

they were able to meet in full. The total profit earned by the bank, after deducting working expenses, salaries, board fees, and losses sustained on bad securities amounted to £51,137.

On broad acres where only a small portion of the security consists of buildings, borrowers have been allowed the maximum term under the Act, viz., 42 years, the rate being £5 6s. 6d. per cent. On house property, where the buildings are modern, the term as a rule is 20 years, the rate being £7 12s. 8d. per cent., but on buildings not of modern design, shorter terms, not exceeding 10 years, only have been allowed, upon which the rate (10 years) is £12 10s. 8d. per cent.

#### HELPING THE HOMEMAKER.

The Board of Trustees of the State Bank of South Australia are also administering The Advances for Homes Act, 1910. The object of this Act is to enable the Government to make advances to persons of limited means to enable them to provide homes for themselves and their families. The amount set apart each year for advances under the Act was originally £100,000, but an Act was passed in 1911 increasing the limit to £300,000. Loans are granted to enable the borrower to—

1. Erect a dwelling-house on land already held by him.
2. Complete or enlarge his dwelling-house.
3. Purchase land and dwelling-house already thereon.
4. Discharge a mortgage existing on his land and dwelling.

The Board can lend up to 80 per cent. of its valuation of land and building, the maximum advance to any one borrower being £500. The repayment of the loan is provided for by either quarterly or monthly instalments including interest at 5 per cent., the term of loan ranging from seven to 42 years. A rebate of one-tenth of the interest is allowed for prompt payment of instalments, thus reducing the rate to  $4\frac{1}{2}$  per cent. per annum. The advances made for the period ended June 30th, 1912, amounted to £417,549, of which amount £18,269 had been repaid, leaving the amount of advances current on the above date £399,280.

The advances were made for the following purposes :—

To assist in erecting	848 new houses	£254,364	An average of	£299 19 2
“ purchasing	345 dwellings	£97,891	“	£283 14 10
For the discharge of	229 existing mortgages	£65,294	“	£285 2 6
	<u>Total</u>	<u>1,422</u>	<u>Total</u>	<u>£417,549</u>
			“	£293 12 8

The amount that had accrued for principal and interest under instalments to June 30th, 1912, was £14,462 12s. 2d., made up as follows :—

	Principal.	Interest.	Total.
Amount accrued ...	£4,413 12 9 ..	£10,048 19 5 ..	£14,462 12 2
Amount paid .....	£4,406 1 1 ..	£10,042 1 0 ..	£14,448 2 1
	<u>£7 11 8 ..</u>	<u>£6 18 5 ..</u>	<u>£14 10 1</u>



## THE TRADING BANKS.

Concurrently with the growth of internal and external commerce, and the rapid settlement of new areas, has been the expansion of banking business within the State. Financial operations were originally catered for by the South Australian Banking Company which was established at the commencement of the colony, but to-day the business is divided amongst the Commonwealth Bank—opened on January 20th, 1913; and eight joint-stock institutions. All the latter have London offices, and are English companies, with the exception of the following:—Bank of Adelaide, the head office of which is in the capital of South Australia; Bank of New South Wales, whose head office is in Sydney; Commercial Bank of Australia, Limited, and National Bank of Australasia, Limited, whose head offices are in Melbourne. Below is shown the capitalization, reserves, &c., to the end of 1912, of the banks now trading in the State—

	Authorised Capital.	Paid Up Capital.	Last Dividend Per Cent. per Annum and Bonus.	Amount of Last Dividend. (d)	Amount of Reserved Profits at Time of Declaring Dividend.
	£	£		£	£
Bank of Adelaide ..	1,000,000	500,000	10	25,000	524,109
Bank of Australasia ..	3,600,000	1,600,000	17	136,000	1,978,245
Bank of New South Wales	6,000,000	3,000,000	10	150,000	2,085,000
Commercial Bank of Australia, Limited ..	3,150,000	2,212,969	3 b	31,760	6,226
English, Scottish, and Australian Bank, Limited	1,078,875	539,438	8	43,155	282,434
London Bank of Australia, Limited ..	2,886,068	548,227	—c	30,440	175,483
National Bank of Australia, Limited ..	3,407,904	1,498,220	6	44,947	419,413
Union Bank of Australia, Limited ..	6,000,000	1,500,000	14	105,000	1,442,767

a Exclusive of perpetual inscribed stock which amounts to £2,620,966. b On preference shares only. c On preference shares 7 per cent., on ordinary shares 5 per cent. d Dividend is for last half-year to end of 1912.

## LOCAL BUSINESS OF BANKS.

The following table shows the average assets and liabilities and the surplus assets or excess liabilities of the banks:—

Year.	Assets within the State.	Liabilities within the State.	Surplus Assets.	Excess Liabilities.
	£	£	£	£
1905 .. .. .	7,425,775	7,623,060	—	197,285
1906 .. .. .	7,760,674	8,291,952	—	531,278
1907 .. .. .	8,119,369	9,039,843	—	920,474
1908 .. .. .	8,468,165	9,466,323	—	998,158
1909 .. .. .	8,929,198	10,439,956	—	1,510,758
1910 .. .. .	10,831,423	11,601,148	—	769,725
1911 .. .. .	12,103,058	11,450,249	652,809	—
1912 .. .. .	11,719,810	11,750,813	—	31,003

It is apparent from an analysis of the foregoing that deposits have vastly increased in volume; so also have advances. Ten years ago the deposits in the banks of the State reached a total of £5,895,923, and advances £4,345,348; while at the end of December last deposits were £11,283,720, and advances £8,522,964. Government balances with the banks are included in the statement of deposits. This total has varied considerably during the last few years, but as the State has prospered exceedingly in recent seasons the amount has been fairly consistently upward, thus—

#### GOVERNMENT DEPOSITS WITH BANKS.

			£				£
1901	..	..	114,201	1907	..	..	198,671
1902	..	..	134,560	1908	..	..	244,523
1903	..	..	150,147	1909	..	..	336,188
1904	..	..	182,506	1910	..	..	407,328
1905	..	..	193,773	1911	..	..	454,128
1906	..	..	254,631	1912	..	..	331,507

#### RELATION BETWEEN DEPOSITS AND ADVANCES.

Taking only public money, the sums at fixed deposit, in current account, total advances, and the excess of all deposits over advances, make the following striking comparison :—

	Current Accounts Not Bearing Interest.	Fixed Deposits Bearing Interest.	Advances.	Excess Deposits over Advances.
	£	£	£	£
1903.				
June 30 .. .. .	2,460,227	3,658,197	4,332,700	1,945,865
Dec. 31 .. .. .	2,297,912	3,598,011	4,345,348	1,700,715
1904.				
June 30 .. .. .	2,270,685	3,619,778	4,305,735	1,748,297
Dec. 31 .. .. .	2,256,511	3,858,606	4,531,793	1,765,830
1905.				
June 30 .. .. .	2,233,742	4,121,066	4,693,804	1,871,797
Dec. 31 .. .. .	2,395,418	4,277,088	4,877,761	1,593,717
1906.				
June 30 .. .. .	2,684,565	4,346,179	4,933,503	2,261,397
Dec. 31 .. .. .	2,878,536	4,352,077	5,305,871	2,179,373
1907.				
June 30 .. .. .	3,169,238	4,522,350	5,428,532	2,504,660
Dec. 31 .. .. .	3,186,907	4,776,387	5,499,168	2,664,797
1908.				
June 30 .. .. .	3,294,864	4,829,490	5,693,240	2,638,435
Dec. 31 .. .. .	3,311,267	5,045,778	5,930,372	2,671,196
1909.				
June 30 .. .. .	3,653,861	5,541,846	5,689,676	3,723,381
Dec. 31 .. .. .	3,527,735	5,693,394	5,960,240	3,597,077
1910.				
June 30 .. .. .	4,015,623	6,076,299	6,403,286	4,067,699
Dec. 31 .. .. .	3,955,444	6,210,118	7,381,089	2,934,031
1911.				
June 30 .. .. .	4,058,996	6,300,521	7,995,500	2,830,010
Dec. 31 .. .. .	4,100,786	6,381,547	8,484,390	2,452,071
1912.				
June 30 .. .. .	4,232,075	6,536,930	8,707,638	2,595,562
Dec. 31 .. .. .	3,908,709	6,868,326	8,522,964	2,760,756

## EACH BANK'S BUSINESS.

As supplementary to the foregoing it is instructive to note the business conducted by each of the banks in South Australia. For this purpose the general abstracts of the average liabilities and assets for the quarter ended December 31st, 1912, are used. The data have been compiled from the weekly statements of the banks and include in non-interest-bearing deposits the Government balances with the banks:—

