

SECTION III.

PHYSIOGRAPHY.

§ 1. General Description of Australia.

1. **Geographical Position.**—The Australian Commonwealth, which includes the island continent of Australia proper and the island of Tasmania, is situated in the Southern Hemisphere, and comprises in all an area of about 2,974,581 square miles, the mainland alone containing about 2,948,366 square miles. Bounded on the west and east by the Indian and Pacific Oceans respectively, it lies between longitudes 113° 9' E. and 153° 39' E., while its northern and southern limits are the parallels of latitude 10° 41' S. and 39° 8' S., or, including Tasmania, 43° 39' S. On its north are the Timor and Arafura Seas and Torres Strait, on its south the Southern Ocean and Bass Strait.¹

(i.) *Tropical and Temperate Regions.* Of the total area of Australia the lesser portion lies within the tropics. Assuming, as is usual, that the latitude of the Tropic of Capricorn is 23° 30' S.², the areas within the tropical and temperate zones are approximately as follows:—

**AREAS OF TROPICAL AND TEMPERATE REGIONS
OF STATES WITHIN TROPICS.**

Areas.	Queensland.	Western Australia.	Northern Territory.	Total.
	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.
Within Tropical Zone	359,000	364,000	426,320	1,149,320
Within Temperate Zone	311,500	611,920	97,300	1,020,720.
Ratio of Tropical part to whole State ...	0.535	0.373	0.814	0.530
Ratio of Temperate part to whole State ...	0.465	0.627	0.186	0.470

Thus the tropical part is roughly about one-half (0.530) of the three territories mentioned above, or about five-thirteenthths of the whole Commonwealth (0.386). See hereafter Meteorology 3.

2. **Area of Australia compared with that of other Countries.**—That the area of Australia is greater than that of the United States of America, that it is four-fifths of that of Canada, that it is more than one-fourth of the area of the whole of the British Empire, that it is nearly three-fourths of the whole area of Europe, that it is more than 25 times as large as any one of the following, viz., the United Kingdom, Hungary, Italy, the Transvaal, and Ecuador, are facts which are not always adequately realised. It is this great size, taken together with the fact of the limited population, that gives to the problems of Australian development their unique character, and its clear comprehension is essential in any attempt to understand those problems.

1. The extreme points are "Steep Point" on the west, "Cape Byron" on the east, "Cape York" on the north, "Wilson's Promontory" on the south, or, if Tasmania be included, "South East Cape." The limits, according to the 1903-4 edition of "A Statistical Account of Australia and New Zealand," p. 2, and, according to Volume XXV. of the "Encyclopædia Britannica," tenth edition, p. 787, are respectively 113° 5' E., 153° 16' E., 10° 39' S., and 39° 11½' S., but these figures are obviously defective. A similar inaccuracy appears in the XI. edition of the Encyclopædia.

2. Its correct value for 1914 is 23° 27' 1".70, and it decreases about 0".47 per annum.

The relative magnitudes may be appreciated by a reference to the following table, which shows how large Australia is compared with the countries referred to, or *vice versa*. Thus, to take line I, we see that Europe is about $1\frac{2}{3}$ times (1.29554) as large as Australia, or that Australia is about three-quarters (more accurately 0.77) of the area of Europe. The various countries and the areas thereof are given as at 30th June, 1914.

SIZE OF AUSTRALIA IN COMPARISON WITH THAT OF OTHER COUNTRIES.

Commonwealth of Australia		2,974,581 square miles.	
Country.	Area.	Australian Commonwealth in comparison with—	In comparison with Australian C ^w alth.
Continents—			
	Sq. miles.		
Europe	3,853,393	0.77	1.29554
Asia	16,769,843	0.18	5.63974
Africa	12,350,160	0.24	4.15188
North and Central America and West Indies ...	8,562,234	0.35	2.87846
South America	7,556,371	0.39	2.54031
Australasia and Polynesia	3,462,528	0.85	1.16403
Total, exclusive of Arctic and Antarctic Conts	52,554,529	0.06	17.66759
Europe—			
Russia (inclusive of Poland, Ciscaucasia & Finland)	2,122,999	1.40	0.71371
Austria-Hungary (incl. of Bosnia & Herzegovina)	261,319	11.38	0.08785
Germany	208,780	14.25	0.07018
France	207,054	14.37	0.06969
Spain	194,783	15.27	0.06548
Sweden	172,963	17.20	0.05814
Norway	124,130	23.96	0.04173
United Kingdom	121,633	24.45	0.04089
Italy	110,659	26.88	0.03720
Denmark (inclusive of Iceland)	55,338	53.73	0.01861
Rumania	53,689	55.40	0.01805
Greece	41,933	70.94	0.01409
Bulgaria	39,529	68.65	0.01329
Portugal	35,490	83.32	0.01193
Servia	33,891	87.76	0.01139
Switzerland	15,976	186.22	0.00537
Netherlands	12,648	235.29	0.00425
Belgium	11,373	261.78	0.00382
Albania	11,317	262.84	0.00380
Turkey	10,832	273.34	0.00366
Montenegro	5,603	530.88	0.00188
Luxemburg	998	2941.18	0.00034
Andorra	175	16997.61	0.00006
Malta	118	25423.76	0.00004
Liechtenstein	65	45793.55	0.00002
San Marino	38	78278.45	0.00001
Monaco	8	371822.63	...
Gibraltar	2	1487290.50	...
Total, Europe	3,853,393	0.77	1.29544
Asia—			
Russia (inclus. of Transcaucasia, Siberia, Steppes, Transcaspia, Turkestan and inland waters) ...	6,641,587	0.45	2.23278
China and Dependencies... ..	3,913,560	0.76	1.31567
British India... ..	1,093,074	2.72	0.36747
Independent Arabia	966,700	3.08	0.32499
Turkey (including Samos)	699,522	4.25	0.23516
Feudatory Indian States... ..	709,583	4.19	0.23855
Persia	628,000	4.74	0.21112
Dutch East Indies	584,611	5.09	0.19654
Japan (and Dependencies)	263,046	11.31	0.08843

Country.	Area.	Australian Commonwealth in comparison with—	In comparison with Australian C'wealth.
ASIA (continued)—	Sq. Miles.		
Afghanistan	250,000	11.90	0.08405
Siam	195,000	15.25	0.06555
Philippine Islands (inclusive of Sulu Archipelago)	120,000	23.60	0.04236
Laos	98,000	30.35	0.03295
Bokhara	83,000	35.83	0.02790
Omán	82,000	36.27	0.02757
British Borneo and Sarawak	73,106	40.68	0.02457
Nepál	54,000	55.10	0.01815
Annam	52,100	57.08	0.01752
Tonking	46,400	64.10	0.01560
Cambodia	45,000	66.10	0.01513
Federated Malay States	27,506	108.14	0.00925
Ceylon	25,331	117.37	0.00852
Malay Protectorate	24,600	120.91	0.00827
Khiva	24,000	123.94	0.00807
Cochin China... ..	20,000	148.73	0.00672
Bhután	20,000	148.73	0.00672
Aden and Dependencies	9,005	330.32	0.00303
Timor, etc. (Portuguese Indian Archipelago)	7,330	406.50	0.00246
Brunei	4,000	743.64	0.00134
Cyprus	3,584	833.33	0.00120
Goa, Damao, and Diu	1,638	1818.18	0.00055
Straits Settlements	1,600	1851.85	0.00054
Sokotra and Kuria Muria Islands	1,382	2152.22	0.00046
Hong Kong and Dependencies	405	7344.64	0.00013
Wei-hai-wei	285	10623.50	0.00009
Bahrein Islands	250	11898.32	0.00008
Kiauchau	200	14872.90	0.00007
French India (Pondicherry, etc.)	196	15176.43	0.00007
Kwang Chan Wan	190	15655.69	0.00006
Labuan	30	99152.70	0.00001
Italian Concession, Tientsin	18	165254.50	0.00001
Macao, etc.	4	743643.25	...
Total, Asia	16,769,843	0.18	5.63974
Africa—			
French Sahara	1,544,000	1.93	0.51907
Turkey (inclusive of Egypt and Soudan)	1,384,520	2.14	0.46545
French Equatorial Africa	1,003,600	2.96	0.33739
Belgian Congo	909,654	3.27	0.30582
French Military District of the Niger	534,124	5.57	0.17956
Angola	484,800	6.14	0.16298
Union of South Africa	473,100	6.28	0.15905
Rhodesia	438,575	6.78	0.14744
Abyssinia	432,432	6.88	0.14538
Tripoli and Benghezi	406,000	7.33	0.13649
German East Africa	394,180	7.74	0.12915
Mauretania	344,967	8.62	0.11597
Algeria (including Algerian Sahara) ...	343,500	8.66	0.11548
Nigeria and Protectorate	336,080	8.85	0.11298
German South-west Africa	322,450	9.23	0.10840
Senegambia and Niger	302,136	9.84	0.10157
Portuguese East Africa	293,400	10.14	0.09864
Bechuanaland Protectorate	275,000	10.82	0.09245
British East Africa Protectorate	246,882	12.05	0.08298
Madagascar	226,016	13.16	0.07598
Uganda Protectorate	223,500	13.31	0.07514
Morocco	219,000	13.58	0.07362
Kamerun	191,130	15.56	0.06425
Italian Somaliland	139,430	21.34	0.04687

Country.	Area.	Australian Commonw'lth in comparison with—	In comparison with Australian C'wealth.
AFRICA (continued)—	Sq. miles.		
Ivory Coast	125,538	23.69	0.04220
French Guinea	92,257	32.24	0.03101
Gold Coast Protectorate (with North. Territories)	80,000	37.18	0.02689
Senegal	73,973	40.21	0.02487
Rio de Oro, etc.	73,000	40.75	0.02454
British Somaliland	68,000	43.74	0.02286
Tunis	50,000	59.49	0.01631
French Somali Coast	46,320	64.21	0.01557
Eritrea	45,800	64.95	0.01540
Liberia	40,000	74.36	0.01345
Nyasaland Protectorate	39,315	75.66	0.01322
Dahomey	37,527	79.26	0.01261
Togoland	33,700	88.26	0.01133
Sierra Leone and Protectorate	31,000	95.95	0.01042
Portuguese Guinea	13,940	213.22	0.00469
Spanish Guinea (Rio Muni, etc.)	12,000	247.88	0.00403
Basutoland	11,716	253.89	0.00393
Swaziland	6,536	455.10	0.00219
Gambia and Protectorate	4,500	661.02	0.00151
Cape Verde Islands	1,480	2000.00	0.00050
Zanzibar	1,020	2941.18	0.00034
Réunion	970	3066.57	0.00032
Fernando Po, etc.	814	3654.28	0.00027
Mauritius and Dependencies	809	3499.51	0.00027
Comoro Islands	650	4576.27	0.00022
St. Thomas and Prince Islands	360	3262.73	0.00012
Seychelles	156	19067.82	0.00005
Mayotte, etc.	140	21247.01	0.00005
Spanish North and West Africa	82	36275.37	0.00003
St. Helena	47	63288.95	0.00002
Ascension	34	87487.65	0.00001
Total, Africa	12,350,160	0.24	4.15200
North and Central America and West Indies—			
Canada	3,729,665	0.80	1.25385
United States (exclusive of Alaska, &c.)	2,973,890	1.00	0.99976
Mexico	785,881	3.78	0.26420
Alaska	590,884	5.03	0.19864
Newfoundland and Labrador	162,734	18.28	0.05471
Nicaragua	49,200	60.46	0.01654
Guatemala	48,290	61.61	0.01623
*Greenland	46,740	63.65	0.01571
Honduras	46,250	64.31	0.01555
Cuba	44,164	67.35	0.01484
Costa Rica	23,000	129.32	0.00773
San Domingo	18,045	164.74	0.00607
Haiti	10,204	291.55	0.00343
British Honduras	8,598	345.96	0.00289
Salvador	7,225	411.52	0.00243
Bahamas	4,404	675.43	0.00148
Jamaica	4,207	707.05	0.00141
Porto Rico	3,606	824.90	0.00121
Trinidad and Tobago	1,868	1592.39	0.00063
Leeward Islands	715	4160.25	0.00024
Guadeloupe and Dependencies	688	4323.52	0.00023
Windward Islands	517	5753.54	0.00017

* Danish colony only.

Country.	Area.	Australian Commonwealth in comparison with—	In comparison Australian C'wealth.
N. & C. AMERICA & W. INDIES (continued)—	Sq. miles.		
Curaçao and Dependencies	403	7381.09	0.00014
Martinique	385	7807.30	0.00013
Turks and Caicos Islands	166	17925.18	0.00005
Barbados	166	17925.18	0.00005
Danish West Indies	138	21554.94	0.00005
St. Pierre and Miquelon	93	31984.74	0.00003
Cayman Islands	89	33422.26	0.00003
Bermudas	19	156556.89	...
Total, N. and C. America and W. Indies ...	8,562,234	0.35	2.87846
South America—			
Brazil (inclusive of Acre)... ..	3,364,564	0.88	1.13110
Argentine Republic	1,153,119	2.58	0.38766
Peru	722,461	4.12	0.24288
Bolivia	608,195	4.89	0.20446
Colombia	461,606	6.44	0.15518
Venezuela	393,976	7.55	0.13244
Chile	292,580	10.17	0.09836
Paraguay	165,000	18.03	0.05546
Ecuador	116,000	25.64	0.03900
British Guiana	90,277	32.95	0.03035
Uruguay	72,153	41.22	0.02426
Dutch Guiana	46,060	64.60	0.01548
Panamá	32,380	91.86	0.01088
French Guiana	30,500	97.56	0.01025
Falkland Islands	6,500	456.62	0.00219
South Georgia	1,000	2974.58	0.00034
Total, South America ...	7,556,371	0.39	2.54031
Australasia and Polynesia—			
Commonwealth of Australia	2,974,581	1.00	1.00000
Dutch New Guinea	151,789	19.60	0.05103
New Zealand and Dependencies	104,751	23.39	0.03522
Papua	90,540	32.85	0.03044
Kaiser Wilhelm Land	70,000	42.50	0.02353
Bismarck Archipelago	20,000	148.73	0.00672
British Solomon Islands	14,800	204.36	0.00497
New Caledonia and Dependencies	8,548	347.99	0.00287
Fiji	7,435	400.08	0.00250
Hawaii	6,449	460.83	0.00217
German Solomon Islands, etc.	5,160	576.46	0.00173
New Hebrides	5,100	583.25	0.00171
French Establishments in Oceania	1,520	1960.78	0.00051
German Samoa	1,000	2974.58	0.00034
Tonga	390	7627.13	0.00013
Guam	210	14164.67	0.00007
Gilbert Islands	166	17919.16	0.00006
Samoa (U.S.A. part)	79	37652.92	0.00003
Norfolk Island	10	297458.10	...
Total, Australasia and Polynesia ...	3,462,528	0.85	1.16403
British Empire... ..	11,531,141	0.26	3.84765

3. **Relative Size of Political Subdivisions.**—As already stated, Australia consists of six States and the Northern and Federal Territories. The areas of these, in relation to one another and to the total of Australia, are shewn in the following table :—

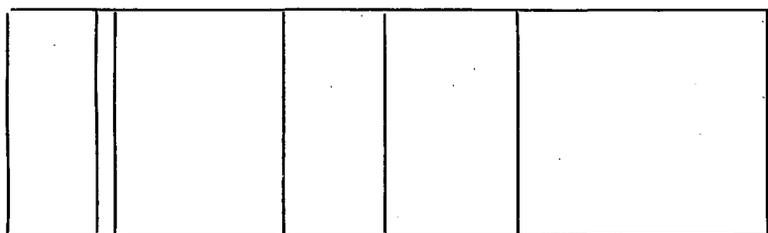
RELATIVE SIZES OF STATES AND COMMONWEALTH.

State.	Area.	Ratio which the Area of each State and Territory bears to that of other States, Territories and Commonwealth.							
		N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	N. Ter.	C'wth.
	Sq. miles.								
New South Wales	309,460	1.000	3.522	0.462	0.814	0.317	11.806	0.591	0.104
Victoria ...	87,884	0.284	1.000	0.131	0.231	0.090	3.352	0.168	0.030
Queensland ...	670,500	2.166	7.629	1.000	1.764	0.687	25.577	1.280	0.225
South Australia	380,070	1.228	4.325	0.567	1.000	0.389	14.498	0.726	0.128
West. Australia	975,920	3.153	11.105	1.455	2.568	1.000	37.228	1.364	0.328
Tasmania ...	26,215	0.085	0.298	0.039	0.069	0.027	1.000	0.050	0.009
North. Territory	523,620	1.691	5.958	0.781	1.378	0.537	19.974	1.000	0.176
Federal Territory	912	0.003	0.010	0.001	0.003	0.001	0.034	0.002	0.000 ¹
Commonwealth	2,974,581	9.610	33.847	4.436	7.827	3.048	113.469	5.681	1.000

1. The correct decimal is 0.0003.

Thus, looking at the top line, New South Wales is seen to be over three-and-a-half times as large as Victoria (3.522) and less than one-half the size of Queensland (0.462); or again, looking at the bottom line, the Commonwealth is shewn to be more than nine-and-a-half times as large as New South Wales (9.610), and nearly thirty-four times as large as Victoria (33.847).

These relative magnitudes are shewn in the small diagram below. It may be added that Papua (or British New Guinea), with its area of 90,540 square miles, is 0.030 of the area of the Commonwealth. The comparatively small size of the Federal Territory prevents its being shewn in this diagram.



	N.S.W.	V.	Qld.	S.A.	N.T.	W.A.	Tas.
% of total	10	3	22	13	18	33	1

4. **Coastal Configuration.**—There are no striking features in the configuration of the coast; the most remarkable indentations are the Gulf of Carpentaria on the north and the Great Australian Bight on the south. The York Peninsula on the extreme north is the only other remarkable feature in the outline. In Year Book No. 1, an enumeration of the features of the coast-line of Australia was given (see pp. 60 to 68).

(i.) *Coast-line.* The lengths of coast-line, exclusive of minor indentations, both of each State and of the whole continent, are shewn in the following table :—

SQUARE MILES OF TERRITORY PER MILE OF COAST LINE.

STATES AND CONTINENT.

State.	Coast-line.	Area ÷ Coast-line.	State.	Coast-line.	Area ÷ Coast-line.
	Miles.	Sq. miles.		Miles.	Sq. miles.
New South Wales ¹	700	443	South Australia ...	1,540	247
Victoria ...	680	129	Western Australia	4,350	224
Queensland ...	3,000	223	Continent ² ...	11,310	261
Northern Territory	1,040	503	Tasmania ...	900	29

1. Including Federal Territory.

2. Area 2,948,366 square miles.

For the entire Commonwealth this gives a coast-line of 12,210 miles, and an average of 244 square miles for one mile of coast line. According to Strelbitski, Europe has only 75 square miles of area to each mile of coast line, and, according to recent figures, England and Wales have only one-third of this, viz., 25 square miles.

(ii.) *Historical Significance of Coastal Names.* It is interesting to trace the voyages of some of the early navigators by the names bestowed by them on various coastal features—thus Dutch names are found on various points of the Western Australian coast, in Nuyt's Archipelago, in the Northern Territory and in the Gulf of Carpentaria; Captain Cook can be followed along the coasts of New South Wales and Queensland; Flinders' track is easily recognised from Sydney southwards, as far as Cape Catastrophe, by the numerous Lincolnshire names bestowed by him; and the French navigators of the end of the eighteenth and the beginning of the nineteenth century have left their names all along the Western Australian, South Australian, and Tasmanian coasts.

5. *Geographical Features of Australia.*—In each preceding issue of this Year Book, fairly complete information has been given concerning some special geographical element. Thus No. 1 Year Book, pp. 60-68, contains an enumeration of Coastal features. No. 2, pp. 66-67, deals with Hydrology, No. 3, pp. 59-72, with Orography, No. 4, pp. 59-82, with the Lakes of Australia, No. 5, pp. 51-80, with the Islands of Australia, No. 6, pp. 55-66, with the Mineral Springs of Australia, and No. 7, pp. 56-58, with the Salient Features in the Geological History of Australia, with special reference to changes^s of climate. This practically completes the description of the ordinary physical features. An orographical or vertical relief map of Australia will be found on p. 53.

§ 2. The Fauna of Australia.

An authoritative article describing in some detail the principal features of the Fauna of Australia was given in Year Books No. 1 (see pp. 103 to 109) and No. 2 (see pp. 111 to 117), while a synoptical statement appeared in No. 3 (see pp. 73 to 76). Considerations of space will, however, preclude the inclusion in this issue of more than a passing reference to the subject.

§ 3. The Flora of Australia.

In Year Books No. 1 (see pp. 109 to 114) and No. 2 (see pp. 117 to 122) a fairly complete though brief account was given of the Flora of Australia, and in Year Book No. 3 similar information in a greatly condensed form will be found on pp. 76 to 78. Space in this issue will not permit of more than a mere reference to preceding volumes.

A special article dealing with Australian fodder plants, contributed by J. H. Maiden, Esq., F.L.S., Government Botanist of New South Wales, and Director of the Botanic Gardens, Sydney, appeared in Official Year Book No. VI., pp. 1190-6.

§ 4. Seismology in Australia.

A brief statement regarding the position of seismology and seismological record in Australia appears in Year Book No. 4, pp. 82 and 83.

Barisal Guns. Reference may be made here to an interesting pamphlet published by Dr. J. Burton Cleland, in which the author sums up the available information regarding the peculiar explosive or booming noises heard at times in Australia as well as in other parts of the world. As far as inland Australia, at all events, is concerned, it seems clear that the explosions are of earth origin, and are probably due to the sudden sundering of immense rock masses, either as a result of climatic influences, or through folding movements in the earth's crust.

§ 5. The Geology of Australia.

1. **General.**—Independent and authoritative sketches of the geology of each State were given in Year Books No. 1 (see pp. 73 to 103) and No. 2 (see pp. 78 to 111). Want of space has precluded the insertion of these sketches in the present issue of the Year Book, and it has not been considered possible to give anything like a sufficient account of the geology of Australia by presenting here a mere condensation of these sketches. Reference must, therefore, be made to either Year Book No. 1 or No. 2, *ut supra*.

2. **Geological Map of Australia.**—The map of the Geology of Australia on page 54, shows the geographical distribution of the more important geological systems and formations.

§ 6. Climate and Meteorology of Australia.¹

1. **Introductory.**—In preceding Year Books some account was given of the history of Australian meteorology, including reference to the development of magnetic observations and the equipment for the determination of various climatological records. (See Year Book No. 3, pp. 79, 80.) In Year Book No. 4, pp. 84 and 87, will be found a short sketch of the creation and organisation of the Commonwealth Bureau of Meteorology and a resumé of the subjects dealt with at the Meteorological Conference of 1907. Space will not permit of the inclusion of this matter in the present issue.

2. **Meteorological Publications.**—The following publications are issued daily from the Meteorological Bureau, viz.:—(i.) Weather charts. (ii.) Rainfall maps. (iii.) Bulletins, Interstate, shewing pressure, temperature, wind, rain, cloud extent, and weather.

The Bulletins of Climatology are as follows:—No. 1.—A general discussion of the climate and meteorology of Australia, illustrated by one map and diagrams. No. 2.—A discussion of the rainfall over Australia during the ten years (1897-1906) compared with the normal, illustrated by one map. No. 3.—Notes and statistics of the remarkable flood rains over south-eastern Australia during the winter of 1909, illustrated

¹ Prepared from data supplied by the Commonwealth Meteorologist H. A. Hunt, Esquire, F.R.Met.Soc.

by five maps and diagrams. No. 4.—A discussion of the monthly and seasonal rainfall over Australia, illustrated by one map and diagram. No. 5.—An investigation into the possibility of forecasting the approximate winter rainfall for Northern Victoria, illustrated by two diagrams. No. 6.—The physiography of the proposed Federal Territory at Canberra, illustrated by a relief map and 21 plates. No. 7.—On the climate of the Yass-Canberra district, illustrated by one map. No. 8.—Physiography of Eastern Australia, with 28 text illustrations. No. 9.—The climate of Australia, with charts and diagrams, prepared for the Federal Handbook of Australia.

Commencing with January 1910, the "Australian Monthly Weather Report," containing statistical records from representative selected stations, with rain maps and diagrams, etc., is being published. Complete rainfall and other climatological data are published in annual volumes of meteorological statistics for each State separately.

3. General Description of Australia.—In the general description of Australia, page 48, it is pointed out that a considerable portion (0.530) of three divisions of the Australian Commonwealth is north of the tropic of Capricorn, that is to say, within the States of Queensland and Western Australia, and the Northern Territory, no less than 1,149,320¹ square miles belong to the tropical zone, and 1,020,720 to the temperate zone. The whole area of the Commonwealth within the temperate zone, however, is 1,825,261² square miles, thus the tropical part is about 0.386, or about five-thirteenth of the whole, or the "temperate" region is half as large again as the "tropical" (more accurately 1.591). By reason of its insular geographical position, and the absence of striking physical features, Australia is, on the whole, less subject to extremes of weather than are regions of similar area in other parts of the globe; and latitude for latitude Australia is, on the whole, more temperate.

The altitudes of the surface of Australia range up to a little over 7300 feet, hence its climate embraces a great many features, from the characteristically tropical to what is essentially alpine, a fact indicated in some measure by the name Australian Alps given to the southern portion of the great Dividing Range.

While on the coast the rainfall is often abundant and the atmosphere moist, in some portions of the interior the rainfall is very limited, and the atmosphere dry. The distribution of forest, as might be expected, and its climatic influence, is consequently very variable. In the interior there are on the one hand fine belts of trees, on the other there are large areas which are treeless, and where the air is hot and parched in summer. Again, on the coast, even as far south as latitude 35°, the vegetation is tropical in its luxuriance, and also somewhat so in character. Climatologically, therefore, Australia may be said to present a great variety of features. The various climatological characteristics will be referred to in detail.

4. Meteorological Divisions.—The Commonwealth Meteorologist has divided Australia, for climatological and meteorological purposes, into five divisions. The boundaries between these may be thus defined:—(a) Between divisions I. and II., the boundary between South and Western Australia, viz., the 129th meridian of east longitude; (b) between divisions II. and III., starting at the Gulf of Carpentaria, along the Norman River to Normanton, thence a straight line to Wilcannia on the Darling River, New South Wales; (c) between divisions II. and IV., from Wilcannia along the Darling River to its junction with the Murray; (d) between divisions II. and V., from the junction of the Darling and Murray Rivers, along the latter to Encounter Bay; (e) between divisions III. and IV., starting at Wilcannia, along the Darling, Barwon, and Dumaresq Rivers to the Great Dividing Range, and along that range and along the

1. In the article "Australia" in the Encyclopædia Britannica, Vol. XXX., p. 796, this area is given as 1,145,000 square miles.

2. Given as 1,801,700 square miles in the work above quoted, where, however, the statistics are said "to refer only to the continental States of the Federation, not to Tasmania."

watershed between the Clarence and Richmond Rivers to Evans Head on the east coast of Australia ; (f) between divisions IV. and V., from the junction of the Darling and Murray Rivers along the latter to its junction with the Murrumbidgee, along the Murrumbidgee to the Tumut River, and along the Tumut River to Tumut, thence a straight line to Cape Howe ; (g) division V. includes Tasmania.

The population included within these boundaries at the Census of the 3rd April, 1911, was approximately as follows :—

Division	I.	II.	III.	IV.	V.
Population	282,000	429,000	607,000	1,540,000	1,597,000

In these divisions the order in which the capitals occur is as follows :—(i.) Perth, (ii.) Adelaide, (iii.) Brisbane, (iv.) Sydney, (v.) Melbourne, (vi.) Hobart, and for that reason the climatological and meteorological statistics will be set forth in the indicated order in this publication.

(i.) *Special Climatological Stations.* The latitudes, longitudes, and altitudes of special stations, the climatological features of which are graphically represented herein-after, are as follows :—

SPECIAL CLIMATOLOGICAL STATIONS.

Locality.	Height above Sea Level.	Latitude.		Longitude.		Locality.	Height above Sea Level.	Latitude.		Longitude.	
	Fect.	deg.	min.	deg.	min.		Fect.	deg.	min.	deg.	min.
Perth ...	197	31	57	115	51	Darwin ...	97	12	28	130	51
Adelaide ...	140	34	56	138	35	Daly Waters ...	700	16	16	133	23
Brisbane ...	137	27	28	153	2	Alice Springs ...	1926	23	38	133	37
Sydney ...	146	33	52	151	12	Dubbo ...	870	32	18	148	35
Melbourne ...	115	37	50	144	59	Laverton ...	1530	28	40	122	23
Hobart ...	160	42	53	147	20	Coolgardie ...	1402	30	57	121	10

5. **Temperatures.**—In respect of Australian temperatures generally it may be pointed out that the isotherm for 70° Fahrenheit extends in South America and South Africa as far south as latitude 33°, while in Australia it reaches only as far south as latitude 30°, thus shewing that, on the whole, Australia has a more temperate climate when compared latitude for latitude with places in the Southern Hemisphere.

The comparison is even more favourable when the Northern Hemisphere is included in the comparison, for in the United States the 70° isotherm extends in several of the western States as far north as latitude 41°. In Europe the same isotherm reaches almost to the southern shores of Spain, passing, however, afterwards along the northern shores of Africa till it reaches the Red Sea, when it bends northward along the eastern shore of the Mediterranean till it reaches Syria. In Asia nearly the whole of the land area south of latitude 40° N. has a higher isothermal value than 70°.

The extreme range of shade temperatures in summer and winter in a very large part of Australia amounts to probably only 81°. In Siberia, in Asia, the similar range is no less than 171°, and in North America 153°, or approximately double the Australian range.

Along the northern shores of the Australian continent the temperatures are very equable. At Darwin, for example, the difference in the means for the hottest and coldest months is only 8.7°, and the extreme readings for the year, that is, the highest maximum in the hottest month and the lowest reading in the coldest month, shew a difference of under 50°.

Coming southward the extreme range of temperature increases gradually on the coast, and in a more pronounced way inland.

The detailed temperature results for the several capitals of the States of Australia are shewn in the Climatological Tables hereinafter.

(i.) *Hottest and Coldest Parts.* A comparison of the temperatures recorded at coast and inland stations shews that, in Australia as in other continents, the range increases with increasing distance from the coast.

In the interior of Australia, and during exceptionally dry summers, the temperature occasionally reaches or exceeds 120° in the shade, and during the dry winters the major portion of the country to the south of the tropics is subject to ground frosts. An exact knowledge of temperature disposition cannot be determined until the interior becomes more settled, but from data procurable, it would appear that the hottest area of the continent is situated in the northern part of Western Australia about the Marble Bar and Nullagine goldfields, where the maximum shade temperature during the summer sometimes exceeds 100° for days, and even weeks' continuously. The coldest part of the Commonwealth is the extreme south-east of New South Wales and extreme east of Victoria, namely, the region of the Australian Alps. Here, the temperature seldom, if ever, reaches 100° even in the hottest of seasons.

In Tasmania also, although occasionally hot winds may cross the Straits and cause the temperature to rise to 100° in the low-lying parts, yet the island as a whole enjoys a most moderate and equable range of temperature throughout the year.

(ii.) *Monthly Maximum and Minimum Temperatures.* The mean monthly maximum and minimum temperatures can be best shewn by means of graphs, which exhibit the nature of the fluctuation of each for the entire year. In the diagram (on page 71) for nine representative places in Australia, the upper heavy curves shew the mean maximum, the lower heavy curves the mean minimum temperatures based upon daily observations. On the same diagram the thin curves shew the relative humidities (see next paragraph).

6. **Relative Humidity.**—Next after temperature the degree of humidity may be regarded as of great importance as an element of climate; and the characteristic differences of relative humidity between the various capitals of Australia call for special remark. For six representative places the variations of humidity are shewn on the graph on page 71, which gives results based upon daily observations of the dry and wet bulb thermometers. Hitherto difficulties have been experienced in many parts of Australia in obtaining satisfactory observations for a continuous period of any length. For this reason it has been thought expedient to refer to the record of humidity at first order stations only, where the results are thoroughly reliable. Throughout, the degree of humidity given will be what is known as *relative humidity*, that is, the percentage of aqueous vapour actually existing to the total possible if the atmosphere were saturated.

The detailed humidity results for the several State capitals are given in the Climatological Tables hereinafter. From these, it is seen that, in respect of relative humidity, Sydney has the first place, while Melbourne, Hobart, Brisbane, Perth, and Adelaide follow in the order stated, Adelaide being the driest. The graphs on page 71 shew the annual variations in humidity. It will be observed that the *relative humidity* is ordinarily but not invariably great when the temperature is low.

7. **Evaporation.**—The rate and quantity of evaporation in any territory is influenced by the prevailing temperature, and by atmospheric humidity, pressure and movement. In Australia the question is of perhaps more than ordinary importance; since in its drier regions water has often to be conserved in "tanks"¹ and dams. The magnitude of the economic loss by evaporation will be appreciated from the records on pages 72 and 80 to 85, which show that the yearly amount varies from about 32½ inches at Hobart to 97 inches at Alice Springs in the centre of the Continent.

(i.) *Monthly Evaporation Curves.* The curves showing the mean monthly evaporation in various parts of the Commonwealth will disclose how characteristically different are the amounts for the several months in different localities. The evaporation for characteristic places is shewn on diagram shewing also rainfalls (see page 72).

1. In Australia artificial storage ponds or reservoirs are called "tanks."

(ii.) *Loss by Evaporation.* In the interior of Australia the possible evaporation is greater than the actual rainfall. Since, therefore, the loss by evaporation depends largely on the exposed area, tanks and dams so designed that the surface shall be a minimum are advantageous. Similarly, the more protected from the direct rays of the sun and from winds, by means of suitable tree planting, the less will be the loss by evaporation: these matters are of more than ordinary concern in the drier districts of Australia.

8. *Rainfall.*—As even a casual reference to climatological maps, indicating the distribution of rainfall and prevailing direction of wind, would clearly shew, the rainfall of any region is determined mainly by the direction and route of the prevailing winds, by the varying temperatures of the earth's surface over which they blow, and by the physiographical features generally.

Australia lies within the zone of the south-east trade and prevailing westerly winds. The southern limit of the south-east trade strikes the eastern shores at about 30° south latitude. Hence, we find that, with very few exceptions, the heaviest rains of the Australian continent are precipitated along the Pacific slopes to the north of that latitude, the varying quantities being more or less regulated by the differences in elevation of the shores and of the chain of mountains, upon which the rain-laden winds blow, from the New South Wales northern border to Thursday Island. The converse effect is exemplified on the north-west coast of Western Australia from the summer south-east trade winds. Here the prevailing winds, blowing from the interior of the continent instead of from the ocean, result in the lightest coastal rain in Australia.

The westerly winds, which skirt the southern shores, are responsible for the very reliable, although generally light, rains enjoyed by the south-western portion of Western Australia, by the south-eastern agricultural areas of South Australia, by a great part of Victoria, and by the whole of Tasmania.

(i.) *Factors determining Distribution and Intensity of Rainfall.*

(ii.) *Time of Rainfall.*

In preceding Year Books (see No. 6, pp. 72, 73, 74) some notes were given of the various factors governing the distribution, intensity and period of Australian rainfall.

(iii.) *Wettest and Driest Regions.* The wettest known part of Australia is on the north-east coast of Queensland, between Port Douglas and Cardwell, where three stations situated on, or adjacent to, the Johnstone and Russell Rivers have an average annual rainfall of between 150 and 166 inches. The maximum and minimum falls there are:—Goondi, 241.53 in 1894 and 76.24 inches in 1902, or a range of 165.29 inches; Innisfail, 211.24 in 1894 and 69.87 inches in 1902, or a range of 141.37 inches; Harvey's Creek, 238.45 in 1901 and 80.47 inches in 1902, or a range of 157.98 inches.

On three occasions more than 200 inches have been recorded at Goondi, the last of these being in 1910, when 204.82 inches were registered. The record at this station covers a period of 21 years.

Harvey's Creek in the shorter period of 17 years has twice exceeded 200 inches, the total for 1910 being 201.28 inches.

The driest known part of the continent is about the Lake Eyre district in South Australia (the only part of the continent below sea level), where the annual average is but 5 inches, and where it rarely exceeds 10 inches for the twelve months.

The inland districts of Western Australia have until recent years been regarded as the driest part of Australia, but authentic observations taken during the past decade at settled districts in the east of that State shew that the annual average is from 10 to 12 inches.