## LIABILITIES.

Bank.	Notes in Circulation.	Bills in Circulation.	Balances Due to Other Banks.	Deposits Not Bearing Interest.	Deposits Bearing Interest.
	£	£	£	£	£
Bank of Australasia .. .. .	3,838	7,965	1,258	372,794	545,794
Union Bank of Australia, Limited	5,553	3,689	355	610,319	1,371,623
National Bank of Australasia, Limited .. .. .	19,962	4,124	64,061	821,856	1,645,451
English, Scottish, and Australian Bank, Limited .. .. .	2,271	—	5,257	392,816	653,691
Bank of Adelaide .. .. .	19,077	4,386	12,001	1,329,606	1,914,889
Bank of New South Wales .. .. .	5,552	2,074	5,371	353,241	570,934
Commercial Bank of Australia, Limited .. .. .	2,105	1,195	—	304,678	310,059
London Bank of Australia, Limited	36	450	—	24,138	61,833
Total averages .. .. .	58,397	23,883	88,303	4,206,448	7,074,274

## ASSETS.

Banks.	Coin and Bullion.	Australian Notes.	Landed Property and Premises.	Notes and Bills of other Banks.	Balances Due from other Banks.	All Debts Due to the Bank.
	£	£	£	£	£	£
Bank of Australasia ..	183,595	38,729	3,486	10,635	—	357,230
Union Bank of Australia, Limited ..	326,486	36,178	42,000	19,868	81	1,284,547
National Bank of Australia, Limited ..	281,238	143,505	77,949	18,889	8,594	2,018,668
English, Scottish, and Australian Bank, Ltd.	160,134	46,807	43,933	9,891	3,757	812,521
Bank of Adelaide ..	508,778	143,640	89,825	165	35,130	2,526,917
Bank of New South Wales .. .. .	625,595	48,749	24,522	93	32,800	992,409
Commercial Bank of Australia, Limited ..	120,747	31,720	37,665	6,232	—	505,834
London Bank of Australia, Limited ..	26,349	8,207	—	842	34	24,836
Total averages ..	2,230,899	497,535	319,380	66,615	80,396	8,522,962

## PAPER CURRENCY.

The institution of Federal paper money in 1911 has led to the rapid displacement of private banknotes. This is indicated in the following table, made up to the end of each year from 1901 :—

## PRIVATE BANK NOTE CIRCULATION IN SOUTH AUSTRALIA.

			£				£
1901	..	..	394,602	1907	..	..	496,327
1902	..	..	361,370	1908	..	..	495,078
1903	..	..	380,112	1909	..	..	497,938
1904	..	..	378,545	1910	..	..	564,061
1905	..	..	373,603	1911	..	..	117,576
1906	..	..	418,072	1912	..	..	58,397

## METALLIC RESERVES.

As the Federal notes have had to be paid for in gold the coin and bullion holdings of the several banks underwent contraction to meet this exigency. In perusing the following statement of the cash resources of the banks, the Australian note holding must therefore be considered to enable an equitable comparison with previous years :—

Year.	Coin and Bullion Held by Banks.	Australian Notes Held by Banks.	Year.	Coin and Bullion Held by Banks.	Australian Notes Held by Banks.
	£			£	
1901 ..	1,656,075	—	1907 ..	1,964,459	—
1902 ..	1,546,964	—	1908 ..	1,878,055	—
1903 ..	1,565,545	—	1909 ..	2,321,635	—
1904 ..	1,569,628	—	1910 ..	2,640,264	45,860
1905 ..	1,861,687	—	1911 ..	2,301,746	700,766
1906 ..	1,775,825	—	1912 ..	2,230,899	497,535

The proportion of metallic reserves which banking institutions should keep constantly in stock is not fixed by any enactment. Compared with the total liabilities, and with deposits at call and note circulation, the amount of coin and bullion has varied considerably from year to year. At the end of 1912 the proportion to total liabilities was 18·9 per cent., and to deposits at call and note circulation 52·2 per cent. Inclusive of the Australian note holdings, which are tantamount to specie, the proportions were 23·2 per cent. and 63·9 per cent. respectively.

## ADVANCES BY BANKS.

Under the head of advances by the banks are included bills and promissory notes discounted, cash credits, and miscellaneous debts. The bulk of the advances are secured by the mortgage of real estate, or by the depositing

of deeds over which the lending institution acquires a lien; but the extent of the discounting of trade bills is not apparent. About the most interesting summary that can be made is that which is appended—

Year.	Advances.	Ratio of Advances to Deposits.	Amount of Advances per Inhabitant.
	£	Per Cent.	£ s. d.
1904 .. .. .	4,531,793	71·8	12 9 4
1906 .. .. .	5,305,871	70·9	14 4 2
1908 .. .. .	5,930,372	68·9	15 6 3
1910 .. .. .	7,381,089	69·8	17 18 6
1911 .. .. .	8,484,390	77·5	20 18 1
1912 .. .. .	8,522,964	75·5	20 15 9

The utility of the banking system may be realised readily from the foregoing statement. The consistent expansion in the ratio of advances per inhabitant reflects the prosperity recently enjoyed by the State, and the progressive enterprise of the people, for the population has increased by over 60,000 in the last 10 years.

#### INTEREST AND DISCOUNT RATES.

The interest offered by the banks for fixed deposits was raised during the first quarter of 1912. Current rates are— $3\frac{1}{2}$  per cent. per annum for sums deposited for 12 months, and 4 per cent. for two years. All the banks do not allow interest for six months' deposits, but the bulk of the institutions do, the rate being 2 per cent. to  $2\frac{1}{2}$  per cent. The rates are considerably below those current a decade or two ago; but the strength of deposits is evidence that money equal to requirements is offered. Substantially the same rates of interest are allowed on deposits made in the London offices of the banks.

The local rates for overdrafts vary from 6 per cent. to 8 per cent., while three months' bills (and under) are discounted at from  $5\frac{1}{2}$  per cent. to 6 per cent.; and over three months at 6 per cent. to 7 per cent. The bank exchange rate on London at 60 days' sight averages about 1 per cent., but is subject to fluctuation, particularly on the advent and close of the active produce export seasons.

#### BANK CLEARINGS.

Adelaide does not possess a bankers' clearing house in the sense in which it is known in Europe. A start in this direction was made, however, in June, 1910, and some day a properly constituted clearing house may be the outcome. What is done at present is to keep an account of the total amount of cheques.

bills, and drafts drawn upon the banks in Adelaide, and of the notes paid in, a clearance being effected at the end of each month. Operations for the last two years have been—

	1911.	1912.
	£	£
January .. .. .	6,339,235	6,743,108
February .. .. .	7,129,469	6,550,946
March .. .. .	7,029,217	6,778,926
April .. .. .	5,871,975	5,613,814
May .. .. .	6,560,641	6,559,650
June .. .. .	5,341,240	5,543,260
July .. .. .	5,570,676	6,264,646
August .. .. .	5,423,723	5,434,026
September .. .. .	6,054,506	5,923,848
October .. .. .	6,160,911	6,770,952
November .. .. .	5,905,104	6,699,518
December .. .. .	6,306,507	6,041,856

#### THE SAVINGS BANK.

On an altogether different footing to the ordinary banks of issue and deposit, but occupying a pre-eminent position amongst the masses, is the Savings Bank of South Australia.

The bank first opened its doors for business on March 11th, 1848, under an ordinance to establish a Savings Bank in South Australia "for the encouragement of frugality, and that persons possessing small sums of money beyond what they required for the supply of their immediate wants should be afforded an opportunity of depositing the same on good security to accumulate at interest." Twelve well-known and respected business men, who gave their time and experience to the conduct of the institution, were appointed trustees. A small room was offered to the trustees gratis as an office, and accepted, and the bank opened for the receipt of deposits on Saturdays only from 12 to 2 and from 7 to 9 in the evening, while repayments were made to depositors on Wednesdays only from 12 to 2. There being only one paid official (the Accountant) the trustees took turns in assisting him in the receipt of deposits, &c. This method lasted for some years. The amount any one person could deposit in one year was limited to £30, and no person was allowed to deposit more than £200 in the whole. That the bank met a long felt want was evident from the fact that during the first three Saturdays 41 accounts were opened and an amount of £419 12s. was deposited, which was increased by December 31st, 1848, to 214 depositors, with a total of £5,313 9s. 2d. at their credit. The ordinance permitting the trustees to lend money on mortgage was, as soon as funds were available, taken advantage of, and by the end of the year £3,100 was lent at the rate of 10 per cent. per annum. Securities being plentiful in those days the trustees accepted only the best, a policy which has been adhered to ever since.

On June 30th, 1912, the amount lent on mortgage was £1,835,742, mostly at  $4\frac{1}{2}$  per cent. A small sum has been lent at  $4\frac{1}{2}$  per cent. on a scale of advances up to two-thirds of the value of the property with compulsory quarterly repayment of £1 5s. for each £100 borrowed.

The Act under which the bank is administered is a Public Act, and the Government of the State appoint the trustees. The bank having greatly developed from a somewhat philanthropical commencement into a large business institution, the Government in 1903 by Act of Parliament altered the constitution of the board from 12 trustees, whose services were honorary, to six paid members, who are required to meet one day a week for the transaction of business. They have sole control in the management of the institution and the investment of its funds. The expenses of management, which were 12s. 8 $\frac{3}{4}$ d. per £100 of total funds in 1887, have been reduced to 6s. 9d. per £100 in 1912.

A further amendment of the Bank's Act was made during the latest session of Parliament (1912), the principal effect of which was to secure to the depositors a Government guarantee for the repayment of all deposits made with the bank, and to grant to the trustees power to prescribe the amount on which interest would be payable. Under this power it was decided to pay interest on balances up to £350 instead of £250 as formerly.