(iv.) *Quantities and Distribution of Rainfall generally.* The departure from the normal rainfall increases greatly and progressively from the southern to the northern shores of the continent, and similarly also at all parts of the continent, subject to

capricious monsoonal rains, as the comparisons hereunder will shew. The general distribution is best seen from the map on page 77, shewing the areas subject to average annual rainfalls lying between certain limits. The areas enjoying varying quantities of rainfall determined from the latest available information are shewn in the following table:—

DISTRIBUTION OF AVERAGE RAINFALL.

Average Annual Rainfall.	N.S.W.	Victoria.	Queensland.	South Aust.	Northe'n Territ'y.	Western Aust.	Tasmania.	Commonwealth.
	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.
Under 10 inches	44,997	nil	62,805	317,600	138,190	513,653	nil	1,077,245
10—15 „	77,268	19,912	97,722	33,405	141,570	232,815	nil	602,692
15—20 „	57,639	12,626	116,790	14,190	62,920	89,922	937	355,024
20—30 „	77,202	29,317	218,528	13,827	93,470	95,404	7,559	535,307
30—40 „	30,700	14,029	80,556	984	40,690	40,750	4,588	212,297
Over 40 „	22,566	12,000	94,099	64	46,780	3,376	10,101	188,936
Total area ...	310,372	87,884	670,500	380,070	523,620	975,920	26,215	2,974,581

* Over 3030 sqr. miles no records available.

Referring first to the capital cities, the complete records of which are given on the following page, it is seen that Sydney with a normal rainfall of 48.40 inches occupies the chief place, Brisbane, Perth, Melbourne, Hobart and Adelaide following in that order, Adelaide with 21.00 inches being the driest. The extreme range from the wettest to the driest year is greatest at Brisbane (72.09 inches) and least at Adelaide (17.44 inches).

In order to shew how the rainfall is distributed throughout the year in various parts of the continent, the figures of representative towns have been selected. (See map on page 78.) Darwin, typical of the Northern Territory, shews that in that region nearly the whole of the rainfall occurs in the summer months, while little or nothing falls in the middle of the year. The figures of Perth, as representing the south-western part of the continent, are the reverse, for while the summer months are dry, the winter ones are very wet. In Melbourne and Hobart the rain is fairly well distributed throughout the twelve months, with a maximum in October in the former, and in November in the latter. The records at Alice Springs and Daly Waters indicate that in the central parts of Australia the wettest months are in the summer and autumn. In Queensland, as in the Northern Territory, the heaviest rains fall in the summer months, but good averages are also maintained during the other seasons.

On the coast of New South Wales, the first six months of the year are the wettest, with slight excesses in April and July; the averages during the last six months are fair and moderately uniform. In general it may be said that one-fourth of the area of the continent, principally in the eastern and northern parts, enjoys an annual average rainfall of from 20 to 50 inches, the remaining three-fourths receiving generally from about 10 to 15 inches.

(v.) *Curves of Rainfall and Evaporation.* The relative amounts of rainfall and evaporation at different times through the year are best seen by referring to the graphs for a number of characteristic places. (See page 72.) It will be recognised at once how large is the evaporation when water is fully exposed to the direct rays of the sun, and to wind, etc.

(vi.) *Tables of Rainfall.* The table of rainfall for a long period of years for each of the various Australian capitals affords information as to the variability of the fall in successive years, and the list of the more remarkable falls furnishes information as to what may be expected on particular occasions.

RAINFALL AT THE AUSTRALIAN CAPITALS, 1840 to 1913.

Year.	PERTH.			ADELAIDE.			BRISBANE.			SYDNEY.			MELBOURNE.			HOBART.		
	Amount.	No. of Days.	10 Years' Means.	Amount.	No. of Days.	10 Years' Means.	Amount.	No. of Days.	10 Years' Means.	Amount.	No. of Days.	10 Years' Means.	Amount.	No. of Days.	10 Years' Means.	Amount.	No. of Days.	10 Years' Means.
1840	in.	...	in.	in.	99	...	in.	in.	in.	in.	150	...	in.	in.	in.	in.	in.	in.
1	...	...	...	24.23	93	...	29.32	58.52	150	22.57	...	...	22.57	...	...	...	...	...
2	...	...	...	17.96	93	...	49.31	76.31	142	30.18	...	...	30.18	...	...	...	...	13.95
3	...	...	...	20.32	122	...	28.81	48.32	137	31.16	...	...	31.16	...	...	...	...	23.60
4	...	...	...	17.19	104	...	51.67	62.78	168	21.54	...	...	21.54	...	...	...	...	13.43
5	...	...	...	16.88	136	...	63.20	70.66	157	30.74	...	...	30.74	...	...	...	...	26.25
6	...	...	...	18.83	125	...	39.09	62.01	132	23.93	...	...	23.93	...	...	...	...	16.68
7	...	...	...	26.89	114	...	31.41	43.83	139	30.53	...	...	30.53	...	...	...	...	21.96
8	...	...	...	27.61	109	...	...	42.81	142	30.18	...	...	30.18	...	...	...	...	14.46
9	...	...	...	19.74	114	21.07	42.59	59.17	137	33.15	58.27	...	33.15	28.22	...	...	...	23.62
1850	...	...	...	25.44	110	(9 yr.)	...	21.49	140	44.25	(9 yr.)	...	44.25	(9 yr.)	...	...	...	19.24
1	...	...	...	19.56	84	...	...	44.88	157	26.98	...	...	26.98	...	...	...	...	...
2	...	...	...	30.86	128	...	...	35.18	142	...	...	...	...	...	...	...	...	14.51
3	...	...	...	27.44	118	...	...	43.79	145	...	...	...	...	...	...	...	...	17.98
4	...	...	...	27.08	128	...	...	46.12	130	...	...	...	...	...	...	...	...	23.62
5	...	...	...	15.35	105	...	...	29.29	136	...	...	...	...	...	...	...	...	14.52
6	...	...	...	23.15	124	...	...	52.86	138	28.21	...	...	28.21	...	...	...	...	30.54
7	...	...	...	24.93	118	...	...	43.31	116	29.76	134	...	29.76	134	...	...	...	18.25
8	...	...	...	22.15	105	...	...	50.96	135	28.90	138	...	28.90	138	...	...	...	22.73
9	...	...	...	21.55	107	23.75	43.00	39.59	139	26.01	158	...	26.01	158	...	...	...	151
1860	...	...	...	14.85	95	...	35.00	42.01	137	21.82	156	...	21.82	156	...	...	...	17.14
1	...	...	...	19.67	119	...	54.63	82.61	180	25.38	133	...	25.38	133	...	...	...	22.73
2	...	...	...	24.04	147	...	69.45	59.36	157	29.16	159	...	29.16	159	...	...	...	113
3	...	...	...	21.85	119	...	28.27	23.99	108	22.08	139	...	22.08	139	...	...	...	129
4	...	...	...	23.68	145	...	68.83	47.08	152	36.42	165	...	36.42	165	...	...	...	22.59
5	...	...	...	19.75	121	...	47.00	69.12	185	27.40	144	...	27.40	144	...	...	...	...
6	...	...	...	15.51	108	...	24.11	36.15	140	15.94	119	...	15.94	119	...	...	...	...
7	...	...	...	20.11	116	...	51.18	36.90	156	22.41	107	...	22.41	107	...	...	...	...
8	...	...	...	19.05	112	...	61.04	59.56	140	25.79	133	...	25.79	133	...	...	...	...
9	...	...	...	19.99	113	19.85	35.98	42.98	161	49.99	120	24.47	24.47	120	24.47	...	...	...
1870	...	...	...	14.74	117	...	54.39	48.00	150	24.58	129	...	24.58	129	...	...	...	...
1	...	...	...	23.84	119	...	79.06	64.47	179	37.77	129	...	37.77	129	...	...	...	...
2	...	...	...	23.25	137	...	45.45	52.27	141	30.17	125	...	30.17	125	...	...	...	...
3	...	...	...	22.66	146	...	49.22	37.12	151	32.52	136	...	32.52	136	...	...	...	...
4	...	...	...	21.00	139	...	62.02	73.44	173	25.61	134	...	25.61	134	...	...	...	...
5	...	...	...	17.23	127	...	38.71	63.60	176	28.10	134	...	28.10	134	...	...	...	...
6	...	...	...	29.21	157	...	67.03	46.25	153	32.87	158	...	32.87	158	...	...	...	...
7	28.73	100	...	13.43	110	...	53.42	45.69	156	24.04	134	...	24.04	134	...	...	...	...
8	20.48	103	...	24.95	135	...	30.28	59.66	147	24.10	124	...	24.10	124	...	...	...	...
9	39.72	143	29.64	22.08	112	21.24	56.33	49.77	129	25.36	116	28.11	28.11	116	28.11	...	...	...
1880	41.34	106	(3 yr.)	20.69	130	...	67.30	63.19	167	19.28	127	...	19.28	127	...	...	...	...
1	31.79	116	...	22.48	142	...	49.12	29.51	142	28.48	147	...	28.48	147	...	...	...	...
2	24.78	101	...	18.02	135	...	23.39	41.09	163	24.08	134	...	24.08	134	...	...	...	...
3	35.68	109	...	15.70	134	...	42.62	42.28	112	22.40	131	...	22.40	131	...	...	...	...
4	39.65	122	...	26.76	161	...	32.22	46.92	157	23.71	130	...	23.71	130	...	...	...	...
5	31.96	92	...	18.74	138	...	43.49	44.04	159	25.85	128	...	25.85	128	...	...	...	...
6	33.44	110	...	15.89	133	...	26.85	39.91	145	26.94	123	...	26.94	123	...	...	...	...
7	28.90	89	...	14.42	141	...	53.66	39.43	152	24.00	128	...	24.00	128	...	...	...	...
8	37.52	105	...	25.70	164	...	81.54	60.16	190	32.39	153	...	32.39	153	...	...	...	...
9	27.83	117	33.29	14.55	131	19.30	33.08	23.01	132	42.95	142	24.66	24.66	142	24.66	...	...	...
1890	39.96	123	...	30.87	143	...	49.36	57.16	186	27.14	125	...	27.14	125	...	...	...	...
1	46.73	126	...	25.78	139	...	73.02	81.42	184	24.24	140	...	24.24	140	...	...	...	...
2	30.33	93	...	14.01	113	...	41.68	55.30	200	26.73	126	...	26.73	126	...	...	...	...
3	31.23	122	...	21.53	137	...	64.98	69.26	189	24.96	124	...	24.96	124	...	...	...	...
4	40.12	145	...	21.49	129	...	88.26	49.90	209	26.80	140	...	26.80	140	...	...	...	...
5	23.72	103	...	20.78	134	...	44.02	38.22	188	22.60	138	...	22.60	138	...	...	...	...
6	33.01	123	...	21.28	130	...	59.11	31.86	170	17.04	131	...	17.04	131	...	...	...	...
7	31.50	103	...	15.17	121	...	44.97	42.40	157	25.16	124	...	25.16	124	...	...	...	...
8	27.17	106	...	15.42	119	...	42.53	42.52	136	25.85	117	...	25.85	117	...	...	...	...
9	31.76	118	33.55	20.75	116	20.71	60.06	43.17	143	51.12	151	23.61	23.61	151	23.61	...	...	...
1900	32.40	107	...	18.94	119	...	38.85	55.90	174	28.87	116	...	28.87	116	...	...	...	...
1	36.61	124	...	21.68	133	...	34.41	66.54	170	28.09	139	...	28.09	139	...	...	...	...
2	36.75	122	...	18.01	124	...	38.48	40.10	149	27.45	113	...	27.45	113	...	...	...	...
3	27.06	93	...	16.02	123	...	16.17	43.07	180	23.08	102	...	23.08	102	...	...	...	...
4	35.69	140	...	25.47	134	...	49.27	38.62	173	28.43	130	...	28.43	130	...	...	...	...
5	34.35	125	...	20.31	117	...	33.23	45.93	158	29.72	128	...	29.72	128	...	...	...	...
6	34.61	116	...	22.28	131	...	36.76	35.03	145	25.64	129	...	25.64	129	...	...	...	...
7	32.37	121	...	26.51	127	...	42.85	31.89	160	22.29	114	...	22.29	114	...	...	...	...
8	40.12	132	...	17.78	125	...	31.46	31.32	132	22.26	102	...	22.26	102	...	...	...	...
9	30.52	106	34.05	24.56	125	21.15	44.01	45.65	167	43.41	172	25.36	25.36	172	25.36	...	...	...
1910	39.11	107	...	27.69	138	...	34.06	32.45	177	25.86	171	...	25.86	171	...	...	...	...
1	37.02	135	...	24.62	116	...	49.00	46.91	160	24.61	167	...	24.61	167	...	...	...	...
2	23.38	108	...	15.99	127	...	35.15	50.24	155	36.61	168	...	36.61	168	...	...	...

9. Remarkable Falls of Rain.—The following are the more remarkable falls of rain in the States of New South Wales, Queensland, Western Australia, and South Australia, which have occurred within a period of twenty-four hours:—

HEAVY RAINFALLS, NEW SOUTH WALES, UP TO 1913 INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Anthony ...	28 Mar., 1887	17.14	Leconfield ...	9 Mar., 1893	14.53
" ...	15 Jan., 1890	13.13	Madden's Creek ...	13 Jan., 1911	18.68
Araluen ...	15 Feb., 1898	13.36	Maitland W. ...	9 Mar., 1893	14.79
Berry ...	13 Jan., 1911	12.05	Major's Creek ...	14 Feb., 1898	12.32
Billambil ...	14 Mar., 1894	12.94	Marrickville ...	9 Mar., 1913	10.40
Bomaderry...	13 Jan., 1911	13.03	Morpeth ...	9 " 1893	21.52
Brogger's Creek	14 Feb., 1898	20.05	Mount Kembla ...	13 Jan., 1911	18.25
" "	19 July, 1910	12.22	Nepean Tunnel ...	14 Feb., 1898	12.30
" "	13 Jan., 1911	20.83	Nowra ...	13 Jan., 1911	13.00
Bulli Mountain	13 Feb., 1898	17.14	Padstow Park ...	9 Mar., 1913	10.64
Camden Haven	22 Jan., 1895	12.23	Prospect ...	28 May, 1889	12.37
Castle Hill...	28 May, 1889	13.49	Richmond ...	28 " "	12.18
Colombo Lyttleton	5 Mar., 1893	12.17	Rooty Hill ...	27 " "	11.85
Condong ...	27 " 1887	18.66	Taree ...	28 Feb., 1892	12.24
Cordeaux River	14 Feb., 1898	22.58	Terara ...	26 " 1873	12.57
" "	13 Jan., 1911	14.52	Tomago ...	9 Mar., 1893	13.76
Dapto West "	14 Feb., 1898	12.05	Tongarra Farm ...	14 Feb., 1898	15.12
Dunheved ...	28 May, 1889	12.40	Towamba ...	5 Mar., 1893	20.00
Holy Flat ...	12 Mar., 1887	12.00	South Head		
" "	28 Feb., 1892	12.24	(near Sydney)...	29 Apr., 1841	20.12
Kotoomba ...	7 Apr., 1913	10.50	" "	16 Oct., 1844	20.41
Kembla Heights	13 Jan., 1911	17.46			

HEAVY RAINFALLS, QUEENSLAND, UP TO 1913 INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Aloomba ...	30 Jan., 1913	13.50	Cairns ...	31 Jan., 1913	13.94
Anglesey ...	26 Dec., 1909	18.20	Cape Grafton ...	5 Mar., 1896	13.37
Atherton ...	31 Jan., 1913	16.69	Cardwell ...	30 Dec., 1889	12.00
Avondale ...	17 " 1913	12.27	" ...	23 Mar., 1890	12.00
Ayr ...	20 Sep., 1890	14.58	" ...	18 " 1904	18.24
Babinda ...	31 Jan., 1913	12.79	" ...	3 Apr., 1911	12.84
" ...	1 Feb., 1913	20.51	Clare ...	26 Jan., 1896	15.30
Banyan ...	31 Jan., 1913	13.79	Collaroy ...	30 " 1896	14.25
Barrine ...	31 " 1913	13.34	Colton ...	16 " 1913	10.60
Bloomsbury	14 Feb., 1893	17.40	Cooktown ...	22 " 1903	12.49
" ...	10 Jan., 1901	16.62	Cooran ...	1 Feb., 1893	13.62
Bowen ...	13 Feb., 1893	14.65	" ...	26 Dec., 1908	14.08
Brisbane ...	21 Jan., 1887	18.31	Cooroy ...	9 June, 1893	13.60
Bromby Park (Bowen)	14 Feb., 1893	13.28	" ...	10 Jan., 1898	13.50
Brookfield	14 Mar., 1908	14.95	Crohamhurst		
Buderim Mountain	11 Jan., 1898	26.20	(Blackall Range)	2 Feb., 1893	35.71
Bundaburg	16 " 1913	16.94	" "	9 June, " "	13.31
Burketown	15 " 1891	13.58	" "	9 Jan., 1898	19.55
" ...	12 Mar., 1903	14.52	" "	6 Mar. "	16.01
Burnett Head	16 Jan., 1913	15.22	" "	26 Dec., 1909	13.85
Buslard "	17 " 1913	14.93	Croydon ...	29 Jan., 1908	15.00
Cairns ...	11 Feb., 1889	14.74	Cryna (Beaudesert)...	21 " 1887	14.00
" ...	21 Apr., " "	12.40	Donaldson		
" ...	5 " 1891	14.08	(now Granada)	8 " 1911	13.50
" ...	11 Feb., 1911	15.17	" "	9 " "	14.30
" ...	2 Apr., " "	20.16	Dungeness	16 Mar., 1893	22.17