Estimating the population of the State on June 30th, 1912, at 426,668, the proportion of depositors to population was 52 in every 100 persons; and the average amount at credit of each depositor was £42 12s. 9d.

The general progress of the institution is clearly exemplified by the following decennial return :—

Year.	Number of Depositors with Accounts Bearing Interest.	Amount Deposited During the Year.	Amount of Depositors' Balances.	Rate of Interest Paid.	Reserve Funds at Close of each Year.	Total Funds at Close of each Year.
	£	£	£	Per Cent.	£	£
1857 .. ..	1,775	37,534	64,668	5 $\frac{1}{2}$	5,467	70,136
1867 .. ..	8,683	145,207	274,508	6	19,587	294,095
1877 .. ..	26,320	548,607	952,414	4 $\frac{1}{2}$	28,448	982,857
1887 .. ..	56,685	797,704	1,581,100	5	36,000	1,637,794
1897 .. ..	93,669	1,685,636	3,011,156	3	85,000	3,128,666
1907 .. ..	139,670	2,872,517	5,304,704	3 $\frac{1}{2}$	176,000	5,532,524
1912 ... ..	192,847	5,172,434	8,223,261	3 $\frac{1}{2}$	253,121	8,524,577

#### PENNY BANKS.

One of the most important departures of the bank in recent times has been the establishment of a system of penny savings banks at the various schools of the State. This was brought into vogue on May 5th, 1908, and was a success from the outset. Agencies had been established in 232 schools to the end of the 1912 financial year, an increase of 46 on the figures for 1910-11, and there were at that date 9,983 depositors, as against 8,436 a year

previously. Total transactions during the 12 months to June 30th, 1912, numbered 79,211, and the balance at credit amounted to £8,101, an increase of £1,693. The deposits are collected by the teachers one day in each week and remitted to the bank, repayments being made only at the authorised offices of the bank.

### THE BUSINESS SIDE.

On June 30th, 1912, the liabilities of the bank aggregated £8,524,577, of which £8,248,396 represented depositors' balances interest-bearing and non-interest-bearing—under section 36 of the Act of 1875—with accrued interest thereon, and £5,330 balance of profit and loss account. The reserve fund and other liabilities amounted to £270,851. The investments made on behalf of the bank and other assets, including accrued interest, were as follows:—

ASSETS.		£	s.	d.	£	s.	d.
Mortgage Loans .. .. .	—				1,835,742	10	5
S.A. Government Bonds and Stock (face value £4,872,990) .. .. .	4,694,654	11	3				
Western Australian Stock and Debentures (face value £147,826 5s.) .. .. .	145,334	16	1				
Victorian Treasury Bonds (face value £100,000) .. .. .	96,925	0	0				
Queensland Treasury Bills (face value £3,000) .. .. .	2,895	0	0				
State Bank Mortgage Bonds (face value £90,000) .. .. .	90,000	0	0				
					*5,029,809	7	4
Corporation Bonds (face value £147,461 15s. 11d.) .. .. .					145,881	15	11
Bank Fixed Deposits .. .. .					722,750	0	0
Deposit at the Treasury .. .. .					250,000	0	0
Bank of New South Wales, Current Account .. .. .					111,644	2	7
					£8,095,827	16	3
Interest Accrued on above Investments to date .. .. .					85,778	15	8
Gold Reserve .. .. .					200,000	0	0
Inter-State Transfers—Due by other Savings Banks .. .. .					2,501	1	8
Amount due by Commonwealth Government on account of Deficiencies at Post Office Agencies .. .. .					134	8	7
Premises, Furniture, and Home Banks .. .. .					57,058	4	5
Cash at Head Office, Agencies, Branches and their Bankers .. .. .					83,277	8	6
					£8,524,577	15	1

\* Value at this date, £4,977,031. Difference, £52,778, provided for in Reserve Fund.



## RECENT PROGRESS.

In recent years the general prosperity of the State has been strongly reflected in the bank's progress, which has been nothing short of phenomenal. For the last 25 years "records" have been consistently broken, thus:—

Year to June 30th.	* Depositors.	* Increase of.	Amount Deposited.	Amount With- drawn.	Depositors' Balances.	Average.	Interest.
			£	£	£	£ s. d.	Per cent.
1888 ..	60,301	3,616	1,050,102	1,079,027	1,627,541	26 19 9	5
1889 ..	64,320	4,019	1,059,807	867,286	1,896,248	29 9 7	4½
1890 ..	69,193	4,873	1,054,351	1,107,983	1,923,293	27 15 11	4½
1891 ..	74,686	5,493	1,262,136	1,113,476	2,158,228	28 17 11	4½
1892 ..	78,795	4,109	1,247,309	1,280,413	2,217,431	28 2 10	4½
1893 ..	81,547	2,752	1,372,206	1,349,367	2,326,730	28 10 8	4
1894 ..	84,248	2,701	1,350,442	1,311,159	2,456,258	29 3 1	4
1895 ..	86,734	2,486	1,417,533	1,280,042	2,691,273	31 0 7	4
1896 ..	90,143	3,409	1,729,850	1,674,418	2,826,346	31 9 3	3½
1897 ..	93,669	3,526	1,685,637	1,593,568	3,011,157	32 2 11	3
1898 ..	96,401	2,732	1,561,782	1,589,763	3,069,752	31 16 10	3
1899 ..	100,763	4,362	1,699,194	1,600,197	3,257,838	32 6 7	3
1900 ..	106,122	5,359	1,832,369	1,696,374	3,489,083	32 17 6	3
1901 ..	111,537	5,415	1,918,709	1,727,807	3,782,575	33 18 3	3
1902 ..	116,436	4,899	1,985,689	1,903,664	3,974,709	34 2 8	3
1903 ..	120,349	3,913	2,159,347	2,076,423	4,172,720	34 13 3	3
1904 ..	123,455	3,106	2,021,106	2,117,897	4,202,638	34 0 10	3½
1905 ..	126,821	3,366	2,110,977	2,070,222	4,380,358	34 10 9	3½
1906 ..	131,649	4,828	2,459,331	2,233,775	4,750,192	36 1 7	3½
1907 ..	139,670	8,021	2,872,517	2,462,704	5,304,704	37 19 7	3½
1908 ..	148,718	9,048	3,204,265	2,872,277	5,803,301	39 0 5	3½
1909 ..	157,854	9,136	3,585,582	3,238,276	6,328,870	40 1 10	3½
1910 ..	167,577	9,723	3,817,254	3,566,430	6,771,150	40 8 1	3½
1911 ..	179,478	11,901	4,478,646	4,060,160	7,411,710	41 5 11	3½
1912 ..	192,847	13,369	5,172,433	4,605,041	8,223,260	42 12 9	3½

\* Accounts bearing interest only.

## CLASS OF DEPOSITORS.

A classification of depositors shows that the largest class include those with accounts for less than £20. The total number of accounts bearing interest at the end of the 1912 financial year was 192,847, and of these 123,667 had less than £20 at credit. Appended are the details, exclusive of the penny bank accounts—

	1912 Accounts.	Amt. £.
To £20 .. .. .	123,667	558,779
£20 to £50 .. .. .	24,030	765,391
£50 to £100 .. .. .	16,276	1,140,479
£100 to £150 .. .. .	9,280	1,122,327
£150 to £200 .. .. .	5,392	923,404
£200 to £250 .. .. .	5,689	1,282,194
Over £250 .. .. .	8,513	2,430,686

Owing to the Commonwealth Government having intimated that the post offices would not be available as agencies after December 31st, 1912, a comprehensive scheme to still further strengthen the bank's position in

the country districts has been carried to a successful issue. In all the larger towns branches under the control of officers of the bank have been established, thus giving local residents all the facilities available at the head office. At the smaller townships the agencies have been transferred to the local trading banks, and to carefully-selected qualified persons. The efficiency of the bank's service in the country districts has thus been amply maintained, and the results have been very satisfactory.

The business of the bank includes systems of inter-State and international transfers whereby depositors can have the whole or portion of their accounts transferred to another State or to any of the Post Office Savings Banks of Great Britain. Arrangements have also been made for the payment of £5 on demand to any depositor at any agency in the State, subject to identification, and for telegraphic repayments at branches and agencies. To encourage depositors and others to use the bank, home savings bank boxes are issued on payment of a small fee; also, large firms are supplied with pay envelopes on which are printed selected mottoes emphasizing the benefits of thrift.