HEAVY RAINFALLS, QUEENSLAND—Continued.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Dungeness ...	17 Apr., 1894	14.00	Harvey Creek ...	8 Mar., 1899	17.72
Dunira ...	9 Jan., 1898	18.45	" "	25 Jan., 1900	12.53
" "	6 Mar., "	15.95	" "	25 May, 1901	14.00
Dunk Island ...	31 Jan., 1913	11.15	" "	14 Mar., 1903	12.10
Emu Park ...	18 " 1913	12.75	" "	11 Jan., 1905	16.96
Enoggera Railway	14 " 1908	12.14	" "	28 " 1906	12.29
Ernest Junction ...	" "	13.00	" "	14 " 1909	14.40
Eton ...	27 Feb., 1913	11.00	" "	3 " 1911	17.75
Fairymead ...	16 Jan., 1913	15.32	" "	11 Feb., "	12.88
Flat Top Island ...	22 Dec., 1909	12.96	" "	1 Apr., "	13.61
Floraville ...	11 Mar., 1903	12.86	" "	2 " "	16.46
Flying Fish Point	7 Apr., 1912	16.06	" "	31 Jan., 1913	24.72
" "	31 Jan., 1913	16.10	" "	1 Feb., 1913	13.55
Gatecombe Head ...	18 Jan., 1913	12.88	Haighton Valley ...	26 Jan., 1896	18.10
Geraldton			Herberton ...	31 Jan., 1913	14.00
(now Innisfail)	11 Feb., 1889	17.13	Hillcrest (Mooloolah)	26 Dec., 1909	13.35
" "	31 Dec., "	12.45	Holmwood (Woodf'd)	2 Feb., 1893	16.19
" "	6 Apr., 1894	16.02	" "	10 Jan., 1898	12.40
" "	18 " 1899	13.20	Homebush "	3 Feb., "	12.04
" "	24 Jan., 1900	15.22	Howard ...	15 Jan., 1905	19.55
" "	29 Dec., 1903	21.22	" "	16 " 1913	11.33
" "	11 Feb., 1911	14.48	Ingham ...	18 " 1894	12.60
" "	1 Apr., 1911	12.35	" "	6 " 1901	13.59
" "	2 " "	15.00	" "	25 Dec., 1903	12.30
" "	7 " 1912	20.50	Inkerman ...	21 Sep., 1890	12.93
" "	8 " "	12.15	Inneshowen		
" "	31 Jan., 1913	20.91	(Johnstone River)	30 Dec., 1889	14.01
Gin Gin ...	16 " 1905	13.61	Invicta ...	16 Jan., 1913	14.58
" "	16 " 1913	12.27	Isis Junction ...	6 Mar., 1898	13.60
Gladstone ...	18 Feb., 1888	12.37	" "	16 Jan., 1913	10.93
" "	31 Jan., 1893	14.62	Kamerunga (Cairns)	20 Jan., 1892	13.61
" "	4 Feb., 1911	18.83	" "	6 Apr., 1894	14.04
Glen Boughton	5 Apr., 1894	18.50	" "	5 " 1895	12.31
" "	31 Jan., 1913	14.92	" "	11 Feb., 1911	13.07
Glen Prairie ...	18 Apr., 1904	12.18	" "	1 Apr., "	14.20
Gold Creek Reservoir	14 Mar., 1908	12.50	" "	2 " "	21.00
Goldsborough ...	31 Jan., 1913	19.92	" "	31 Jan., 1913	16.00
" "	1 Feb., 1913	12.22	Kulara ...	31 " "	12.69
Goodwood ...	16 Jan., 1913	13.07	Kuranda ...	6 Mar., 1899	14.12
Goondi Mill			" "	20 Apr., 1903	14.16
(Gerald'n)	6 Apr., 1894	15.69	" "	14 Jan., 1909	12.37
" "	18 Apr., 1899	14.78	" "	11 Feb., 1911	16.30
" "	24 Jan., 1900	13.30	" "	17 Mar., "	15.10
" "	29 Dec., 1903	17.83	" "	31 " "	18.60
" "	10 Feb., 1911	17.68	" "	1 Apr., "	24.30
" "	31 Mar., "	12.38	" "	2 " "	28.80
" "	1 Apr., "	13.60	" "	31 Jan., 1913	16.34
" "	6 Apr., 1912	15.55	" "	1 Feb., 1913	15.18
" "	30 Jan., 1913	24.10	Landsborough	2 " 1893	15.15
Halifax ...	5 Feb., 1899	15.37	" "	9 June, "	12.80
" "	6 Jan., 1901	15.68	" "	26 Dec., 1909	14.00
" "	8 Apr., 1912	12.75	Low Island	10 Mar., 1904	15.07
Hambledon Mill	13 Jan., 1909	13.80	" "	31 " 1911	14.70
" "	2 " 1911	18.61	" "	1 Apr., "	23.43
" "	10 Feb., "	13.97	Lucinda ...	17 Feb., 1906	13.35
" "	30 Mar., "	13.04	" "	10 Mar., 1906	14.60
" "	31 " "	14.95	Lytton ...	21 Jan., 1887	12.85
" "	1 Apr., "	19.62	Mackay ...	23 Dec., 1909	13.96
" "	30 Jan., 1913	17.32	" "	21 Dec., 1913	10.03

HEAVY RAINFALLS, QUEENSLAND—Continued.

Name of Town or Locality.	Date.	Amnt	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Sugar Experimental Farm, Mackay ...	23 Dec., 1909	12.00	Pialba ...	16 Jan., 1913	17.22
Macnade Mill (Townsville) ...	18 Jan., 1894	12.56	Pittsworth ...	11 Mar., 1890	14.68
" ...	17 Apr., "	14.26	Port Douglas ...	5 Mar., 1887	13.00
" ...	5 Feb., 1899	15.20	" "	10 " 1904	16.34
" ...	6 Jan., 1901	23.33	" "	11 Jan., 1905	14.68
Maleny ...	26 Dec., 1909	14.76	" "	17 Mar., 1911	16.10
Mapleton ...	14 Mar., 1908	14.29	" "	1 Apr., "	31.53
" ...	26 Dec., 1909	15.72	Ravenswood ...	24 Mar., 1890	17.00
Mareeba ...	31 Jan., 1913	10.32	Redcliffe ...	21 Jan., 1887	14.00
Marlborough ...	17 Dec., 1888	14.24	" ...	16 Feb., 1893	17.35
Milton ...	14 Mar., 1908	12.24	Rosedale ...	6 Mar., 1898	12.60
Mirani ...	12 Jan., 1901	16.59	" ...	16 Jan., 1913	18.90
Miriam Vale ...	17 " 1913	15.80	Sandgate ...	16 Feb., 1893	14.03
Molloy ...	31 Mar., 1911	20.02	Somerset ...	28 Jan., 1903	12.02
" ...	1 Apr., "	20.00	St. Helens (Mackay) ...	24 Feb., 1888	12.00
" ...	2 " "	20.00	St. Lawrence ...	17 Feb., 1888	12.10
Mooloolah ...	13 Mar., 1892	21.53	" "	30 Jan., 1896	15.00
" ...	2 Feb., 1893	19.11	Tewantin ...	30 Mar., 1904	12.30
" ...	6 Mar., 1898	14.43	The Hollow (Mackay) ...	23 Feb., 1888	15.12
Mount Crosby ...	14 Mar., 1908	14.00	Thornborough ...	20 Apr., 1903	18.07
Mount Cuthbert ...	8 Jan., 1911	18.00	Townsville ...	24 Jan., 1892	19.20
Mourilyan ...	14 Jan., 1909	13.00	" ...	28 Dec., 1903	15.00
" ...	3 " 1911	12.70	Victoria Mill ...	6 Jan., 1901	16.67
" ...	11 Feb., "	17.40	Walsh River ...	1 Apr., 1911	13.70
" ...	1 Apr., "	13.20	Woodford ...	2 Feb., 1893	14.93
" ...	7 " 1912	18.97	Woodlands (Yeppoon) ...	25 Mar., 1890	14.25
" ...	31 Jan., 1913	15.05	" "	31 Jan., 1893	23.07
Mundoolun ...	21 Jan., 1887	17.95	" "	9 Feb., 1896	13.97
Musgrave ...	6 Apr., 1894	13.71	" "	7 Jan., 1898	14.50
Nambour ...	9 Jan., 1898	21.00	Woody Island ...	16 " 1913	12.66
" ...	7 Mar., "	13.28	Woombye ...	26 Dec., 1909	13.42
" ...	27 Dec., 1909	16.80	Yandina ...	1 Feb., 1893	20.08
Nerang ...	15 June 1892	12.35	" ...	9 June, "	12.70
North Kolan ...	16 Jan., 1913	12.90	" ...	9 Jan., 1898	19.25
North Pine ...	16 Feb., 1893	14.97	" ...	7 Mar., "	13.52
Nundah ...	14 Mar., 1908	12.00	" ...	28 Dec., 1909	15.80
Oxenford ...	14 Mar., 1908	15.65	Yarrabah ...	11 Feb., 1911	12.00
Palmwoods ...	4 Feb., 1893	12.30	" ...	2 Apr., "	30.65
" ...	10 Jan., 1898	15.85	" ...	4 Feb., 1913	13.40
" ...	7 Mar., "	13.02	Yeppoon ...	31 Jan., 1893	20.05
" ...	25 Dec., 1909	17.75	" ...	8 " 1898	18.05
Peachester ...	26 " "	14.91	" ...	3 Feb., 1906	14.90
			" ...	" 1911	14.92
			" ...	18 Jan., 1913	13.00

HEAVY RAINFALLS, WESTERN AUSTRALIA, UP TO 1913, INCLUSIVE.

		ins.			ins.
Balla Balla ...	21 Mar., 1899	14.40	Whim Creek ...	2 Apr., 1898	7.08
Boodarie ...	21 " "	14.53	" ...	3 " "	29.41
Cossack ...	3 Apr., 1898	12.82	" ...	20 Mar., 1899	8.89
" ...	16 " 1900	13.23	" ...	21 " "	18.17
Croydon ...	3 Mar., 1903	12.00	Woodstock ...	21 " 1912	13.00
Cocos Island ...	29 Nov., "	14.38	Wyndham ...	27 Jan., 1890	11.60
Derby ...	29 Dec., 1898	13.09	" ...	11 " 1903	9.98
" ...	30 " "	7.14	" ...	12 " "	6.64
Fortescue ...	3 May, 1890	23.36	" ...	13 " "	4.20
Kerdiadary ...	7 Feb., 1901	12.00	Yeeda ...	28 Dec., 1898	8.42
Obagama ...	28 " 1910	12.00	" ...	29 " "	6.88
Point Torment ...	17 Dec., 1906	11.86	" ...	30 " "	6.12
Thangoo ...	17-19 Feb. '96	24.18			

HEAVY RAINFALLS, NORTHERN TERRITORY, UP TO 1913, INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
Borrooloola ...	14 Mar., 1899	ins. 14.00	Pine Creek ...	8 Jan., 1897	ins. 10.35
Lake Nash...	21 ,, 1901	10.25	Darwin ...	7 Jan., 1897	11.67

10. **Snowfall.**—Light snow has been known to fall even as far north, occasionally, as latitude 31° S., and from the western to the eastern shores of the continent. During exceptional seasons it has fallen simultaneously over two-thirds of the State of New South Wales, and has extended at times along the whole of the Great Dividing Range, from its southern extremity in Victoria as far north as Toowoomba in Queensland. During the winter snow covers the ground to a great extent on the Australian Alps for several months, where also the temperature falls below zero Fahrenheit during the night, and in the ravines around Kosciusko and similar localities the snow never entirely disappears.

The antarctic "V"-shaped disturbances are always associated with our most pronounced and extensive snowfalls. The depressions on such occasions are very steep in the vertical area, and the apexes are unusually sharp-pointed and protrude into very low latitudes, sometimes even to the tropics.

11. **Hail.**—Hail falls throughout Australia most frequently along the southern shores of the continent in the winter, and over south-eastern Australia during the summer months. The size of the hailstones generally increases with distance from the coast, a fact which lends strong support to the theory that hail is brought about by ascending currents. Rarely does a summer pass without some station experiencing a fall of stones exceeding in size an ordinary hen-egg, and many riddled sheets of light-gauge galvanised iron bear evidence of the weight and penetrating power of the stones.

Hail storms occur most frequently in Australia when the barometric readings indicate a flat and unstable condition of pressure. They are almost invariably associated with tornadoes or tornadic tendencies, and on the east coast the clouds from which the stones fall are generally of a remarkable sepia-coloured tint.

12. **Barometric Pressures.**—The mean annual barometric pressure (corrected to sea-level and standard gravity) in Australia varies from 29.80 inches on the north coast to 29.92 inches over the central and 30.03 inches in the southern parts of the continent. In January the mean pressure ranges from 29.70 inches in the northern and central areas to 29.91 inches in the southern. The July mean pressure ranges from 29.90 inches at Darwin to 30.12 inches at Alice Springs. Barometer readings, corrected to mean sea-level, have, under anticyclonic conditions in the interior of the continent, ranged from 30.81 inches to as low as 28.44 inches. This lowest record was registered at Townsville during a hurricane on the 9th March, 1903. The mean annual fluctuations of barometric pressure for the capitals of Australia are shewn on page 73.

13. **Wind.**—Notes on the distinctive wind currents in Australia were given in preceding Year Books (see No. 6, page 83) and are here omitted to save space.

14. **Cyclones and Storms.**—The “elements” in Australia are ordinarily peaceful, and although severe cyclones have visited various parts, more especially coastal areas, such visitations are rare, and may be properly described as erratic.

During the winter months the southern shores of the continent are subject to cyclonic storms, evolved from the V-shaped depressions of the southern low-pressure belt. They are felt most severely over the south-western parts of Western Australia, to the south-east of South Australia, in Bass Straits, including the coast line of Victoria, and on the west coast of Tasmania. Apparently the more violent wind pressures from these cyclones are experienced in their northern half, that is, in that part of them which has a north-westerly to a south-westerly circulation.

Occasionally the north-east coast of Queensland is visited by hurricanes from the north-east tropics. During the first three months of the year these hurricanes appear to have their origin in the neighbourhood of the South Pacific Islands, their path being a parabolic curve of south-westerly direction. Only a small percentage, however, reach Australia, the majority recurving in their path to the east of New Caledonia.

Very severe cyclones, popularly known as “Willy Willies,” are peculiar to the north-west coast of Western Australia from the months of December to March inclusive. They apparently originate in the ocean, in the vicinity of Cambridge Gulf, and travel in a south-westerly direction with continually increasing force, displaying their greatest energy near Cossack and Onslow, between latitudes 20° and 22° South. The winds in these storms, like those from the north-east tropics, are very violent and destructive, causing great havoc amongst the pearl-fishers. The greatest velocities are usually to be found in the south-eastern quadrant of the cyclones, with north-east to east winds. After leaving the north-west coast, these storms either travel southwards, following the coast-line, or cross the continent to the Great Australian Bight. When they take the latter course their track is marked by torrential rains, as much as 29.41 inches, for example, being recorded in 24 hours at Whim Creek from one such occurrence. Falls of 10 inches and over have frequently been recorded in the northern interior of Western Australia from similar storms.

Some further notes on severe cyclones and on “Southerly Bursters,” a characteristic feature of the eastern part of Australia, will be found in previous issues of the Year Book (see No. 6, pp. 84, 85, 86).

15. **Influences affecting Australian Climate.**—Australian history does not cover a sufficient period, nor is the country sufficiently occupied, to ascertain whether or not the advance of settlement has materially affected the climate as a whole. Local changes therein, however, have taken place, a fact which suggests that settlement and the treatment of the land have a distinct effect on local conditions. For example, the mean temperature of Sydney shews a rise of two-tenths of a degree during the last twenty years, a change probably brought about by the great growth of residential and manufacturing buildings within the city and in the surrounding suburbs during that period. Again, low-lying lands on the north coast of New South Wales, that originally were seldom subject to frosts, have, with the denudation of the surrounding hills from forests, experienced annual visitations, the probable explanation being that, through the absence of trees, the cold air of the high lands now flows, unchecked and untempered, down the sides of the hills to the valleys and lower lands.

(i.) *Influences of Forests on Climate.* As already indicated, forests doubtless exercise a great influence on local climate, and hence, to the extent that forestal undertakings will allow, the weather can be controlled by human agency. The direct action of forests is an equalising one; thus, especially in equatorial regions and during the warmest portion of the year, they considerably reduce the mean temperature of the air. They also reduce the diurnal extremes of their shade temperatures, by altering the extent of radiating surface, by evaporation, and by checking the movement of air. While decreasing evaporation from the ground, they increase the relative humidity. Vegetation greatly diminishes the rate of flow-off of rain, and the washing away of surface soil. Thus, when a region is protected by trees, steadier water supply is ensured, and the rainfall is better conserved. In regions of snowfall the supply of water to rivers is similarly regulated, and without this and the sheltering influence of ravines and "gullies," watercourses supplied mainly by melting snow would be subject to alternate periods of flooding and dryness. This is borne out in the inland rivers. Thus, the River Murray, which has never been known to run dry, derives its steadiness of flow mainly through the causes above indicated.

(ii.) *Direct Influences of Forest on Rainfall.* Whether forests have a direct influence on rainfall is a debatable question, some authorities alleging that precipitation is undoubtedly induced by forests, while others contend the opposite.

Sufficient evidence exists, however, to establish that, even if the rainfall has not increased, the beneficial effect of forest lands in tempering the effects of the climate is more than sufficient to disclose the importance of their protection and extension.

It is the rapid rate of evaporation, induced by both hot and cold winds, which injures crops and makes life uncomfortable on the plains. Whether the forest aids in increasing precipitation there may be doubt, but nobody can say that it does not check the winds and the rapid evaporation due to them.

Trees as wind-breaks have been successfully planted in central parts of the United States, and there is no reason why similar experiments should not be successful in many parts of our treeless interior. The belts should be planted at right angles to the direction of the prevailing parching winds, and if not more than half a mile apart will afford shelter to the enclosed areas.

In previous issues some notes on observations made in other countries were added (see Year Book No. 6, pp. 86 and 95).

16. Comparison of Rainfalls and Temperatures.—For the purpose of comparison the following lists of rainfalls and temperatures are given for various important cities throughout the world, for the site of the Federal capital, and for the capitals of the Australian States:—

COMPARISONS OF RAINFALLS AND TEMPERATURES OF CITIES OF THE WORLD WITH THOSE OF AUSTRALIA.