#### FRIENDLY SOCIETIES.

An analysis of the South Australian Savings Bank figures clearly demonstrates that the people of Australia are not a whit less provident in their habits than the populations of other countries. Further evidence of this is provided by data respecting Friendly Societies. As a matter of fact a comparison between the populations and investments in Savings Banks and Friendly Societies in the six States of the Commonwealth, as well as in Great Britain and Ireland, the Public Actuary shows that South Australians head the list as the most thrifty people in the Empire. In 1909, this State, with its then population of 396,400, boasted 201,275 depositors in the Savings Bank, with an average amount to credit of £34 14s. 10d., or an average per head for the total population of £17 2s. 8d. At the same time the capital per member in Friendly Societies in this State amounted to £14 16s. 5d. Western Australia was second on the list in Savings Bank deposits, with an average per head for the population of £13 2s. 1d., and Victoria was second so far as Friendly Societies' capital was concerned, with £14 15s. 3d. The average Savings Bank deposit for the whole of the Commonwealth was £12 5s. 8d., and Friendly Societies' capital, £12 10s. 1d. So it will be seen that South Australia goes far to establish Australia's reputation for thrift. Great Britain's average Savings Bank deposit amounted to only £5 13s. 8d., and Friendly Societies' capital to £5 19s. "The people of this State," says the Public Actuary, "are to be congratulated upon the favorable position occupied by South Australia in this respect. Regarded from the population basis, the figures show that habits of thrift among the people here are more deeply rooted than elsewhere."

#### FRIENDLY SOCIETIES IN AUSTRALIA AND NEW ZEALAND.

The following statement shows the number of registered Friendly Societies in Australia and New Zealand at the dates of the latest reports; also the

numerical and financial strength of each. The membership in South Australia, Victoria, New South Wales, and Western Australia includes females, and in Queensland it includes females and juveniles:—

	Number Societies.	Number Members.	Total Funds.	Capital per Member.
			£	£ s. d.
South Australia ...	16 ..	58,292 ..	863,998 ..	14 16 5
Victoria .....	48 ..	142,275 ..	2,122,602 ..	14 18 5
New South Wales ...	42 ..	149,442 ..	1,419,695 ..	9 10 0
New Zealand .....	13 ..	71,771 ..	1,441,353 ..	20 1 8
Queensland .....	21 ..	42,246 ..	546,430 ..	12 18 8
Tasmania .....	11 ..	21,063 ..	198,079 ..	9 8 1
Western Australia .	17 ..	16,397 ..	158,567 ..	9 13 5
Total .....	168 ..	501,486 ..	6,750,724 ..	13 9 3

#### OLD-AGE SICKNESS.

All registered Friendly Societies in South Australia assure the sickness benefit to the end of life, but the necessity of substituting a superannuation allowance for sick pay during the years of life when man is physically incapable of work has been urged upon Friendly Societies by actuaries during many years. The rate of sickness increases with accelerated speed after the age of 60 is reached. The average duration of sickness at age 17 to age 60 is nearly 1 1-12 weeks per member per annum; 60 to 69 the duration increases to 5 7-10 weeks per member; 70 to 80 it is 13 3-5 weeks; whilst at 80 and after it becomes almost continuous. The following abstract showing the aggregate weeks of sickness per member during the various age-periods affords proof of the increased liability imposed on the funds by old age:—

Age period.	Weeks.	Days.	Age period.	Weeks.	Days.
17 to 60 ..	53 ..	5	60 to 80 ..	215 ..	2
17 to 70 ..	114 ..	2	70 to 80 ..	154 ..	5
17 to 80 ..	269 ..	1	80 to end of life	468 ..	0
60 to 70 ..	60 ..	3			

The fluctuations in the rates of sickness at age 70 and after, arising from the excessive quantity of sickness and the paucity of members, render the data so unreliable that the results have to be disregarded in constructing monetary tables for valuation purposes. For example, the experience to which reference has been made shows that for the age-period 17-60 the number of members at risk was 346,782, with a total of 376,429 weeks of sickness; but during ages 60-80 there were only 35,912 members, and the quantum of sickness was 275,454 weeks; and for the age-period 70 to the end of life the number of members was 9,707, with 141,042 weeks of sickness, nearly all of which was probably due to natural decay and not to specific sickness. It is because of these fluctuations, and of the unreliability of the average results derived therefrom, that it is considered desirable to exclude old-age sick pay, and substitute therefor a permanent weekly allowance on attaining age 65 or 70. Many societies in England have adopted these alterations, but to do so it has been necessary for them to substitute adequate

graduated rates of contribution for the inequitable and unjust uniform rate formerly prevailing. Societies in this State whose members pay adequate rates graduated according to the entry age could, without any difficulty, exchange the value of the sick pay after age 70 for its equivalent in the form of a permanent weekly allowance to the end of life on attaining that age.

#### BENEFITS AND FINANCIAL IMPROVEMENT.

Not one of the many benefits, direct or indirect, dispensed by Friendly Societies can be regarded as a charity. They are all provided out of the contributions of a few pence per week, paid into the lodge by the members. As showing the magnitude to which these benefits in the aggregate have attained in the past (and they will continue to increase in the future if a proper adjustment of the contributions and benefits is adopted) the following from the disbursements during the past 15 years, 1895-1909, of all registered societies is interesting:—For sick pay, £689,332; funeral donations, £324,455; medical attendance and medicines, £388,405; total, £1,402,192. So far as the male members of all societies are concerned the ratio of assets to each £1 of the liabilities has improved from 11s. 9d. in 1892 to 17s. 3d. in 1909. The general financial improvement disclosed in the valuations is due to two causes—(1) Favorable mortality and sickness experience. (2) Reduction of the benefits and increase of the contributions in many societies. Compared with the 1904 valuations the aggregate of the assets increased during the quinquennium to 1909 from £1,683,326 to £2,102,642, equal to 25 per cent.; while the liabilities during the same period decreased from £2,467,195 to £2,435,756, or  $1\frac{1}{4}$  per cent., results which must be regarded as highly satisfactory. The aggregate movements in membership from 1904 to 1909 were:—Males, number at beginning of period, 43,651; admissions, 19,447; departures, 12,307; net increase, 7,140; number at end of period, 50,791. Females—Number at beginning of period, 5,602; admissions, 4,928; departures, 3,029; net increase, 1,899; number at end of period, 7,501. The average annual increase during the five years was:—Males,  $3\frac{1}{4}$  per cent.; females, 6 4-5 per cent. During the five years ended December 31st, 1909, the aggregate amount of the sick and funeral funds increased from £634,034 to £820,328. The expansion of £186,294 compares with a growth of £126,919 during the preceding quinquennium.

#### LIFE INSURANCE.

No essentially South Australian company is engaged in life assurance business in the State, but most of the Australian offices, and several British and American companies are represented in Adelaide. No data are available exclusively for South Australia, but a considerable proportion of the population is covered by policies, and the development of thrift in this direction has been not a whit less marked than in other countries. Under section 51 of the Commonwealth Constitution Act the Commonwealth Parliament is empowered to legislate in regard to "insurance, other than State insurance; also State insurance extending beyond the limits of the State concerned." With the exception of Act No. 12 of 1905, "an Act relating to assurance

on the lives of children by life assurance companies or societies," no legislation relating to life insurance has been passed by the Commonwealth Parliament; but a comprehensive Bill has been drafted, and will probably come before the next session of the Federal Parliament, when laws governing insurance will be made uniform throughout Australia.

### FIRE INSURANCE.

The Fire Brigades Board of South Australia is incorporated under "The Fire Brigades Act, 1904," and amending Acts of 1905, 1910, and 1912. The cost is distributed as follows:—Three-ninths to the Government, four-ninths to the insurance companies, and two-ninths to the municipalities and districts which come under the operations of the board. The insurance companies are assessed in proportion to that portion of their premium incomes derived from the insurance of property (re-insurance within the State excepted) situated within the limits of the municipalities and districts coming under the operations of the board. Receipts under this arrangement in 1911 were:—Insurance companies, £9,256; Government, £6,942; municipalities and districts, £4,518.

### TRANSACTIONS IN REAL ESTATE.

Transactions in real estate are regulated by the Real Property or Torrens Act. The main features of the Act are the transfer of real property by registration of title instead of by deeds, and absolute indefeasibility of the title when registered, and the protection afforded to owners against possessory claims, as a title issued under the Act stands good notwithstanding any length of adverse possession. All lands sold by the Crown are conveyed to the purchasers under its provisions. Appended is a decennial return showing the amount lent on mortgage and discharged under the Real Property Act, and the value of the land brought under the operation of the Act:—

Year.	Amount Lent on Mortgage.	Mortgages Discharged.	Value Land Brought Under R.P.A., including Land Grants.
	£	£	£
1902 .. .. .	1,517,156	934,384	274,290
1903 .. .. .	2,001,906	1,497,903	232,704
1904 .. .. .	1,578,664	1,241,788	385,053
1905 .. .. .	1,625,718	1,429,401	312,757
1906 .. .. .	1,872,306	1,558,470	161,435
1907 .. .. .	2,123,700	1,784,542	171,850
1908 .. .. .	2,513,299	2,211,507	227,604
1909 .. .. .	3,093,814	1,964,296	320,600
1910 .. .. .	3,230,848	2,452,493	624,821
1911 .. .. .	4,773,988	2,757,373	479,124

### MORTGAGES ON LIVE STOCK AND WOOL.

Liens on wool, mortgages on live stock, and liens on growing crops are registered under Acts of Parliament. The mortgages on live stock are

current till discharge, and the liens on wool mature at the end of each season and terminate without formal discharge. Mortgages under the Acts are valid without delivery of the stock or crops to the mortgagees.

The Bills of Sale Act of 1885 came in force December 11th, 1885, which included Mortgages of Stock and Preferable Liens, the latter only being revived by Bills of Sale Act of 1886 on November 17th, 1886. A decennial return of preferable liens on wool follows. When any sum has been secured, and both by a lien on the wool and by a mortgage on the sheep, the amount is included under the head of mortgages only :—

Year.	Number of Liens.	Number of Sheep.	Amount of Liens.
			£
1902 .. .. .	104	330,506	81,012
1903 .. .. .	71	152,176	46,046
1904 .. .. .	68	278,485	86,483
1905 .. .. .	61	171,709	46,464
1906 .. .. .	46	129,079	42,505
1907 .. .. .	46	124,819	62,729
1908 .. .. .	50	121,827	62,247
1909 .. .. .	60	119,981	73,144
1910 .. .. .	42	133,828	49,132
1911 .. .. .	46	78,048	73,794

#### BILLS OF SALE.

All mortgages on personalty other than ships and shipping appliances, wool, live stock, and growing crops are filed at the Supreme Court under the Bills of Sale Act. This Act provides that each document shall be filed within 30 days after it is made or given, otherwise the transaction is illegal ; also that the registration shall be renewed every 12 months ; and to prevent fraud and imposition the records are open to the inspection of the public. The bills filed and the discharges registered for the 10 years to the end of 1911 are shown below :—

Year.	Bills of Sale.		Total Discharges.	
	Number.	Amount.	Number.	Amount.
		£ s.		£ s.
1902 .. .. .	1,570	186,178 0	265	94,782 0
1903 .. .. .	1,574	172,029 0	286	78,177 0
1904 .. .. .	1,513	198,198 0	261	120,981 0
1905 .. .. .	2,488	214,740 0	290	96,493 0
1906 .. .. .	1,300	180,708 0	299	70,184 0
1907 .. .. .	1,317	225,929 10	309	90,603 5
1908 .. .. .	1,361	261,894 0	343	163,319 0
1909 .. .. .	1,517	235,766 1	334	88,583 17
1910 .. .. .	1,570	202,324 10	357	106,206 12
1911 .. .. .	1,662	341,782 5	299	94,402 15

## **WORK AND WAGES.**

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**A** LABOR Exchange, with the name of "The South Australian Government Labor Exchange," was established on July 1st, 1911, under the administration of the Commissioner of Public Works, and under the charge of a Superintendent. The Labor Exchange has been specially reorganised to assist private employers of labor throughout the State in obtaining the workmen they require, and to inform the unemployed workmen of the inquiries for workmen of the respective classes. There is kept at the Exchange a register of the names and addresses of public departments and of private employers wanting workmen, with details of their requirements, and also a register of all persons who make application for employment. The operation of the Exchange does not extend to the professional and clerical branches of the Public Service, but applies only to all daily-paid labor employed in the Public Service. Daily-paid men are not employed by the officers of any department of the Service excepting by requisition through this Labor Exchange. The head office of the Labor Exchange is situated in Adelaide, but branch offices are to be established throughout the State at such places as the Commissioner may think necessary.

### **OBLIGATIONS OF EMPLOYERS.**

Heads of departments in the Public Service, including the Railway Department, when requiring the services of daily-paid men (adult or youth labor) apply by requisition to the Superintendent of the Labor Exchange, at the Head Office, Victoria Square, Adelaide, for such men or youths. As the Superintendent of the Labor Exchange is required to pay in advance the fares by rail, land, or steamer of the workmen sent by the Exchange to works in the country, the department concerned is debited with the full costs of such fares, and if the men are not employed for the full term of two calendar months the department is also debited with the return fares of such men; if the men are employed over two months no return fare is allowed. The amount paid by the Labor Exchange for fares to the work is deducted from the men's wages. If the work does not last for over two months the men are entitled to a refund of the amount deducted from their wages for fares, and such refund is paid by the Labor Exchange to the men on the production by them of a refund certificate signed by the departmental officer under whom they were working; and the amount so refunded is charged to the department concerned. If the work lasts over four months the men are not entitled to any consideration for fares either way.

The Government Labor Exchange is made available to private employers, who are invited to send details of their requirements to the Superintendent. If so desired, employers can select the labor required, or the Exchange makes the selection.

## CURRENT RATES OF WAGES.

The following statement, prepared at the Government Labor Exchange, shows the rates of wages current in South Australia :—

Trade or Calling.	Rate per Day.	Trade or Calling.	Rate per Day.
*Apprentices ..	1s. 4d. to 7s. 6d.	Plate-levellers ..	12s. 6d.
Bricklayers ..	12s.	Patternmakers ..	11s. 6d.
*Boilermakers ..	11s. to 12s.	Painters, Coach ..	10s.
“ Assistants ..	9s.	“ House ..	9s. 6d. to 10s.
Blacksmiths ..	10s. 6d. to 11s.	*Paperhangers ..	9s. 6d. to 10s. 6d.
Boltmakers ..	9s. 6d. to 10s.	Plumbers ..	10s.
*Brassfinishers ..	7s. 6d. to 10s. 8d.	Plasterers ..	12s.
*Coremakers ..	8s. to 10s.	Springsmiths ..	11s. 6d.
Coppersmiths ..	11s.	Strikers ..	9s.
*Carragemakers ..	10s. to 11s.	Stonecutters ..	12s.
Carpenters ..	11s.	*Sawyers ..	7s. 6d. to 9s. 6d.
Crane Attendants ..	8s. 6d.	Tilelayers ..	11s.
Fitters ..	11s. 6d.	Turners ..	11s. 6d.
*Furnacemen ..	8s. 6d. to 9s. 6d.	Tinsmiths ..	8s. 10d. to 9s. 6d.
*Fettlers ..	7s. 6d. to 8s. 6d.	Trimmers (Coach) ..	10s.
Forgemen ..	13s.	*Wagonmakers ..	10s. to 10s. 6d.
“ Assistants ..	9s.	Wheeltyrers ..	10s.
Gasfitters ..	9s.	*Wireworkers ..	7s. 6d. to 8s. 4d.
Ironworkers ..	11s. 6d.	*Watchmen ..	7s. to 9s. 4d.
*“ Galvanized ..	9s. 4d. to 10s.	Farm Laborers ..	20s. to 50s.† per week and keep
Laborers, Builders' ..	9s. to 10s.	“ Youths ..	10s. to 20s. per week and keep
“ General ..	8s.	Married Couples ..	£75 to £100 per annum and keep
*Leatherworkers ..	9s. to 10s.	Cooks ..	From 20s. per week and keep to 8s. per day without keep
*Machinists ..	8s. 8d. to 11s.		
Masons (Wallers) ..	12s.		
Miners ..	8s.		
Moulders ..	9s. 6d. to 11s.		

In the trades marked thus \* the lower rate shown is the minimum fixed by the Wages Board. † During harvest operations.

The following list, supplied by the Chief Inspector of Factories, gives the minimum rates of remuneration payable to employes working in some of the trades for which wages boards have been appointed. In many instances the current rate exceeds that fixed by the board—

	Per Week.
Bakers (bread) .. .. .	57s. 6d.
“ (small goods) .. .. .	57s. 6d.
Bookbinders .. .. .	56s.
Bootmakers .. .. .	54s.
Breadcarters .. .. .	48s.
Brickmakers .. .. .	48s.
Brushmakers .. .. .	48s.
Butchers (small goodsmen) .. .. .	60s.
“ (general) .. .. .	55s.
Cabinetmakers .. .. .	56s.
Compositors .. .. .	60s.
Coopers .. .. .	66s.
Confectioners .. .. .	54s.
Dressmakers .. .. .	16s.



*Minimum Rates of Remuneration—continued.*

Electroplaters .. .. .	60s.
Hairdressers .. .. .	55s.
Letter-press Machinists .. .. .	56s.
Lithographers .. .. .	58s.
Millwrights .. .. .	62s.
Milliners .. .. .	16s. 6d.
Saddlers .. .. .	54s.
Sawmill Employés .. .. .	56s. 6d. to 62s.
Sawyers .. .. .	45s. to 57s.
Shop Assistants (drapery) .. .. .	22s. 6d. to 57s. 6d.
Trolley and Dray Men .. .. .	48s. to 52s.
Tanners and Curriers .. .. .	45s. to 52s.
Upholsterers .. .. .	56s.
Woodturners .. .. .	52s.
Wireweavers .. .. .	50s.

DOMESTIC HELPERS.

Inquiries recently instituted by the Government have proved that a shortage of domestic helpers exists in South Australia, and the following rates, with good accommodation and reasonable hours, are being paid generally :—

	Per Week.
Cooks (Hotels and Restaurants) ..	25s. to 30s. with board and lodging.
“ (Private houses) .. .. .	18s. to 20s. “ “
House and Parlor Maids (Hotels, &c.)	15s. to 20s. “ “
“ “ (Private) .. .. .	10s. to 16s. “ “
General Servants .. .. .	10s. to 16s. “ “
Nursemaids (about 15 years) .. .. .	6s. to 10s. “ “
Laundresses .. .. .	Up to 20s. “ “
Waitresses (Country Hotels) .. .. .	Up to 17s. 6d. “ “
“ (City Restaurants) .. .. .	15s. to 16s. without lodging.