Place.	Height above M.S.L.	Annual Rainfall.			Temperature.					
		Average.	Highest.	Lowest.	*Mean Summer.	†Mean Winter.	Highest on Record.	Lowest on Record.	Average Hottest Month.	Average Coldest Month.
		Inch.	Inch.	Inch.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.
Amsterdam	6	27.29	40.59	17.60	63.2	36.8	90.0	64.4	35.4	
Auckland	125	43.31	63.72	26.32	66.1	52.5	91.0	64.4	51.8	
Athens	351	15.48	33.32	4.55	79.2	49.1	106.5	81.1	47.5	
Bergen	146	89.10	102.80	73.50	56.8	34.5	88.5	65.0	30.0	
Berlin	115	22.95	50.04	14.25	64.7	32.2	98.6	64.4	28.0	
Berne	1,877	36.30	53.23	24.69	62.2	30.1	91.4	64.4	28.5	
Bombay	37	71.15	114.89	33.41	83.5	75.1	100.0	84.8	74.2	
Breslau	482	22.00	28.01	16.45	63.9	30.0	95.5	65.5	29.3	
Brussels	328	28.35	41.18	17.73	62.6	35.0	100.0	63.7	34.5	
Budapest	500	25.20	35.28	16.79	68.6	30.2	98.6	70.4	28.5	
Buenos Ayres	72	36.82	60.73	21.53	73.2	51.5	103.1	74.2	50.5	
Calcutta	21	61.98	89.32	39.33	84.9	67.1	102.0	85.4	65.5	
Capetown	40	25.50	36.72	17.71	68.1	54.7	102.0	68.9	53.9	
Caracas	3,420	30.03	47.36	23.70	68.3	65.3	97.8	69.2	63.7	
Chicago	823	39.54	45.80	24.52	69.2	25.4	103.0	72.4	29.0	
Christchurch	25	25.45	35.30	13.54	61.1	43.4	95.0	61.6	42.4	
Christiana	22	22.52	31.73	16.26	61.0	34.4	95.0	62.6	23.9	
Colombo	40	83.83	139.70	51.60	81.0	79.9	95.8	82.6	79.1	
Constantinople	245	28.75	42.74	14.78	74.0	43.5	103.6	75.7	42.0	
Copenhagen	46	26.80	28.78	13.94	69.7	32.1	90.5	69.2	31.4	
Dresden	115	26.80	34.49	17.72	62.9	32.4	93.4	64.4	31.6	
Dublin	47	37.66	35.56	16.60	59.4	42.0	87.2	60.5	41.7	
Durbin	30	27.66	53.90	22.15	57.3	43.1	94.0	57.9	42.0	
Durban	260	40.79	71.27	27.24	64.4	110.6	41.1	76.7	63.8	
Edinburgh	441	25.21	32.05	16.44	55.8	38.8	85.3	57.2	38.3	
Genoa	1,323	33.48	46.89	21.14	64.4	33.7	94.5	62.2	32.2	
Geneva	157	51.29	108.22	28.21	73.8	46.8	94.5	75.4	45.5	
Glasgow	184	38.49	56.18	29.05	52.7	41.0	84.9	58.0	38.4	
Greenwich	159	24.12	35.54	16.38	61.3	39.3	100.0	62.7	38.6	
Hong Kong	110	84.10	110.72	45.83	81.3	60.3	97.0	81.8	58.1	
Johannesburg	5,750	31.63	50.00	21.66	65.4	54.4	94.0	68.2	48.9	
Leipzig	384	24.69	31.37	17.10	63.1	31.5	97.3	64.8	30.6	
Lisbon	32	28.18	52.79	17.32	69.6	51.3	94.1	70.2	49.3	
London	16	24.04	38.20	18.23	61.2	39.3	94.0	62.8	38.7	
Madras	92	49.06	88.41	18.45	86.7	76.0	113.0	87.6	73.3	
Madrid	2,149	18.23	27.48	9.13	73.0	41.2	107.1	75.7	39.7	
Marseilles	246	21.88	43.04	12.28	70.3	45.3	100.4	72.1	43.3	
Moscow	526	18.94	29.28	12.07	63.4	14.7	99.5	65.1	11.9	
Naples	489	34.00	56.58	21.75	73.6	48.0	99.1	75.4	46.8	
New York	314	42.47	59.68	28.78	72.1	31.7	100.0	74.5	30.3	
Ottawa	294	33.40	44.44	26.36	67.2	11.1	98.5	69.7	12.0	
Paris	165	21.92	29.56	16.44	63.5	37.1	101.1	65.8	36.1	
Pekin	143	24.40	36.00	18.00	77.7	26.6	114.0	79.2	23.6	
Quebec	296	40.46	47.57	32.12	63.5	12.4	95.5	66.3	10.1	
Rome	166	32.57	57.89	12.72	74.3	46.0	104.2	76.1	44.6	
San Francisco	155	22.83	38.82	9.31	59.0	51.0	101.0	61.0	50.0	
Shanghai	14	44.13	62.52	27.91	77.4	39.4	102.9	79.7	37.4	
Singapore	8	91.99	158.68	32.71	81.2	76.6	94.2	81.5	78.3	
Stockholm	146	18.31	25.46	11.78	59.7	27.0	91.8	69.1	25.7	
St. Petersburg	16	21.30	29.52	13.75	61.1	17.4	97.0	63.7	15.2	
Tokio	70	59.17	77.10	45.72	73.9	38.9	97.9	77.7	37.1	
Trieste	85	42.94	63.14	26.57	73.9	41.3	99.5	74.0	39.9	
Vienna	663	24.50	33.90	16.50	65.7	30.4	97.7	67.1	28.0	
Vladivostok	55	19.54	33.60	9.39	63.9	11.0	95.7	69.4	6.1	
Washington	75	43.80	61.33	18.79	74.7	34.5	104.0	76.8	32.9	
Wellington (N.Z.)	110	49.70	67.68	30.02	61.7	48.4	98.0	62.4	47.5	
Zurich	1,542	45.15	78.27	29.02	63.3	31.3	94.1	65.1	29.5	

FEDERAL CAPITAL SITE.

Canberra (Dist.)	{ 2,000 to 2,900 }	22.25	41.29	10.45	* 67.6	† 43.9	101.0	20.0	69.2	43.0
Queanbeyan										

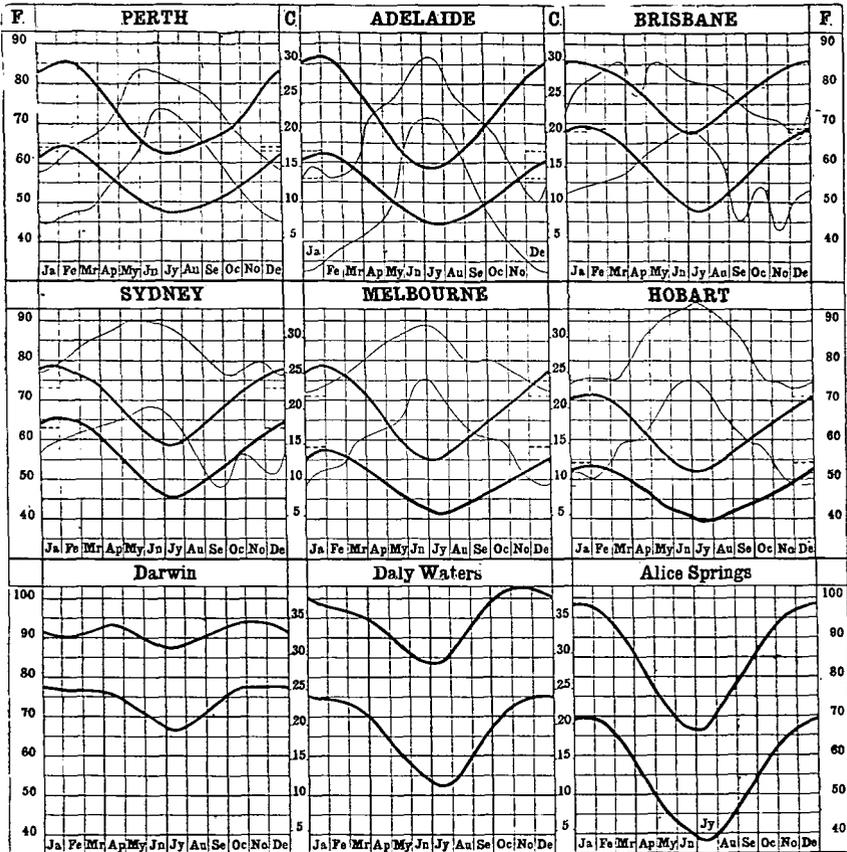
THE STATE CAPITALS.

					*	†				
Perth	197	33.25	46.73	20.48	73.0	55.8	107.9	35.3	74.2	55.0
Adelaide	140	21.00	30.87	13.43	73.1	52.9	116.3	32.0	74.1	51.5
Brisbane	137	46.61	88.26	16.17	75.8	59.6	108.9	36.1	77.2	58.1
Sydney	146	48.16	82.81	21.49	70.9	53.8	108.5	35.9	71.6	52.3
Melbourne	115	25.44	36.61	15.61	66.4	49.9	111.2	27.0	67.4	48.5
Hobart	160	23.51	40.67	13.43	61.7	46.6	105.2	27.0	62.4	45.3

* Mean of the three hottest months. † Mean of the three coldest months.

17. Climatological Tables.—The means, averages, extremes, totals, etc., for a number of climatological elements have been determined from long series of observations at the Australian capitals. These are given in the following tables:—

GRAPHS SHEWING ANNUAL FLUCTUATIONS OF MEAN MAXIMUM AND MINIMUM TEMPERATURE AND HUMIDITY IN SEVERAL PARTS OF THE COMMONWEALTH OF AUSTRALIA.



EXPLANATION OF THE GRAPHS OF TEMPERATURE AND HUMIDITY.—In the above graphs, in which the heavy lines denote 'temperature' and the thin lines 'humidity,' the fluctuations of mean temperature and mean humidity are shewn throughout the year. These curves are plotted from the data given in the Climatological Tables hereinafter. The temperatures are shewn in degrees Fahrenheit, the inner columns giving the corresponding values in Centigrade degrees. Humidities have not been obtained for Darwin, Daly Waters, and Alice Springs.

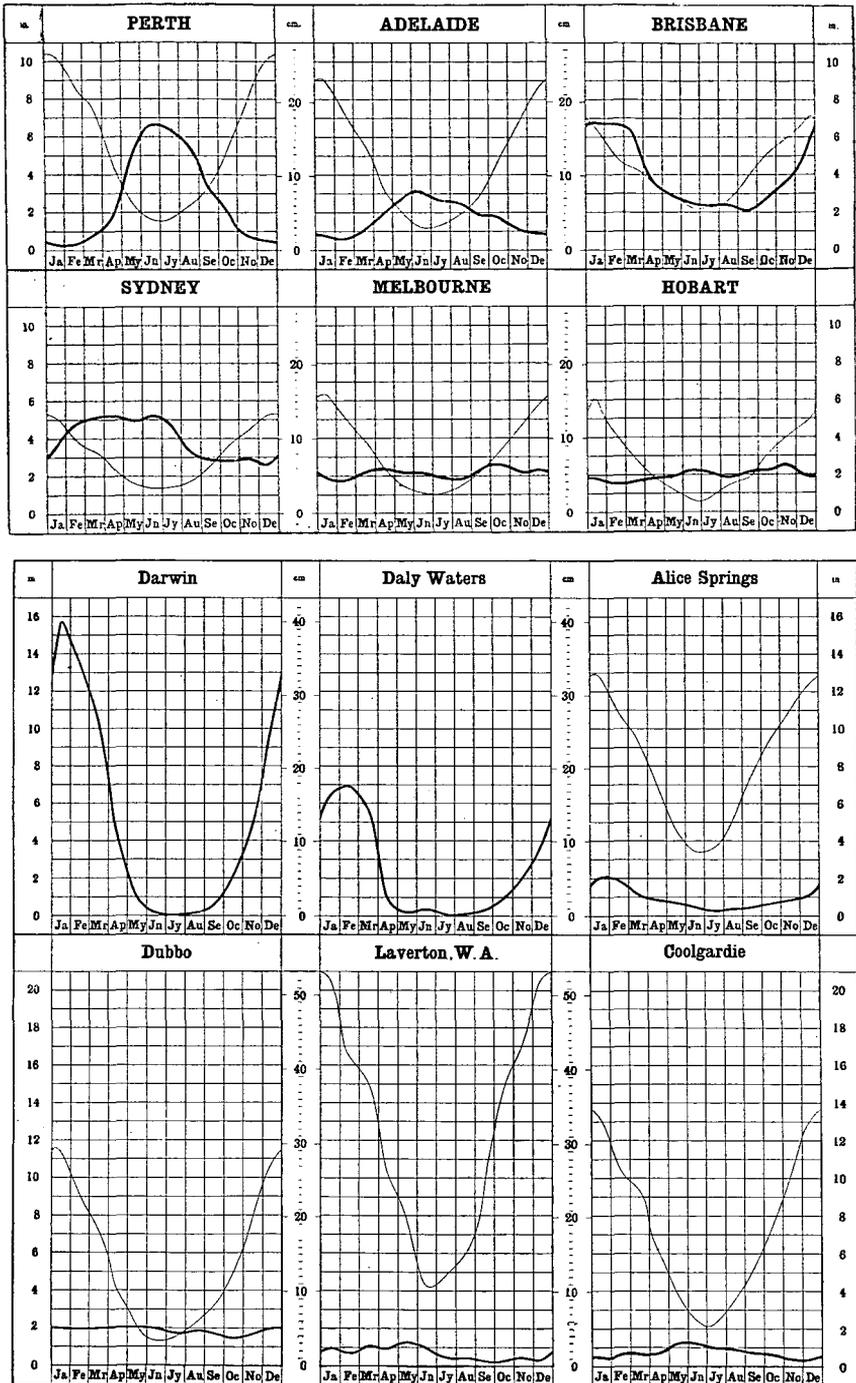
For the thin lines the degree numbers represent relative humidities, or the percentages of actual saturation on the total for the respective temperatures.

The upper temperature line represents the mean of the maximum, and the lower line the mean of the minimum results; thus the curves also shew the progression of the range between maximum and minimum temperatures throughout the year. The humidity curves shew the highest and lowest values of the mean monthly humidity at 9 a.m. recorded during a series of years.

INTERPRETATION OF THE GRAPHS.—The curves denote mean monthly values. Thus, taking for example, the temperature graphs for Perth, the mean readings of the maximum and minimum temperatures for a number of years on 1st January would give respectively about 83° Fahr. and 62° Fahr. Thus the mean range of temperature on that date is the difference, viz., 21°. Similarly, observations about 1st June would give respectively about 66° Fahr. and 51° Fahr., or a range of 15°.

In a similar manner it will be seen that the greatest mean humidity, say for March, is about 66° and the least mean humidity for the month 48°; in other words, at Perth, the degree of saturation of the atmosphere by aqueous vapour for the month of March ranges between 66% and 48%.

GRAPHS SHEWING ANNUAL FLUCTUATIONS OF MEAN RAINFALL AND MEAN EVAPORATION IN SEVERAL PARTS OF THE COMMONWEALTH OF AUSTRALIA.



(For Explanation see next page.)

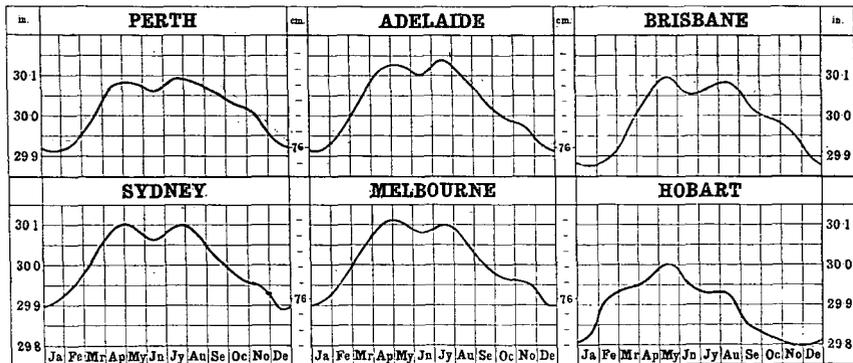
EXPLANATION OF THE GRAPHS OF RAINFALL AND EVAPORATION.—On the preceding graphs thick lines denote rainfall and thin lines evaporation, and shew the fluctuation of the mean rate of fall *per month* throughout the year. The results, plotted from the Climatological Tables hereinafter, are shewn in inches (see the outer columns), and the corresponding metric scale (centimetres) is shewn in the two inner columns. The evaporation is not given for Darwin and Daly Waters.

INTERPRETATION OF THE GRAPHS.—The distance for any date from the zero line to the curve, represents the average number of inches, reckoned as per month, of rainfall at that date. Thus, taking the curves for Adelaide, on the 1st January the rain falls on the average at the rate of about four-fifths of an inch per month, or, say, at the rate of about 9½ inches per year. In the middle of June it falls at the rate of nearly 3 inches per month, or, say, at the rate of about 36 inches per year. At Dubbo the evaporation is at the rate of nearly 11½ inches per month about the middle of January, and only about 1½ inches at the middle of June.

TABLE SHEWING MEAN ANNUAL RAINFALL AND EVAPORATION IN INCHES OF THE PLACES SHEWN ON PRECEDING PAGE, AND REPRESENTED BY THE GRAPHS.

—	Rainfall.	Evapora- tion.	—	Rainfall.	Evapora- tion.
Perth ...	33.25	65.99	Darwin... ..	61.30	—
Adelaide ...	21.00	54.16	Daly Waters... ..	26.69	—
Brisbane ...	46.61	51.33	Alice Springs... ..	10.87	97.74
Sydney ...	47.40	37.10	Dubbo ...	22.26	66.37
Melbourne ...	25.12	38.43	Laverton, W.A.	9.13	146.90
Hobart ...	23.51	32.79	Coolgardie ...	9.17	97.72

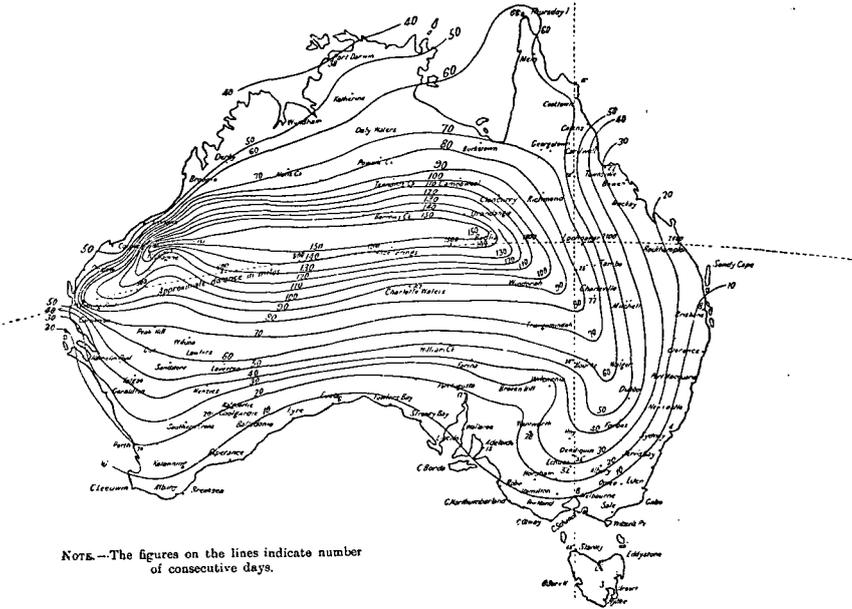
GRAPHS SHEWING ANNUAL FLUCTUATIONS OF MEAN BAROMETRIC PRESSURE FOR THE CAPITALS OF THE SEVERAL STATES OF THE COMMONWEALTH OF AUSTRALIA.