## **LOCAL GOVERNMENT.**

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**S**OUTH AUSTRALIA originated the fine principle of local government which prevails in Australia by passing in 1839—three years after the proclamation of the province—the first Australian municipal law. On October 31st, 1840, the principles of self-government were adopted by the election of a mayor and councillors for the city of Adelaide. Sydney followed two years later. Municipal corporations and district councils have been generally extended until South Australia enjoys a splendid system of local government.

Municipalities were first established under the Municipal Corporations Act of 1861, which, after providing for the extension of the powers and duties of the corporation of the city of Adelaide, authorised the Governor, on petition of a majority of not less than two-thirds of the property owners, to incorporate any town, district, or place within the province, a municipality. This Act and its amendments were consolidated in the Municipal Corporations Act of 1880, which was amended from time to time until the year 1890, when it was repealed and its provisions consolidated by the existing Act, the Municipal Corporations Act of 1890, which was in turn amended in 1893, 1896, and 1903. These Acts were again altered by the Local Government Act, 1910.

After making provision for continuing existing corporations and by-laws, the Act of 1910 authorises the Governor to constitute new municipalities, or to alter the boundaries of existing ones, on petition of not less than two-fifths of the ratepayers or owners of ratable property within the land proposed to be incorporated, separated, or added; and also to rearrange, increase, or diminish the number of wards of a municipality on petition of not less than one-fifth of the ratepayers. Each council consists of a mayor and of two councillors for each ward, and the provisions as to their qualifications are substantially the same as in the case of district councils referred to above. All persons of full age, if British subjects and not in receipt of public relief or alms, who are either owners or occupiers of any ratable property within a municipality are entitled to vote at the election of the mayor and councillors. Provision is made for the nomination and election of the mayor, councillors, and auditors, and for regulating the meetings of the councils.

The first District Councils Act was passed in 1858, was amended in 1862, and was further amended and consolidated by the District Councils Act of 1876, which provided for the continuation of existing districts and for the establishment of new ones by proclamation on the petition of the ratepayers. The revenue of the councils consisted of rents, profits, and income from lands

vested in the council or over which the council had the control and management; fines and penalties enforced under the Act; fees for licences; and general and special rates and loans. Provision was made for the election of councillors, their number, qualification, and retirement; for the election of auditors; the meetings, powers, and functions of councils; the appointment of constables; revenue and expenditure; assessment and rates; and for making by-laws for various purposes. The Act of 1876 was amended from time to time, and was finally amended and consolidated by the Act which is now in force, namely, the District Councils Act of 1887, which has in turn been amended in the years 1899, 1890, 1897, 1904, and 1905. These Acts were again amended by the Local Government Act, 1910. The District Councils Act, 1887, provides for the continuation and amalgamation of existing districts, and for the constitution as a new district of any part of the State containing ratable property capable of yielding upon a rate not exceeding 1s. in the pound the sum of £200. The Governor is authorised to alter the area or boundaries of any district by annexation or by subdivision. New districts are constituted upon petition to the Governor. Every petition must be signed by 50 inhabitants of the part sought to be constituted, and if the proposed district comprises portion of a previously existing district, by a majority of the ratepayers of such portion.

## **INTELLIGENCE AND TOURIST BUREAU.**

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**T**HE Intelligence and Tourist Bureau was established by the Government with the main object of advertising the State for the purpose of developing the tourist traffic, and also attracting settlement from abroad.

An office was first opened to the public on August 17th, 1908, but owing to the rapid growth of the department more commodious and suitable quarters, situated in King William Street (opposite the General Post Office), had to be provided within two years of its inception.

The chief functions of the Bureau are to make known the scenic attractions of South Australia, popularise its holiday resorts, and bring prominently before the outside world its claims as a field for the settler. These functions are carried out by—

Compiling and issuing illustrated books and pamphlets.

Compiling illustrated advertisements, and, when requested, supplying newspapers and magazines with letterpress concerning South Australia.

Organising and booking tours on the coupon system through suitable districts.

Running day excursions by motor around the metropolitan area and through the Mount Lofty Range. A car has been specially built for this purpose.

Sending framed enlargements of South Australian views to the other States and various parts of the world to be hung in places frequented by the public.

The distribution of pictorial postcards, photographs, platino prints, and souvenir albums.

Keeping a representative stock of lantern slides and delivering illustrated lectures throughout the country. This is an effective method of informing the city residents regarding the life and beauty of the rural districts, and *vice versa*. Lantern slides are loaned and comprehensive notes compiled from official sources are supplied to persons competent to lecture on South Australia in other countries.

Answering correspondence and supplying information to inquirers by mail.

Interchanging literature with the Bureaux throughout the Commonwealth.

Formation of local tourist associations in the important tourist centres of the State, with the object of creating a live interest among the residents of the particular locality in the potentialities of their district as a field for tourists. The majority of these associations have issued illustrated and descriptive pamphlets, the cost being borne by those most likely to benefit from a tourist traffic.

As the tourist is often a prospective settler the opportunity is taken to disseminate amongst travellers generally particulars regarding the land laws, lands open for application, and the industries and resources of the State. In this connection a comprehensive handbook, with illustrations and maps, has been prepared for general distribution. A bulletin is sent weekly to the Agent-General and High Commissioner in London for publication in the press of Great Britain. Altogether about 300 paragraphs, bearing on the resources and progress of South Australia, are dispatched annually, and from cuttings which have come to hand it is evident that many of the principal British papers use the information thus received.

Special attention is paid to oversea passenger steamers arriving at the Outer Harbor, where a branch office of the Bureau is maintained. The same facilities for obtaining information exist as at the Adelaide office, and there is also a fine display of wheat, wool, wine, preserved fruit, native timbers, minerals, and local manufactures which constitute a splendid advertisement for the State at its front door. Illustrated literature is placed on the steamers both inwards and outwards at the Harbor, and by an arrangement with the authorities similar matter is distributed on incoming boats at Fremantle and Albany. Literature is also forwarded to the Agent-General for placing on mailboats prior to their departure from England.

The necessary arrangements are made for the progress of special parties through the State, and all advertising for Government departments is conducted by the Bureau.

Information as complete as possible on all matters appertaining to South Australia is collected and collated so that the office shall contain a reliable record of the progress of the State.

Visitors are invited to call at the offices of the Bureau, either at the Outer Harbor or in King William Street, Adelaide, where the publications of the department and general particulars regarding the holiday resorts, industries, and resources of South Australia may be obtained.

## LAW AND CRIME.

### HIGH COURT.

THE High Court of Australia visits Adelaide once a year, generally in the winter months; and at such other times as may be necessary when business arises.

### SUPREME COURT.

The Supreme Court of South Australia was established by a South Australian Ordinance in Council in May, 1837 (7 William IV.). Several Ordinances were passed, which were consolidated by Act No. 31 of 1855-6. The jurisdiction of the Court was enlarged by Acts No. 3 of 1862 and No. 8 of 1867. By the Act No. 116 of 1878 there was a fusion of Law and Equity, and the procedure of the Court was entirely remoulded. There are three Judges, *i.e.*, a Chief Justice and two puisne Judges. On the Civil side in 1912 there were 76 writs at Common Law issued, against an average of 129 in the previous 10 years; 23 of these came to trial, and in respect to the cases judgments were signed for £10,095. There were 113 originating summonses in Equity issued, against an average of 90 in the preceding decade. Fifteen petitions in matrimonial causes were dealt with, compared with an average of 18 in the previous 10 years. In its appellate jurisdiction the Court heard two special appeals from the Insolvency Court, 20 from Local Courts, and one from the Criminal Court. On the Criminal side the figures for 1911 in the Supreme and Circuit Courts (the latest available) showed the following results:—

	Persons Charged.	Convicted.	Discharged or Withdrawn.
Offences against the person ..	28	15	13
Offences against property ..	59	46	13
Forgery and against the currency	12	11	1
Not included in preceding ..	1	1	—
	<hr/> 100	<hr/> 73	<hr/> 27

In the previous decade the average number of persons charged was 116, and of persons convicted 87. In the 10 years 1902-11 there were seven criminals executed, all being white people.

## PROBATE OFFICE.

The Probate Office in 1912 granted probate in 922 applications connected with estates sworn in the aggregate not to exceed £2,073,444; probates resealed numbered 49, and the amounts sworn totalled £77,376; second grants 16, totalling £83,656. Letters of administration numbered 200, and value of estates £136,258; resealed 8, totalling £4,578; second grants 15, aggregating £7,966.

## INDUSTRIAL COURT.

The Court of Industrial Appeals, constituted under the Factories Act of 1907, was remodelled by the Industrial Arbitration Act of 1912 into the Industrial Court. The new institution, which came into being at the beginning of 1913, is presided over by a President, who is appointed by the Governor. He may exercise all the powers and functions of the Court sitting alone, with discretion to appoint two assessors, nominated by the employers and employes respectively. The Court is authorised to deal with appeals from any determination of a wages board, or from any determination referred to it by the Minister of Industry; to deal with reports by the Minister of his inability to appoint a wages board, and reports by a board that it is unable to decide as to the exercise and discharge of its powers and duties. On receipt of such a report from the Minister or a board, the Court may exercise and discharge the powers and duties which the board might have exercised and discharged. The Court may also deal with all industrial matters and disputes referred to it by the Minister or Industrial Registrar as being proper for its consideration in the public interest, by an employer of not less than 20 employes or by not less than 20 employes, in any industry; and also as to any industrial matter or dispute in relation to which a conference has proved abortive. The Court can sit in any place, and its award must secure a living wage to the employes concerned. "Living wage" is defined as "a sum sufficient for the normal and reasonable needs of the average employe living in the locality where the work under consideration is done or to be done." Any association may make an industrial agreement with any other association or person, a duplicate of which must be filed with the Registrar and thereupon becomes binding on all parties thereto, with penalties for breach. Lockouts and strikes are made illegal, with penalties not exceeding £500; or, in the case of a person, imprisonment for not exceeding three months. By direction of the Court, and with the consent of both parties, either party may at its own cost be represented by a solicitor or agent.

Several matters had been brought before the Court at the time of going to press with this Year Book, including two appeals from determinations of wages boards, and applications to put in force the penal provisions for strikes; but the decision of the Court had not been given.

## INSOLVENCY COURT.

The number of business failures and the declared assets and liabilities in the State for 1911 were—Compositions, 84. Insolvencies (voluntary 93, compulsory 13), 106. Insolvents' declared assets totalled £75,347; declared liabilities £47,314, and deficiencies £28,033. The occupations of insolvents were grouped as follows:—

	Bankrupts.	Compositions.
Professional class .. ..	1	4
Domestic class .. ..	3	6
Commercial class .. ..	37	14
Transport and Communication	2	6
Industrial class .. ..	48	36
Primary producers .. ..	13	14
Indefinite .. ..	2	4
	106	84

The complete statistics for 1912 were not available at the end of March.

## LOCAL COURT.

The Local Court, which works under the Local Courts Act of 1886, has a jurisdiction up to £490, and actions must be taken out at the nearest Court to which the parties reside. The business is conducted at Adelaide and at about 80 country Courts. The statistics for 1911 showed—

	Summonses Issued.	Claims Sued for.	Judgments Obtained.
		£	£
Limited Jurisdiction—Up to £10 .. ..	12,125	37,104	967
“ “ £10 to £20 .. ..	1,505	21,672	1,035
Full Jurisdiction—£20 to £50 .. ..	852	26,253	1,611
“ “ £50 to £100 .. ..	305	21,217	958
“ “ £100 and over .. ..	209	59,117	5,388
	14,996	£165,363	£9,959

Amount of judgments by default, £41,322.

At the beginning of the decade the figures were 12,397 summonses, £107,408 claims sued for; £7,478 verdicts obtained, and £29,866 judgments by default.

The actions tried in the Adelaide Local Court during 1912 numbered 357; claims sued for £120,212, and verdicts obtained £4,855. The number of unsatisfied judgment summonses issued was 4,359.

## MAGISTRATES' COURTS.

The total number of cases heard before Magistrates' Courts in the 10 years 1902-11 was 68,262, an average of 6,826 a year; but in the last six years there was a gradual increase from 6,324 in 1906 to 8,435 in 1911. In the same six



years the cases of drunkenness (included in the above figures) increased from 2,483 to 4,673, and in almost all cases convictions were recorded. Charges of lunacy (excluded from above figures) averaged 100·2 a year, of which 14·6 were dismissed or withdrawn, and 85·6 were sent to the asylum.

## CORONERS' COURTS.

Inquests into the circumstances surrounding deaths in 1909 numbered 114; 1910, 89; 1911, 77; 1912, 93.

Verdicts.	1909.	1910.	1911.	1912.
Natural causes .. .. .	24	10	10	12
Accidental deaths .. .. .	33	26	29	50
Suicide .. .. .	23	14	15	21
Various .. .. .	34	39	23	10
	114	89	77	93

Inquests on fires numbered 125 in 1909, 97 in 1910, 85 in 1911, and none in 1912.

## RELIGION.

THE original proclamation of the province, read by Governor Hindmarsh at Glenelg on December 28th, 1836, in its opening paragraph, called upon the colonists "by the practice of sound morality and a strict observance of the ordinances of religion, to prove themselves to be the founders of a great and free colony." The original charter in the Act of 1834 authorised "the appointment of chaplains and clergymen of the Established Church of England and Scotland." Owing to representations to the British Government, only a Colonial Chaplain was appointed, at a salary of £300 from the colonial funds; and the authority to appoint clergymen was repealed by Act in 1838. The Colonial Government in 1846 gave grants in aid of public worship, as well as church and glebe sites, to various bodies in proportion to their adherents. These forms of grant-in-aid were withdrawn in 1851. Most of the religious bodies showed such enterprise in ministering to the spiritual needs of the community in the new capital that Adelaide at an early date became known as "the City of Churches."

The Church of England in South Australia dates from the inception of the State. Its first services in Adelaide were held in a tent formed from a ship's sail, which the Colonial Chaplain (Rev. C. B. Howard) and the Colonial Treasurer (Mr. Osmond Gilles) dragged seven miles on a handtruck from the Old Port. A room in Currie Street used on weekdays did duty for worship on Sundays until the erection of Holy Trinity Church, the pro-Cathedral in which Bishop Short was consecrated in 1847. The first service in the present Cathedral of St. Peter was held on St. Peter's Day, 1876. The diocese of Adelaide was founded in 1847, and the Synod (held every September) was constituted in 1855. There is now a movement afoot for the division of the diocese by the creation of a new see comprising the northern and Eyre's Peninsula districts.

The earliest Roman Catholic meetings were held at the house of a Mr. Phillips, on East Terrace, and the Rev. Dr. Ullathorne, of Sydney, was the first priest who officiated in Adelaide (1840). The first Roman Catholic Church erected was St. Mary's, Morphett Vale. Bishop Murphy (the first suffragan) arrived in 1844, and in 1887 the diocese of Port Augusta was established, and Adelaide was raised to an archbishopric.

The Presbyterian Church of South Australia is the outcome of the union of three bodies which all date back to the early history of the State—the United Secession or United Presbyterian Church, the Established Church of Scotland, and the Presbyterian Free Church. These united on May 10th, 1865. At first there were two presbyteries, Adelaide and Belalie; but the former was subsequently divided into Adelaide and Onkaparinga. The General Assembly meetings are held in May. The church forms part of the Presbyterian Church of Australia.

The first Wesleyan Methodist minister in South Australia was the Rev. William Longbottom. He was wrecked near the mouth of the River Murray

in 1838, on his way from Tasmania to Western Australia, and was gladly received as pastor of the Wesleyan Methodist Society, formed in the previous year by a few lay members. Subsequently the Primitive Methodist, Bible Christian, Methodist New Connexion, and United Methodist Free Churches found a footing in the State. The last named was absorbed into the other bodies, the Bible Christian and Methodist New Connexion joined forces, and in 1900 the three remaining bodies—Wesleyans, Primitive Methodists, and Bible Christians—effected a happy union throughout Australia under the name of the Methodist Church of Australasia (which by the separation of the New Zealand Conference in 1912 became the Methodist Church of Australia), with a General Conference (triennial) and annual State Conferences.

The Baptist Churches are associated in the Baptist Union, which this year celebrates its jubilee. The Baptist Unions of the several States (excepting Queensland) are now federated in the matters of a denominational college for training ministers, foreign mission enterprise, and a denominational newspaper.

The Congregational Church, founded by the Rev. T. Q. Stow in 1837, has multiplied into a number of churches comprised in the Congregational Union and Home Mission (incorporated).

A number of the Evangelical denominations are associated for certain common objects in the Council of Churches. Other bodies (not churches) doing religious work are the Young Men's and Young Women's Christian Associations, the Adelaide City Mission, the Port Adelaide Seamen's Mission, and Angas College (for missionary students). A property at Wayville has been given (with £4,000 cash) for the establishment of an undenominational Bible Institute. Collegiate schools for boys or girls, or separate institutions for both, are owned by several denominations, besides theological institutions

## CHURCH STATISTICS.

	Clergy.	Members.	Churches.	Sittings.	Other Buildings for Worship.
*Anglican .. .. .	107	16,521	201	37,056	115
*Roman Catholic .. .. .	75	—	117	—	—
*Presbyterian .. .. .	18	2,004	38	8,570	18
†Methodist .. .. .	153	23,095	490	77,694	204
*Congregational .. .. .	49	—	65	14,200	18
*Baptist .. .. .	42	5,833	72	16,785	32
*Churches of Christ .. .. .	38	5,824	42	11,600	10
†Evangelical Lutheran .. .. .	27	5,782	162	23,000	—
*Salvation Army .. .. .	—	—	46	—	—
†Seventh Day Adventist .. .. .	—	622	7	960	8
†Free Presbyterian .. .. .	—	—	5	600	2
†Unitarian .. .. .	1	—	2	325	—
*Society of Friends .. .. .	—	—	2	300	4
†New Church .. .. .	1	—	1	150	—
†Hebrew .. .. .	2	—	1	300	—
†Christadelphian .. .. .	—	—	1	300	—
†Latter Day Saints .. .. .	—	—	—	100	3
	513	58,681	1,252	191,840	414

\* 1912. † 1913. ‡ 1911.