EXPLANATION OF THE GRAPHS OF BAROMETRIC PRESSURE.—On the above graphs the lines representing the yearly fluctuation of barometric pressure at the State capital cities are means for long periods, and are plotted from the Climatological Tables given hereinafter. The pressures are shewn in inches on about 2½ times the natural scale, and the corresponding pressures in centimetres are also shewn in the two inner columns, in which each division represents one millimetre.

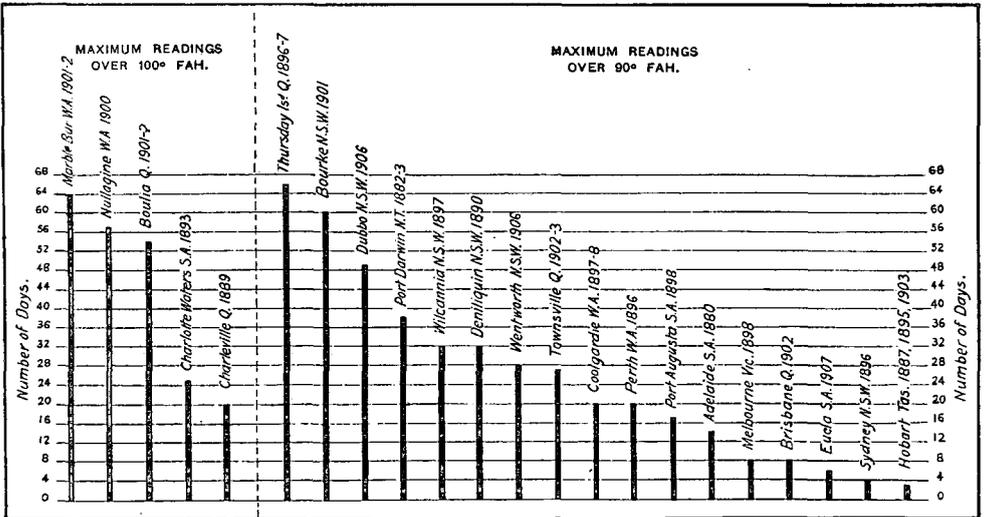
INTERPRETATION OF THE BAROMETRIC GRAPHS.—Taking the Brisbane graph for purposes of illustration, it will be seen that the mean pressure on 1st January is about 29.87 inches, and there are maxima in the middle of May and August of about 30.10 and 30.08 respectively. The double maxima appear clearly on each graph.

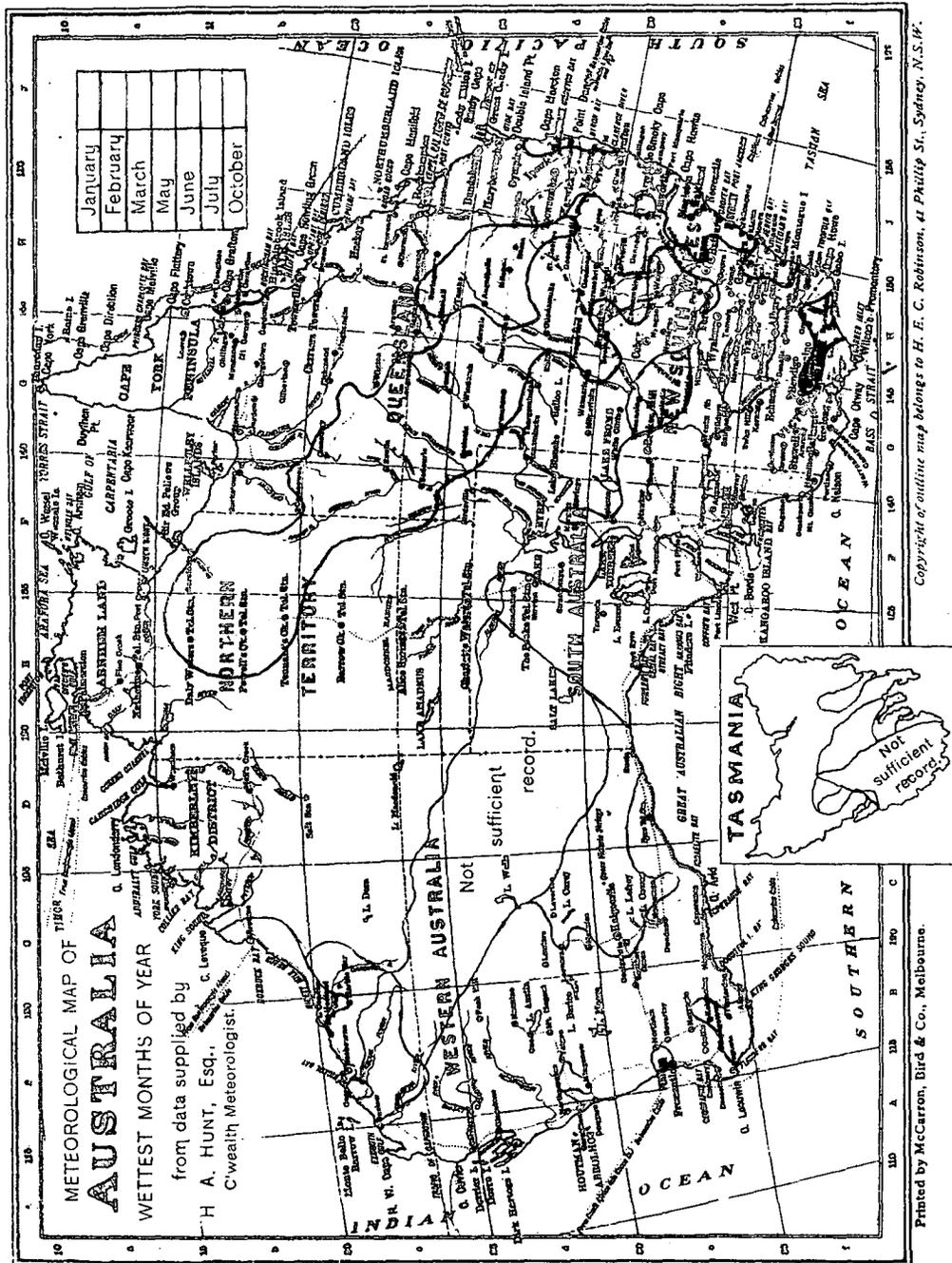
Chart indicating the area affected and period of duration of the Longest Heat Waves when the Maximum Temperature for consecutive 24 hours reached or exceeded 90° Fah.



NOTE.—The figures on the lines indicate number of consecutive days.

Diagram showing the greatest number of consecutive days on which the Temperature in the shade was over 100° and also over 90° at the places indicated.





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METEOROLOGICAL SUB-DIVISIONS.

- WEST AUSTRALIA.**
1. East Kimberley.
 2. West Kimberley.
 3. North-West.
 4. Gascoyne.
 5. South-West.
 6. Eucla.
 7. Eastern.

- QUEENSLAND.**
17. Peninsular.
 18. Gulf.
 19. Far West.
 20. Central.
 21. Nth-East Coast.

- NORTHERN TERRITORY.**
22. Upper North.
 23. North-East.
 24. Lower North.
 25. Central.
 26. Murray Valley.
 27. South-East.

- NEW SOUTH WALES.**
27. Western.
 28. North-West Plain.
 29. North-West Slope.
 30. Northern Tableland
 31. North Coast.
 32. Hunter & Manning.

- SOUTH AUSTRALIA.**
33. Central Tableland.
 - 33a. Metropolitan.
 34. Cent. Westn. Slope.
 35. Cent. Westn. Plain.
 36. Riverina.
 37. South-West Slope.
 38. Southern Tableland
 39. South Coast.
- VICTORIA.**
40. Gippsland.
 41. North-East.
 42. Central.

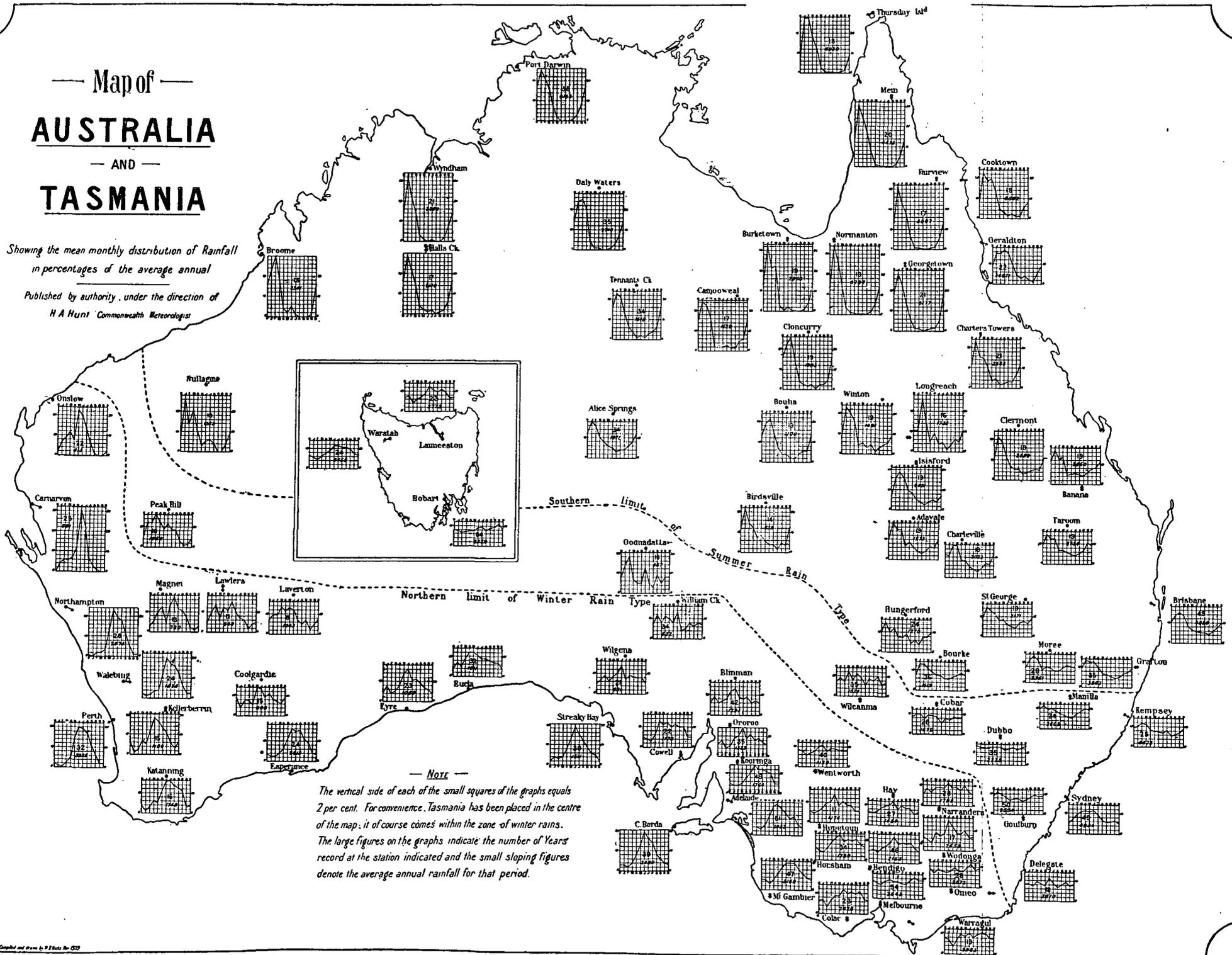
- TASMANIA.**
43. North Central.
 44. Northern Country.
 45. Mallee.
 46. Wimmera.
 47. Western.
 48. Northern.
 49. W. Coast Mt. Region
 50. Central Plateau.
 51. Midland.
 52. East Coast.
 53. Derwent.
 54. South-Eastern.

The above are the meteorological sub-divisions adopted by H. A. HUNT, Esq., C'wealth Meteorologist.

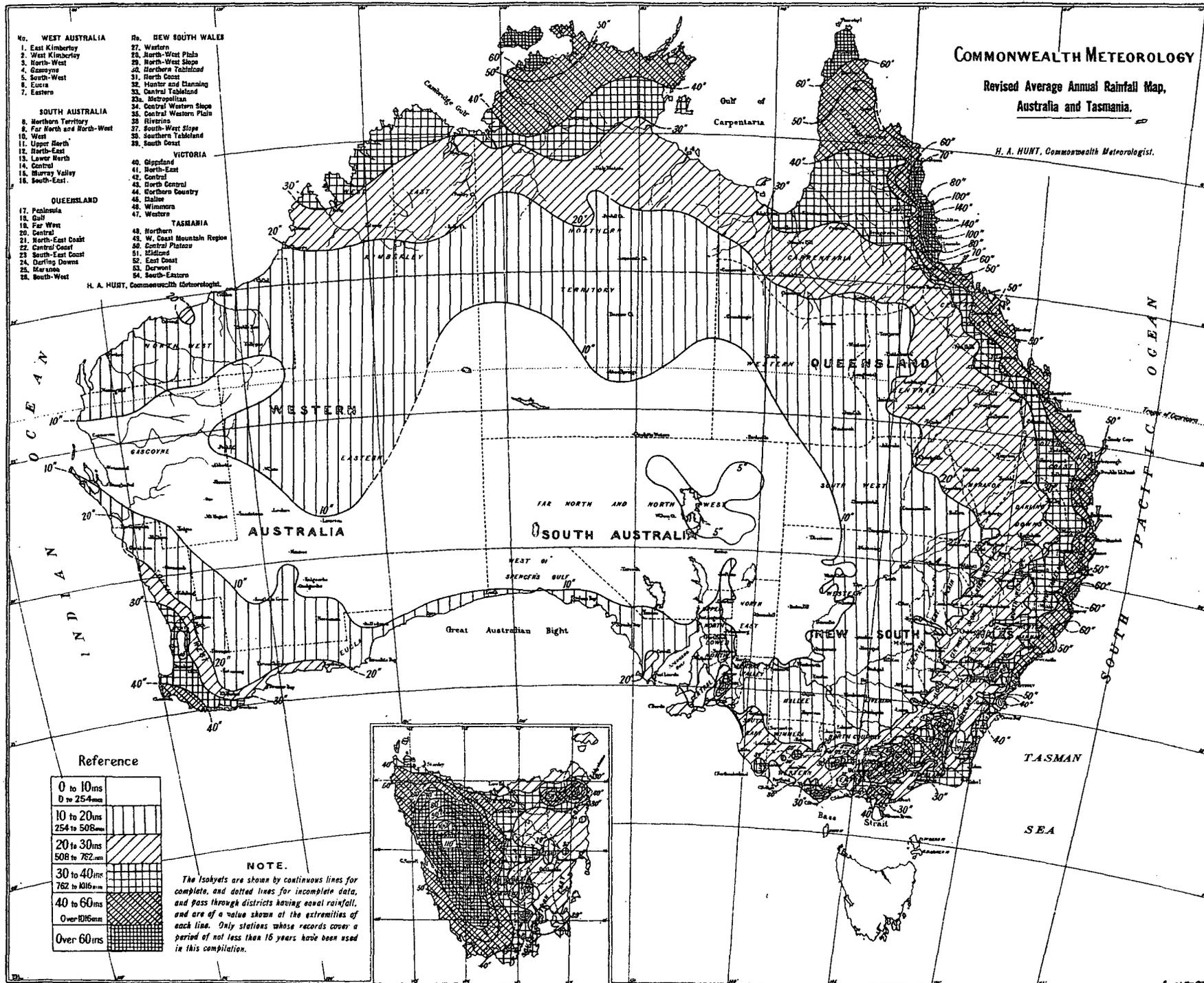
— Map of —
AUSTRALIA
 — AND —
TASMANIA

Showing the mean monthly distribution of Rainfall
 in percentages of the average annual

Published by authority, under the direction of
 H A Hunt Commonwealth Meteorologist



— Note —
 The vertical side of each of the small squares of the graphs equals
 2 per cent. For convenience, Tasmania has been placed in the centre
 of the map; it of course comes within the zone of winter rains.
 The large figures on the graphs indicate the number of Years
 record at the station indicated and the small sloping figures
 denote the average annual rainfall for that period.



- No. WEST AUSTRALIA**
1. East Kimberley
 2. West Kimberley
 3. North-West
 4. Gascoyne
 5. South-West
 6. Catta
 7. Eastern
- SOUTH AUSTRALIA**
8. Northern Territory
 9. Far North and North-West
 10. West
 11. Upper North
 12. North-East
 13. Lower North
 14. Central
 15. Murray Valley
 16. South-East
- QUEENSLAND**
17. Peninsula
 18. Gulf
 19. Far West
 20. Central
 21. North-East Coast
 22. Central Coast
 23. South-East Coast
 24. Darling Downs
 25. Maranoa
 26. South-West
- NEW SOUTH WALES**
27. Western
 28. North-West Plains
 29. North-West Slope
 30. Northern Tableland
 31. North Coast
 32. Hunter and Manning
 33. Central Tableland
 34. Metropolitan
 35. Central Western Slope
 36. Central Western Plain
 37. Riverina
 38. South-West Slope
 39. Southern Tableland
 40. South Coast
- VICTORIA**
41. Gippsland
 42. North-East
 43. Central
 44. North Central
 45. North Coast
 46. Dalmia
 47. Wimmera
 48. Western
- TASMANIA**
49. Northern
 50. W. Coast Mountain Region
 51. Central Plateau
 52. Island
 53. East Coast
 54. Derwent
 55. South-Eastern
 56. South-West

H. A. HUNT, Commonwealth Meteorologist.

COMMONWEALTH METEOROLOGY
 Revised Average Annual Rainfall Map,
 Australia and Tasmania.