N.B.—Where no figures are given, statistics were not available.

## SUNDAY SCHOOLS.

The following are statistics from the returns of the principal denominations, published in 1912-13 :—

	Schools.	Teachers.	Scholars.
Church of England .. .. .	—	989	11,085
Roman Catholic .. .. .	—	—	—
Presbyterian .. .. .	41	255	2,199
Methodist .. .. .	444	4,038	33,348
Congregational .. .. .	62	781	5,553
Baptist .. .. .	81	861	7,615
Churches of Christ .. .. .	40	442	4,400
Evangelical Lutheran .. .. .	—	—	164
	668	7,366	64,364

The Government returns for 1911 showed a total of 944 Sunday schools with 7,435 teachers and 66,296 scholars ; but no details of their distribution among the denominations are published.

## CHARITABLE INSTITUTIONS.

FOR a community of little more than 400,000 people, South Australia has an astonishing number of philanthropic institutions—in many instances on a large scale—to the support of which private donations wholly or largely assist. Beside the Destitute, State Children's, and Lunacy Departments—wholly under the Government ægis—and the hospitals, which number 21, that are mainly so—there are four aboriginal mission stations towards the upkeep of which private benevolence contributes about one-twelfth the income from all sources. The following (from the official statistics at end of 1911) show the other principal establishments, with the number of inmates, at end of year :—Lying-in home (Queen's Home), 44 ; four orphan asylums, 177 ; five neglected children homes, 122 ; three reformatories, 81 ; three deaf and dumb institutions, 176 ; home for weakminded children, 43 ; creche, say, 16 ; Kalyra Sanatorium, 39 ; convalescent hospital, 34 ; six refuges and night shelters, 185 ; home for incurables, 116 ; and four other institutions, 116. The hospitals averaged 636 resident patients daily, and all other charitable institutions (Government and private) had 3,175 inmates at the end of the year. Leaving out of consideration the hospitals, Lunatic Asylum, and Destitute Asylum, the Government aid to the other institutions amounted to £15,509, and private beneficence to £25,752.

In the present year the Blind and Deaf and Dumb Institution at Brighton has received private gifts aggregating £5,000 for extension work, entitling it to a subsidy from the Government of an equal amount.

## LOCAL OPTION IN SOUTH AUSTRALIA.

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IN 1908 the Parliament of South Australia passed an Act to consolidate and amend its laws relating to the supplying of intoxicating liquors, the exercise of local option with regard thereto, the licensing of billiard and bagatelle tables, and for other purposes.

This statute provided, *inter alia*, under its local option provisions—that on the presentation of a petition signed by a quorum of the electors (being those who are registered as electors on the House of Assembly roll) resident in any local option district, a local option poll may be taken in such local option district on the day fixed for the next general parliamentary election, but not within one and a half years of the last preceding local option poll; that the electoral districts may be conveniently divided into local option districts, which has been done; that the following resolutions—

- (1) That the number of licences be reduced,
- (2) That the number of licences be not increased or reduced,
- (3) That the licensing bench may, in their discretion, increase the number of licences,

should be submitted at a local option poll to the electors for determination as regards publicans', storekeepers' wine, storekeepers' Australian wine, and registration of club licences under the Act.

Petitions were duly presented, prior to the recent general election, by the South Australian Temperance Alliance praying that local option polls be taken in the following 24 local option districts:—Wallaroo, West Torrens, Mount Gambier, Millicent, Mount Barker, Tatiara, Kooringa, Petersburg, Orroroo, Wooroorra, Stanley, North Adelaide, Barossa, Strathalbyn, Kangaroo Island, Adelaide, Naracoorte, Yatala, Onkaparinga, Gladstone, Newcastle, Yorke Peninsula, Gumeracha, Light.

His Excellency the Governor, by order in council, directed that local option polls should be taken in the above-mentioned local option districts, which was done on the 2nd April, 1910, the day on which the general parliamentary elections were held. The result of these polls was that in all districts in which polls were taken, excepting Wallaroo, the determination of the electors at the poll was in favor of the second resolution, *i.e.*, that the number of licences should not be increased or reduced.

Previous to the passing of the 1908 Act, and under somewhat similar provisions, local option polls were taken in February, 1906, in six districts, *viz.*, Adelaide, North Adelaide, Port Adelaide, East Torrens, West Torrens, and Wallaroo. On this occasion in all but the Adelaide district (which was for No. 2), the vote was in favor of the first resolution. Subsequently, however, in respect to four of the districts where reduction had been carried,

successful appeals against these decisions on the ground of technical irregularities were made, leaving Port Adelaide as the one district in which a one-third reduction was effected. A second poll was taken in the East Torrens district in December, 1907, resulting in a one-third reduction. The Sturt district held a poll on May 2nd, 1908, when reduction was carried, and in July of the same year a similar poll in the Millicent district resulted in favor of "No change."

At the present time (1913), approximately 7 per cent. of the State's population is in areas where no local option poll has yet been held. Twenty-nine per cent. of the people are living in districts where a reduction of one-third of the licences has been made, the other 64 per cent. being resident in territories where the "No increase, no decrease," provision applies.

## **OCCUPATIONS OF THE PEOPLE.**

AT the time of the last census (April, 1911), the Federal Statistician collected information dealing with the "occupations of the people." There are eight classes under which the people are tabulated, namely:—

1. The professional, which includes those engaged in Government, defence, law, ministering to religion, charity, health, education, &c.
2. Domestic, engaged in supplying board and lodging, domestic service.
3. Commercial, which covers dealers in all manner of articles.
4. Transport and communication, which covers those engaged in traffic on railways, roads, seas, and rivers, postal, telegraph and telephone services, messengers, &c.
5. Industrial, including workers under all headings.
6. Primary producers.
7. Independent.
8. Dependents on natural guardians or supported by voluntary or State contributions, or under legal detention.
9. Unspecified.

The figures for South Australia show the following totals:—

Class.	Male.	Female.
1. Professional—		
Government, &c. .. ..	2,169	84
Religion, &c. .. ..	4,475	4,445
Totals .. ..	6,644	4,529
2. Domestic—		
Board and lodging .. ..	1,875	2,908
Domestic service .. ..	1,543	11,152
Totals .. ..	3,418	14,060
3. Commercial—		
Property and finance .. ..	3,484	597
Art and mechanics .. ..	1,475	384
Textile fabrics .. ..	2,039	1,495
Food and drinks .. ..	6,334	747
Animals, &c. .. ..	1,934	68
Fuel and light .. ..	585	7
Metals and minerals .. ..	1,377	63
Undefined .. ..	4,959	1,312
Speculators .. ..	9	1
Storage .. ..	108	—
Totals .. ..	22,304	4,674

4. Transport, &c.—			
Railway	.. .. .	5,052	.. 13
Roads	.. .. .	3,765	.. 21
Seas and rivers	.. .. .	5,339	.. 36
Postal, &c.	.. .. .	1,316	.. 277
Messengers	.. .. .	51	.. —
Totals	.. .. .	15,523	.. 347
5. Industrial—			
Art and medicine	.. .. .	10,220	.. 609
Textile fabrics	.. .. .	2,456	.. 7,087
Food drinks, &c.	.. .. .	3,710	.. 307
Animals, &c.	.. .. .	987	.. 6
Metals and minerals	.. .. .	7,362	.. 30
Fuel and light	.. .. .	846	.. 13
Construction	.. .. .	11,837	.. 12
Disposal of dead, &c...	.. .. .	498	.. 2
Undefined	.. .. .	6,469	.. 115
Totals	.. .. .	44,385	.. 8,181
6. Primary Producers—			
Agricultural	.. .. .	36,590	.. 1,005
Pastoral	.. .. .	5,898	.. 389
Capture of animals	.. .. .	328	.. 1
Fisheries	.. .. .	434	.. —
Forestry	.. .. .	355	.. —
Water conservation	.. .. .	781	.. 2
Mining and quarrying	.. .. .	3,256	.. 9
Totals	.. .. .	47,642	.. 1,406
7. Independent			
	.. .. .	931	.. 761
8. Dependents—			
On natural guardians	.. .. .	61388	.. 165,646
Supported by State, &c.	.. .. .	858	.. 751
Criminal class	.. .. .	29	.. 35
Totals	.. .. .	62,275	.. 166,432
9. Unspecified			
	.. .. .	4,236	.. 810
Grand total	.. .. .	<u>207,358</u>	.. <u>201,200</u>



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MAP  
of  
**SOUTH AUSTRALIA**  
1913.

**NOTE: AGRICULTURAL LANDS**—Large Areas are in course of Survey and will be offered as Surveys are completed. About 3,500,000 Acres will be offered during the next few years.

**IRRIGATION AND RECLAMATION.**—Areas are being prepared for offer in the Valley of the River Murray.

**PASTORAL LANDS.**—Large Areas available for occupation.

**REFERENCE.**

- Existing Railway Lines shown thus —————
- Authorized Railways shown thus - - - - -