H. A. HUNT, Commonwealth Meteorologist.

Reference

0 to 10ins	0 to 254mm
10 to 20ins	254 to 508mm
20 to 30ins	508 to 762mm
30 to 40ins	762 to 1016mm
40 to 60ins	
Over 60ins	

NOTE.

The isohyets are shown by continuous lines for complete, and dotted lines for incomplete data, and pass through districts having equal rainfall, and are of a value shown at the extremities of each line. Only stations whose records cover a period of not less than 15 years have been used in this compilation.

THE CLIMATE AND METEOROLOGY OF AUSTRALIA.

CLIMATOLOGICAL DATA FOR PERTH, W.A.

LAT. 31° 57' S., LONG. 115° 51' E. HEIGHT ABOVE M.S.L. 197 FT.

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

Month.	Bar. corrected to 32° F. Mm. 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.	No. of Clear Days.
		Greatest Number of Miles in one day.	Mean Hourly Pressure. (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends	29	16	16	16	16	15	16	17	17
January	29.911	797 27/98	0.71	11,458	S	10.38	1.3	2.7	16.7
February	29.928	650 6/08	0.67	10,124	SSE	8.76	1.1	2.8	14.5
March	29.988	651 6/13	0.57	10,252	SSE	7.71	0.9	3.4	14.8
April	30.073	955 25/00	0.44	8,833	SE	4.79	0.8	4.5	9.7
May	30.084	768 5/12	0.36	8,106	ENE	2.72	1.9	5.4	7.4
June	30.066	861 27/10	0.39	8,119	NNE	1.68	1.8	6.0	5.2
July	30.096	949 11/99	0.41	8,638	NNE	1.66	2.4	5.6	7.2
August	30.086	966 15/03	0.43	8,952	WSW	2.32	1.4	5.4	7.6
September	30.059	864 11/05	0.48	9,222	SW	3.30	1.6	5.3	7.4
October	30.034	686 15/98	0.55	10,025	SSW	5.27	0.9	5.2	8.0
November	29.994	777 18/97	0.60	10,190	S	7.67	0.9	4.0	10.7
December	29.932	672 31/98	0.66	11,000	S	9.73	1.6	3.2	14.9
Year	(Totals Averages Extremes)	(— — —)	(— — —)	(— — —)	(— — —)	(— — —)	(— — —)	(— — —)	(— — —)
	30.021	966 15/8/03	0.51	9,574	S	65.90	16.6	4.4	124.1

TEMPERATURE.

Month.	Mean Temperature.			Extreme Shade Temperature.		Greatest Range.	Extreme Temperature.		Sea water, 3 ft. below surface
	Mean Max.	Mean Min.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of yrs. over which observation extends	17	17	17	17	17	17	16	15	—
January	84.2	63.0	73.6	107.0 16/97	50.6 25/01	56.4	171.1 4/04	42.4 25/02	—
February	85.1	63.4	74.2	106.8 6/98	47.7 1/02	59.1	169.0 4/99	39.8 1/13	—
March	81.5	60.8	71.2	104.3 6/7/08	45.8 8/03	58.5	161.6 †	36.7 8/03	—
April	76.0	56.9	66.4	99.7 9/10	42.4 2/01	57.3	156.8 2/13	34.6 25/13	—
May	68.7	52.4	60.6	90.4 2/07	39.9 *	50.5	138.8 15/02	31.0 28/12	—
June	63.7	49.0	56.4	77.1 9/07	36.9 14/98	40.2	134.8 8/13	30.2 14/98	—
July	62.5	47.5	55.0	73.8 24/98	36.4 19/06	37.4	132.9 25/13	27.6 21/11	—
August	63.8	48.0	55.9	80.4 30/02	35.3 31/08	45.1	139.1 21/13	27.9 10/11	—
September	65.8	50.1	58.0	86.7 30/13	38.9 17/13	47.4	147.2 30/13	30.2 25/13	—
October	69.1	52.6	60.8	93.4 17/06	41.2 10/03	52.2	152.6 30/01	33.4 1/10	—
November	74.8	56.0	65.4	104.6 24/13	42.0 1/04	58.9	164.5 24/13	35.5 †	—
December	80.5	60.5	70.5	107.9 20/04	48.0 2/10	59.9	168.3 20/04	39.1 2/10	—
Year	(Averages Extremes)	(— — —)	(— — —)	(— — —)	(— — —)	(— — —)	(— — —)	(— — —)	(— — —)
	73.0	55.0	64.0	107.9 20/12/04	35.3 31/8/08	72.6	171.1 4/1/04	27.6 21/7/11	—

* 17 and 18, 1899. † 1/99 and 1/09. ‡ 6/10 and 14/12.

HUMIDITY, RAINFALL, AND DEW.

Month.	Humidity.			Rainfall.				Dew.		
	Mean 9 a.m.	Highest Mean.	Lowest Mean.	Mean Monthly.	Mean No. of Days of Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean Amount of Dew.	Mean No. of days Dew
No. of yrs. over which observation extends	17	17	17	38	38	38	38	38	—	17
January	52	69	45	0.32	3	2.17 1879	nil *	1.74 28/79	—	2.7
February	54	64	47	0.31	2	2.30 1883	nil †	0.90 10/83	—	2.0
March	57	65	48	0.70	4	4.50 1896	nil ‡	1.53 17/76	—	4.1
April	64	70	54	1.66	7	4.97 1882	0.05 †	2.62 30/04	—	8.3
May	73	81	60	4.78	14	12.13 1879	0.98 1903	2.80 20/79	—	12.0
June	78	83	72	6.57	16	12.11 1890	2.16 1877	2.65 16/00	—	12.2
July	78	81	72	6.46	16	10.90 1902	2.42 1876	3.00 4/91	—	13.4
August	74	79	68	5.66	18	10.33 1882	0.46 1902	2.79 7/03	—	11.0
September	68	76	64	3.36	14	7.72 1903	0.69 1877	1.73 23/03	—	9.3
October	63	75	56	2.09	11	7.87 1890	0.49 1892	1.38 15/10	—	6.2
November	55	62	49	0.76	6	2.12 1880	nil 1891	1.11 30/03	—	5.0
December	52	62	46	0.58	4	3.05 1888	nil 1886	1.72 1/88	—	3.4
Year	(Totals Averages Extremes)	(— — —)	(— — —)	(— — —)	(— — —)	(— — —)	(— — —)	(— — —)	(— — —)	(— — —)
	62	83	45	33.25	115	12.13 5/79	nil §	3.00 4/7/91	—	88.6

* 1888, 1894, 1897, and 1911. † 1885, 1891, 1896, 1903, and 1913. ‡ 1877, 1884, and 1886. § 1890 and 1894. † January, February, March, November, and December, various years.

CLIMATOLOGICAL DATA FOR ADELAIDE, S.A.

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

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

Month.	Bar. corrected to 33° F. Mm. Sea Level. State of 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. to 3 p.m., & 9 p.m.	No. of Clear Days.
		Greatest Number of Miles in one day.	Mean Hourly Pressure. (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends	57	36	36	36	36	41	42	46	32
January ...	29.915	758 19/99	0.36	8,119	S W & S	8.95	2.3	3.5	7.8
February ...	29.952	691 22/96	0.31	6,874	S W & S	7.27	2.0	3.4	7.0
March ...	30.037	628 9/12	0.26	6,870	S W to S E	5.75	2.2	4.0	6.6
April ...	30.118	773 10/96	0.23	6,276	S W & S E	3.39	1.7	5.0	3.9
May ...	30.127	760 9/60	0.21	6,220	N E to N	1.99	1.8	5.7	1.6
June ...	30.102	750 12/78	0.26	6,655	N E to N	1.23	2.0	6.2	1.4
July ...	30.133	674 25/83	0.25	6,847	N E to N	1.29	1.6	5.3	1.4
August ...	30.098	773 31/97	0.29	7,276	N E to N E	1.85	2.3	5.7	1.9
September ...	30.039	720 2/87	0.32	7,414	N E & S W	2.81	2.4	5.2	2.6
October ...	29.997	768 28/98	0.35	8,028	S W & N E	4.72	3.6	4.9	3.9
November ...	29.974	677 2/04	0.34	7,729	W S W to S	6.53	3.9	4.5	5.3
December ...	29.919	675 12/91	0.36	8,098	W S W to S	8.39	2.8	3.8	6.9
Year { Totals ...	—	—	—	—	—	54.16	28.6	—	50.3
Year { Averages ...	30.034	—	0.30	7,200	S W	—	—	4.8	—
Year { Extremes ...	—	773*	—	—	—	—	—	—	—

* 10/4/96 and 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 3 ft. below surface.
	Mean Max.	Mean Min.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of yrs. over which observation extends	57	57	57	57	57	57	36	53	38
January ...	86.6	61.7	74.1	116.3 26/58	45.1 21/84	71.2	180.0 18/82	36.5 14/79	70.8
February ...	86.1	62.0	74.0	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	63.9	98.0 10/66	39.6 15/59	58.4	155.0 1/83	30.3 27/08	64.0
May ...	65.4	50.0	57.7	88.3 5/66	36.9 —/41	51.4	148.2 12/79	25.9 10/91	59.1
June ...	60.2	46.6	53.4	76.0 23/65	32.5 27/76	43.5	138.8 18/79	22.9 12/13	54.7
July ...	58.7	44.4	51.5	74.0 11/06	32.0 24/08	42.0	134.5 26/90	23.3 25/11	52.2
August ...	61.9	45.8	53.9	85.0 31/11	32.3 17/59	52.7	140.0 31/92	23.5 7/88	53.3
September ...	65.2	47.8	57.0	90.7 23/82	32.7 4/58	53.0	160.5 23/82	26.2 15/08	56.5
October ...	72.5	47.8	61.9	100.5 30/59	36.0 —/57	64.5	153.8 19/82	29.5 7/06	60.7
November ...	78.8	53.3	67.0	113.5 21/65	40.8 2/09	72.7	168.9 20/78	31.5 2/09	65.2
December ...	83.4	58.9	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	—	—	—	180.0	—	62.0
Year { Extremes ...	—	—	—	116.3 26/11/58	32.0 24/7/08	84.3	181/1/82	22.9 12/6/13	—

* Taken at Lighthouse at entrance to Port River. † 26/1895 and 24/1904. ‡ 16/61 and 4/06.

HUMIDITY, RAINFALL, AND DEW.

Month.	Humidity.			Rainfall.				Dew.		
	Mean 9 a.m.	Highest	Lowest Mean.	Mean Monthly.	Mean No. of Days Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean Amount of Dew.	Mean No. of days Dew.
No. of yrs. over which observation extends	46	46	46	75	75	75	75	75	—	42
January ...	38	59	33	0.72	4	4.00 1850	nil *	2.30 9/89	—	4
February ...	42	56	37	0.63	4	2.67 1858	nil †	2.24 14/13	—	5
March ...	47	53	40	1.06	6	4.60 1878	nil ‡	3.50 5/78	—	10
April ...	56	72	44	1.86	9	6.78 1853	0.06 1910	3.15 5/60	—	14
May ...	68	76	49	2.72	14	7.75 1875	0.20 1891	2.47 5/75	—	16
June ...	77	84	69	3.06	16	7.80 1847	0.42 1886	1.45 2/49	—	16
July ...	76	87	71	2.64	16	5.38 1865	0.36 1859	1.75 10/65	—	17
August ...	70	77	64	2.50	16	6.24 1852	0.76 1911	2.23 19/51	—	16
September ...	63	72	54	1.96	14	4.64 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	1.15	8	3.55 1851	0.04 16/85	1.88 28/58	—	7
December ...	39	50	33	0.96	6	3.98 1861	nil 1904	2.42 23/13	—	4
Year { Totals ...	—	—	—	21.01	124	—	—	—	—	136
Year { Averages ...	54	—	—	—	—	7.80	—	—	—	—
Year { Extremes ...	—	87	33	—	—	—	nil	3.50	—	—

* 1848, 1849, 1878 and 1906.

† 1848, 1860, etc.

‡ 1859, etc.

§ January, February, March and December, various years.

|| and 25/84.

CLIMATOLOGICAL DATA FOR BRISBANE, QUEENSLAND.

LAT. 27° 28' S., LONG. 153° 2' E. HEIGHT ABOVE M.S.L. 137 FT.

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

Month.	Bar. corrected to 32 F. Mm. Sea Level and Standard Gravity from 9 a.m. & 3 p.m. readings.	Wind.				Mean Amount of Evaporation.	No. of Days Lightning.	Mean Amount of Clouds. 9 a.m. & 3 p.m.	No. of Clear Days.
		Greatest Number of Miles in one day.	Mean Hourly Pressure. (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends	27	3	3	3	27	5	27	27	5
January ...	29.866	267 12/11	0.06	3,312	E	6.492	4.4	6.2	2.6
February ...	29.895	194 13/11	0.04	2,663	S E	4.729	4.8	6.3	1.8
March ...	29.951	161 25/11	0.03	2,387	S E	4.467	3.4	6.0	3.2
April ...	30.042	209 10/13	0.03	2,249	S S E	3.691	2.7	5.1	9.2
May ...	30.091	149 15/13	0.02	2,161	S W	2.909	2.5	4.9	8.4
June ...	30.061	170 20/11	0.03	2,198	S W	2.058	1.8	4.4	6.8
July ...	30.065	165 1/13	0.02	2,016	S W	3.382	2.1	3.9	13.0
August ...	30.085	147 10/11	0.02	2,034	S W	2.656	3.6	3.9	10.4
September ...	30.024	158 16/11	0.02	1,982	S E	3.907	5.6	3.8	11.8
October ...	29.997	173 23/13	0.04	2,850	E N E	5.116	6.5	4.4	9.0
November ...	29.956	199 19/13	0.05	2,877	N E	5.888	7.7	5.2	6.4
December ...	29.885	295 21/13	0.06	3,192	E N E	6.828	8.3	5.6	4.2
Year { Totals ...	—	—	—	—	—	51.133	53.4	—	86.8
{ Averages ...	29.993	—	0.04	2,493	S'ly to E'ly	—	—	5.0	—
{ Extremes ...	—	295 21/12/13	—	—	—	—	—	—	—

TEMPERATURE.

Month.	Mean Temperature.			Extreme Shade Temperature.		Greatest Range.	Extreme Temperature.		Sea water 3 ft. below surface.
	Mean Max.	Mean Min.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of yrs. over which observation extends	27	27	27	27	27	27	27	27	—
January ...	85.4	68.9	77.2	108.9 14/02	58.8 4/93	50.1	164.4 2/13	49.9 4/93	—
February ...	84.5	68.5	76.5	101.9 11/04	58.7 * 43.2	43.2	165.2 6/10	49.3 9/89	—
March ...	82.3	66.5	74.4	96.8 16/83	52.4 29/13	44.4	160.0 1/87	45.4 23/13	—
April ...	79.0	61.6	70.3	95.2 † 48.6	17/00	46.6	150.1 † 37.0	17/00	—
May ...	73.5	55.4	64.4	88.8 18/97	41.3 24/99	47.5	147.0 1/10	29.3 8/97	—
June ...	69.2	50.7	60.0	81.5 6/06	36.3 29/08	45.2	133.9 6/05	25.4 23/88	—
July ...	68.2	48.0	58.1	83.4 23/98	36.1 † 47.3	134.4 29/89	23.9 11/90	—	
August ...	71.3	49.8	60.6	87.5 28/07	37.4 6/87	50.1	140.7 30/88	27.1 9/99	—
September ...	75.8	54.6	65.3	95.2 16/12	40.7 1/96	54.5	155.5 26/03	30.4 1/89	—
October ...	79.9	59.8	69.8	101.4 18/93	43.3 8/89	58.1	156.5 31/89	34.9 8/89	—
November ...	82.9	64.0	73.5	106.1 18/13	48.5 2/05	57.6	162.3 7/89	38.8 1/05	—
December ...	85.5	67.5	76.5	105.9 26/93	56.4 13/12	49.5	159.5 23/89	49.1 3/94	—
Year { Averages ...	78.1	59.6	68.9	—	—	—	—	—	—
{ Extremes ...	—	—	—	108.9 14/1/02	36.1 —	72.8	165.2 6/2/10	23.9 11/7/90	—

* 10,11/04. † 9/86 and 5/03. ‡ 12/94 and 2/96. § 12/7/94 and 2/7/96. ¶ 1/08 and 6/13.

HUMIDITY, RAINFALL, AND DEW.

Month.	Humidity.				Rainfall.				Dew.		
	Mean 9 a.m.	Highest	Mean	Lowest	Mean Monthly.	Mean No. of Days of Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean Amount of Dew.	Mean No. of days Dew
No. of yrs. over which observation extends	27	27	27	27	62	54	62	62	—	—	27
January ...	65	79	53	5.63	14	27.72 1895	0.61 1882	18.31 21/87	—	—	2.7
February ...	69	82	55	6.60	14	40.39 1893	0.77 1904	8.36 16/93	—	—	2.8
March ...	72	85	56	5.16	16	34.04 1870	0.58 1868	11.18 14/08	—	—	5.0
April ...	72	79	60	3.69	13	15.28 1867	0.05 1897	3.93 20/92	—	—	8.7
May ...	74	85	64	2.97	10	13.85 1876	0.00 1846	5.62 9/79	—	—	9.5
June ...	74	82	67	2.66	8	14.03 1873	0.02 1895	6.01 9/93	—	—	7.3
July ...	73	80	67	2.33	8	8.46 1859	0.00 1841	3.54 †	—	—	8.4
August ...	71	80	62	2.32	7	14.67 1879	0.00	4.89 12/87	—	—	6.0
September ...	65	76	47	2.05	9	5.43 1886	0.10 1907	2.46 2/94	—	—	6.2
October ...	61	72	52	2.75	10	9.99 1862	0.14 1900	1.95 20/89	—	—	4.6
November ...	59	71	45	3.62	10	10.43 1846	0.00 1842	44.6 16/86	—	—	1.7
December ...	61	67	52	5.07	12	13.99 1910	0.35 1865	6.60 28/71	—	—	1.6
Year { Totals ...	—	—	—	46.85	181	—	—	—	—	—	64.5
{ Averages ...	68	—	—	—	—	40.39 2/1893	0.00 †	18.31 21/1/87	—	—	—
{ Extremes ...	—	85	45	—	—	—	—	—	—	—	—

* 1862, 1869, 1880.

† 5/1846, 7/1841, 8/1862, 1869, 1880, 11/1842.

‡ 15/76, 16/89.

** Means and Extremes to end 1912.

CLIMATOLOGICAL DATA FOR SYDNEY, N.S.W.

LAT. 33° 52' S., LONG. 151° 12' E. HEIGHT ABOVE M.S.L. 146 FT.

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

Month.	Bar. corrected to 29.92 in. at Sea Level and Standard Gravity from 24 hourly readings.	Wind.				Mean Amount of Evaporation.	No. of Days Lightning.	Mean Amount of Clouds.	No. of Clear Days.
		Greatest Number of Miles in one day.	Mean Hourly Pressure. (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends	55	47	47	47	55	34	54	52	50
January ...	29.905	721 1/71	0.38	8,313	NE	5.12	4.7	5.8	1.8
February ...	29.950	871 12/69	0.34	7,187	NE	3.98	4.3	6.1	1.1
March ...	30.021	943 20/70	0.25	6,881	NE	3.39	4.2	5.6	1.7
April ...	30.077	803 6/82	0.23	6,316	NE	2.44	3.9	5.1	2.5
May ...	30.086	758 6/98	0.23	6,452	W	1.62	3.6	4.9	3.0
June ...	30.067	712 7/00	0.30	7,193	W	1.36	2.2	4.8	3.2
July ...	30.089	930 17/79	0.29	7,309	W	1.42	2.6	4.4	4.0
August ...	30.076	756 22/72	0.27	7,050	W	1.75	3.4	4.1	4.4
September ...	30.011	964 6/74	0.31	7,296	W	2.57	4.1	4.4	3.4
October ...	29.972	926 4/72	0.34	7,923	NE	3.71	5.0	5.0	2.1
November ...	29.951	720 13/68	0.35	7,784	NE	4.46	5.5	5.5	1.4
December ...	29.886	938 3/84	0.36	8,204	NE	5.28	5.6	5.6	1.8
Year { Totals ...	—	—	—	—	—	37.10	49.1	—	30.4
Averages ...	30.007	—	0.30	7,326	NE	—	—	5.1	—
Extremes ...	—	964 6/9/74	—	—	—	—	—	—	—

TEMPERATURE.

Month.	Mean Temperature.			Extreme Shade Temperature.		Greatest Range.	Extreme Temperature.		* Sea water in 3 ft. below surface.
	Mean Max.	Mean Min.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of yrs. over which observation extends	55	55	55	55	55	55	54	54	53
January ...	78.3	64.9	71.6	108.5 13/96	51.2 14/65	57.3	160.9 13/96	44.2 18/97	71.5
February ...	77.3	64.8	71.0	101.0 19/66	49.3 28/63	51.7	162.1 16/98	43.4 25/91	72.0
March ...	75.4	63.0	69.2	102.6 3/69	48.8 14/86	53.8	172.3 4/89	39.9 17/13	71.1
April ...	70.9	58.1	64.5	89.0 4/09	44.6 27/64	44.4	144.1 10/77	33.3 24/09	68.4
May ...	65.0	52.0	58.5	83.5 1/59	40.2 22/59	43.3	129.7 1/96	30.1 5/09	64.2
June ...	60.4	48.2	54.3	74.7 24/72	38.1 29/62	36.6	123.0 14/78	28.1 24/11	59.9
July ...	58.9	45.7	52.3	74.9 17/71	35.9 12/90	39.0	144.3 15/98	24.0 4/91	57.3
August ...	62.3	47.5	54.9	82.0 31/84	36.8 3/72	45.2	149.0 30/78	26.1 4/09	57.7
September ...	66.4	51.4	58.9	91.1 24/07	40.8 18/64	50.3	142.2 12/78	30.1 17/05	60.3
October ...	71.1	55.8	63.5	99.7 19/98	43.3 2/99	56.4	149.9 13/96†	32.7 9/05	63.4
November ...	74.3	59.6	67.0	102.7 21/78	45.8 1/05	56.9	158.5 28/99	36.0 6/06	67.0
December ...	77.3	62.8	70.1	107.5 31/04	49.3 2/59	58.2	171.5 4/88	41.5 6/09	69.7
Year { Averages ...	69.8	56.2	63.0	—	—	—	—	—	65.2
Extremes ...	—	—	—	108.5 13/1/96	35.9 12/7/90	72.6	172.3 4/3/89	24.0 4/7/93	—

* Taken at Fort Denison. † and 25/1910.

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 yrs. over which observation extends	55	55	55	55	55	55	55	55	54	54
January ...	70	78	59	3.57	14.3	15.26 1911	0.42 1888	7.08 13/11	0.002	1.4
February ...	72	81	60	4.67	14.2	18.56 1873	0.34 1902	8.90 25/73	0.004	2.1
March ...	75	85	63	5.21	15.2	15.70 1870	0.42 1876	6.52 9/13	0.008	3.4
April ...	77	87	64	5.32	13.3	24.49 1861	0.06 1868	7.52 29/60	0.017	5.9
May ...	77	90	66	4.91	15.6	20.87 1889	0.21 1885	8.36 28/89	0.022	6.5
June ...	79	89	68	5.25	13.1	16.30 1885	0.19 1904	5.17 16/84	0.018	5.4
July ...	77	88	66	4.84	12.5	13.21 1900	0.12 1862	5.72 28/08	0.016	5.5
August ...	74	84	56	3.21	11.4	14.89 1889	0.04 1885	5.33 2/60	0.014	5.0
September ...	69	79	49	2.82	12.2	14.05 1879	0.08 1862	5.69 10/79	0.008	3.7
October ...	67	77	55	2.76	12.6	10.81 1902	0.21 1867	6.37 13/02	0.007	3.2
November ...	67	79	54	2.57	12.5	9.88 1865	0.19 1910	4.23 19/00	0.004	2.3
December ...	67	77	52	2.55	12.8	8.47 1910	0.45 1876	4.75 13/10	0.003	1.6
Year { Totals ...	—	—	—	47.98	159.7	—	—	—	0.123	46.0
Averages ...	73	—	—	—	—	—	—	—	—	—
Extremes ...	—	90	49	—	—	24.49 4/1861	0.04 8/1885	8.90 25/2/73	—	—

CLIMATOLOGICAL DATA FOR MELBOURNE, VICTORIA.

LAT. 37° 49' S., LONG. 144° 59' E. HEIGHT ABOVE M.S.L. 115 FT.

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

Month.	Bar. corrected to 32° F. M. Sea Level and Standard Gravity from 9 a.m., 3 & 9 p.m. readings.	Wind.				Mean Amount of Evaporation.	No. of Days Lightning.	Mean Amount of Clouds. 9 a.m. & 3 p.m.	No. of Clear Days.	
		Greatest Number of Miles in one day.	Mean Hourly Pressure. (lbs.)	Total Miles.	Prevailing Direction.					
No. of yrs. over which observation extends	56	48	48	48	48	41	6	56	6	
January ...	29.913	583	10/97	0.29	7,301	S W S E	6.36	1.7	5.1	8.9
February ...	29.962	566	8/68	0.27	6,347	W W S E	5.01	2.3	5.1	7.8
March ...	30.035	677	9/81	0.22	6,313	S W S E	3.87	1.2	5.5	4.7
April ...	30.102	597	7/68	0.19	5,697	S W N W	2.34	0.8	5.9	4.3
May ...	30.107	693	12/65	0.19	5,594	N W N E	1.45	0.0	6.5	2.8
June ...	30.081	761	13/76	0.24	6,387	N W N E	1.10	1.0	6.7	1.7
July ...	30.098	755	8/74	0.22	6,250	N W N E	1.05	1.2	6.3	4.0
August ...	30.065	637	14/75	0.25	6,813	N W N E	1.47	1.2	6.3	1.2
September ...	29.995	617	11/72	0.28	6,993	S W N W	2.25	1.7	6.1	1.8
October ...	29.965	899	5/66	0.29	7,277	S W N W	3.28	2.0	6.0	4.3
November ...	29.851	734	13/68	0.28	7,000	S W S E	4.50	3.5	5.8	4.0
December ...	29.897	655	1/75	0.30	7,439	S W S E	5.75	2.2	5.5	4.3
Year	Totals ...	—	—	—	—	—	—	—	—	—
	Averages ...	—	—	0.25	6,651	S W N W	38.43	18.1	—	49.0
	Extremes ...	30.015	899 5/10/66	—	—	—	—	—	5.9	—

TEMPERATURE.

Month.	Mean Temperature.			Extreme Shade Temperature.		Greatest Range.	Extreme Temperature.		Sea water 3 ft. below surface.	
	Mean Max.	Mean Min.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.		
No. of yrs. over which observation extends	58	58	58	58	58	58	54	53	—	
January ...	78.2	56.7	67.4	111.2	14/62	42.0	28/85	69.2	178.5 14/62	30.2 28/85
February ...	77.8	56.8	67.3	109.5	7/01	40.3	9/65	69.2	167.5 15/70	30.9 6/91
March ...	74.5	54.6	64.5	105.5	2/93	37.1	17/84	68.4	164.5 1/68	28.9 *
April ...	68.5	50.7	59.6	94.0	6/65	34.8	24/88	59.2	152.0 8/61	25.0 23/97
May ...	61.4	46.6	54.0	83.7	7/05	31.3	26/95	52.4	142.6 2/59	23.2 21/97
June ...	56.8	43.9	50.3	73.2	1/07	28.0	11/66	44.2	129.0 11/61	20.4 17/95
July ...	55.4	41.5	48.5	68.4	24/78	27.0	21/69	41.4	125.8 27/80	20.5 12/03
August ...	58.8	43.3	51.0	77.0	20/85	28.3	11/63	48.7	137.4 29/69	21.3 14/02
September ...	62.5	45.5	54.0	82.3	30/07	31.1	16/08	51.2	142.1 20/67	24.7 13/07
October ...	66.9	48.1	57.5	96.1	30/85	32.1	3/71	64.0	154.3 28/68	25.9 3/71
November ...	71.5	51.0	61.2	105.7	27/94	36.5	2/96	69.2	159.6 29/65	24.6 2/96
December ...	75.3	53.9	64.6	110.7	15/76	40.0	4/70	70.7	170.3 20/69	33.2 10/4
Year	Averages ...	67.3	49.4	58.3	—	—	—	—	—	—
	Extremes ...	—	—	—	111.2	27.0	—	84.2	178.5	20.4
					14/1/62	21/7/69			14/1/62	17/6/95

* 17/1884 and 20/1897.

HUMIDITY, RAINFALL, AND DEW.

Month.	Humidity.			Rainfall.					Dew.		
	Mean 9a. 3p. 9p.	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 yrs. over which observation extends	56	56	56	58	58	58	58	55	—	6	
January ...	64	73	52	1.82	7	5.62	1904	0.04	1878	2.97	9/97
February ...	65	75	53	1.73	7	6.24	1904	0.03	1870	2.14	7/04
March ...	67	78	59	2.23	9	7.50	1911	0.18	1859	3.05	15/78
April ...	73	83	62	3.31	10	6.71	1901	0.33	1908	2.28	22/01
May ...	78	86	64	2.16	13	4.31	1862	0.45	1901	1.85	7/91
June ...	80	88	73	2.10	14	4.51	1859	0.73	1877	1.74	21/04
July ...	80	88	72	1.84	13	7.02	1891	0.57	1902	2.71	12/81
August ...	75	81	65	1.81	14	3.59	1909	0.48	1903	1.87	17/81
September ...	73	81	61	2.34	14	5.87	1870	0.52	1907	2.62	12/80
October ...	70	79	60	2.62	13	7.61	1869	0.57	1895	3.00	17/69
November ...	66	75	53	2.19	10	5.05	1881	0.25	1895	2.57	16/76
December ...	64	75	49	2.29	9	7.18	1863	0.11	1904	2.62	28/07
Year	Totals ...	—	—	25.44	133	—	—	—	—	—	—
	Averages ...	71	—	—	—	—	—	—	—	—	67.1
	Extremes ...	—	88	49	—	—	—	0.03	—	3.05	—
						7.61	20/10/69	0.03	1/2/70	3.05	15/3/78

— signifies no record kept.

CLIMATOLOGICAL DATA FOR HOBART, TASMANIA.

LAT. 42° 53' S., LONG. 147° 20' E. HEIGHT ABOVE M.S.L. 160 FT.

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

Month.	Bar. corrected to 32° F. Mean Sea Level and Gravity from 9 a.m. readings.	Wind.				Mean Amount of Evaporation.	No. of Days Lightning.	Mean Amount of Clouds.	No. of Clear Days.
		Greatest Number of Miles in one day.	Mean Hourly Pressure. (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends	29	3	3	3	9	4	6	51	7
January ...	29.828	370 29/13	0.18	5,716	N W & S E	5.87	0.5	5.9	4.4
February ...	29.918	393 19/13	0.12	4,238	S E & N	4.20	1.0	5.9	3.0
March ...	29.938	315 28/11	0.11	4,465	S E & S E	3.01	1.1	6.1	2.1
April ...	29.950	413 9/11	0.12	4,578	N N to N W	1.96	0.0	5.9	2.3
May ...	29.996	327 19/13	0.10	4,248	N N to N W	1.22	0.3	5.9	2.3
June ...	29.963	415 -/12	0.10	4,079	N N to N W	0.67	1.3	6.0	2.3
July ...	29.932	396 17/11	0.10	4,212	N N to N W	0.84	0.5	5.7	3.3
August ...	29.926	459 30/11	0.14	5,094	N N to N W	1.29	1.3	5.8	2.6
September ...	29.838	435 4/13	0.16	5,182	N N to N W	1.77	1.0	6.7	1.6
October ...	29.833	461 8/12	0.17	5,576	N	3.06	1.0	6.2	1.3
November ...	29.794	418 16/11	0.17	5,489	N & S E	4.02	0.8	6.2	1.8
December ...	29.802	359 9/12	0.16	5,405	N W & S E	4.88	2.0	5.9	1.3
Year { Totals ...	—	—	—	58,282	—	32.79	10.8	—	28.3
Year { Averages ...	29.893	—	0.13	—	N	—	—	5.9	—
Year { Extremes ...	—	461 8/10/12	—	—	—	—	—	—	—

TEMPERATURE.

Month.	Mean Temperature.			Extreme Shade Temperature.		Greatest Range.	Extreme Temperature.		Sea water 3 ft. below surface.
	Mean Max.	Mean Min.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of yrs. over which observation extends	43	43	43	67	67	67	26	47	—
January ...	71.7	53.0	62.4	105.0	1/00	40.3 2/06	64.7 180.0 *	30.6 19/97	—
February ...	71.6	53.1	62.4	104.4	12/99	39.0 20/87	65.4 165.0 24/98	23.3 1887	—
March ...	68.1	50.7	59.4	99.0	1861	36.0 31/05	63.0 150.0 3/05	27.5 30/02	—
April ...	62.8	47.6	55.2	90.0	2/56	30.0 25/56	60.0 142.0 1893	25.0 1886	—
May ...	57.3	43.5	50.4	77.5	1/41	29.2 20/02	48.3 128.0 †	20.0 19/02	—
June ...	52.6	40.9	46.8	75.0	7/74	28.0 22/79	47.0 122.0 12/94	21.0 6/87	—
July ...	51.7	39.0	45.3	72.0	22/77	27.0 1865	45.0 118.7 19/96	18.7 16/86	—
August ...	54.8	40.8	47.8	82.0	1862	30.0 10/73	52.0 129.0 1887	20.1 7/09	—
September ...	58.6	42.9	50.8	80.0	9/72	30.0 12/41	50.0 138.0 23/93	22.7 1886	—
October ...	62.7	45.3	54.0	91.5	28/45	32.0 12/89	59.5 156.0 9/93	23.8 †	—
November ...	66.4	48.2	57.3	98.0	20/88	35.2 5/13	62.8 154.0 19/92	26.0 1/05	—
December ...	69.7	51.1	60.4	105.2	30/97	38.0 3/06	67.2 156.0 18/05	27.2 1886	—
Year { Averages ...	62.3	46.3	54.3	—	—	—	—	—	—
Year { Extremes ...	—	—	—	105.2 30/12/97	27.0 -/7/66	78.2	165.0 24/2/98	18.7 16/7/86	—

* 5/86 and 13/05. † 1889 and 1893. ‡ 1886 and 1899.

HUMIDITY, RAINFALL, AND DEW.

Month.	Humidity.			Rainfall.				Dew.		
	Mean 9 a.m.	Highest Mean.	Lowest Mean.	Mean Monthly.	Mean No. of Days of Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean Amount of Dew.	Mean No. of days Dew
No. of yrs. over which observation extends	34	34	34	71	70	71	71	47	—	4
January ...	62	75	51	1.80	9	5.91 1893	0.03 1841	2.59 30/05	—	0.0
February ...	64	76	51	1.44	8	9.15 1853	0.07 1847	4.50 25/54	—	1.2
March ...	68	76	59	1.66	9	7.60 1854	0.02 1843	2.06 34/11	—	3.8
April ...	75	85	60	1.51	11	6.50 1909	0.07 1904	5.02 20/09	—	9.3
May ...	80	90	68	1.85	12	6.37 1905	0.10 1843	3.32 14/58	—	11.5
June ...	83	94	75	2.20	13	8.15 1889	0.22 1852	4.11 14/89	—	8.0
July ...	83	97	74	2.09	14	5.98 1849	0.30 1850	2.00 27/78	—	7.5
August ...	80	92	67	1.82	13	10.16 1858	0.23 1854	4.35 12/58	—	3.5
September ...	73	87	61	2.14	14	7.14 1844	0.39 1847	3.50 99/44	—	3.2
October ...	67	75	58	2.23	15	6.67 1906	0.26 1850	2.56 4/06	—	1.5
November ...	63	74	50	2.52	14	8.92 1849	0.16 1868	3.97 6/49	—	2.0
December ...	60	73	51	1.92	11	9.00 1875	0.11 1842	2.27 27/07	—	—
Year { Totals ...	—	—	—	23.48	—	—	—	—	—	56.5
Year { Averages ...	71	—	—	—	143	—	—	—	—	—
Year { Extremes ...	—	97	50	—	—	10.16 8/1858	0.02 3/1843	5.02 20/4/09	—	—

— Signifies no record kept. * 4.18, 26.54 also.