

## SOUTH AUSTRALIA.

### AREA AND BOUNDARIES.

THE State of South Australia occupies a position midway between the other four provinces on the Australian mainland, and embraces within its limits a total area of 903,690 square miles. As originally constituted by the Imperial Statute 4 and 5 William IV, cap. 95, the 132nd meridian of east longitude formed the western boundary, and the 141st meridian the eastern limit. From north to south the province extended from the 26th parallel of south latitude to the Southern Ocean. The area of territory comprised within these boundaries was about 300,000 square miles. By fixing the western boundary at the 132nd meridian, a strip of country about 90 miles in width was left intervening between that meridian and the eastern frontier of Western Australia, and this region, containing an area of over 80,000 square miles, was added to South Australia in 1861. Two years later, a further accession was made by including within the confines of the State all the country stretching northward from the 26th parallel of south latitude to the Indian Ocean, in addition to the territory lying between the meridians of 129° and 138° east longitude. The area of the state was thus brought up to its present large proportions, next to Western Australia the province being the most extensive of the group. The portion of the state to the north of the 26th parallel, known as the Northern Territory, is so dissimilar, as regards climate and resources, to the southern division, that it may almost be looked upon as a separate possession.

### COASTAL FEATURES.

The coast line on the south, with the exception of the large inlets of Spencer Gulf and St. Vincent's Gulf, is not diversified by any very remarkable indentations. From west to east the shore line has a general downward trend through about six degrees. Commencing from the western extremity, there is a vast crescent-shaped curve terminating at Cape Catastrophe, and forming the eastern portion of the Great Australian Bight. For the first 120 miles from the western boundary the shore is backed by precipitous limestone ridges, varying in height from 400 to 600 feet. Passing the head of the Bight, the first noteworthy headland is Cape Nuyts, a lofty promontory a little to the eastward of longitude 132°. Rounding this point, Fowler's Bay opens

out, and thence, after passing through the cluster of islets known as Nuyts Archipelago, Streaky Bay is entered, one of the finest harbors in this portion of the coast. The northern headland is named Point Brown, while Cape Bauer lies at the south. Farther down is Cape Radstock a well-known landmark for mariners sailing to the east. Then comes Anxious Bay, which affords good anchorage but is unsafe during the prevalence of certain winds. Off Cape Finniss lies Flinders Island and the Investigator Group, the names being reminiscent of the explorer of earlier days. Coffin's Bay, to the eastward of Point Sir Isaac, offers excellent shelter from westerly or southerly gales. Sleaford Bay, between Cape Wiles and Cape Catastrophe, is a fine inlet with deep water in various parts. Spencer's Gulf is the largest inlet on the south coast of Australia; its entrance lies between Cape Catastrophe at the western extremity, and Cape Spencer at the foot of Yorke's Peninsula on the eastern side, and is 47 miles wide. Port Augusta at the head of the Gulf is distant 180 miles from the entrance. The inlet has a shore line of about 400 miles and offers everywhere excellent facilities for navigation to vessels of the greatest burden. Spencer's Gulf is separated from the next large inlet, called St. Vincent's Gulf, by Yorke's Peninsula. St. Vincent's Gulf has a width at the entrance of thirty-four miles, and a length of about eighty miles. Port Adelaide is situated on its eastern shore, and is the principal harbor of the State. The entrance to St. Vincent's Gulf is protected on the south by Kangaroo Island, one of the largest islands on the Australian Coast. It measures eighty miles east and west, and has an average width of about twenty miles. Cape Borda, a well-defined headland, is situated on its western side, and Cape de Couedie and Cape Gantheaume on the south. The passage between the island and Yorke's Peninsula is called Investigator's Strait, and that between the eastern portion and the mainland, Backstairs Passage. From Encounter Bay to the eastern boundary of the state the coast is generally low and flat. Between Cape Jaffa, at the southern extremity of Lacepede Bay, and Rivoli Bay, the presence of numerous reefs and shoals, in some cases extending out for many miles from the shore, necessitates extreme caution on the part of navigators. After leaving Rivoli Bay the next important headland is Cape Banks, conspicuous by a white sand hummock near its extremity. Cape Northumberland is the last projection on the eastward portion of the coast, and is a prominent elevation capped by the McDonnell Lighthouse. Generally speaking, the south coast, which has a total length of upwards of 1,600 miles, is well-marked and lighted.

The northern coast, which embraces the shore line of Arnhem Land with the western portion of the Gulf of Carpentaria, is more broken and irregular than the south coast. Here, too, are the estuaries of several fine rivers, while, with the exception of the Murray, there is hardly a river worthy of mention that reaches the Southern Ocean. Commencing on the western boundary, the chief inlets are Queen's

Channel and Keys Inlet. Passing the headlands of Cape Hay and Cape Scott, Anson Bay is entered, the Peron Islands lying at the northern entrance. After threading through several small islets, the entrance to Port Darwin opens out. This fine harbour was named after Dr. Darwin, who accompanied King on his surveys of the north coast (1818-1822), and is remarkable for its magnitude and security, as well as for the beauty of its scenery. Situated in latitude  $12^{\circ} 28' 22''$  south and longitude  $130^{\circ} 50' 26''$  east, the harbour has an entrance two miles in width, with a depth of water of about 15 fathoms. Within there is unlimited accommodation for all classes of vessels, the depth ranging from 4 to 15 fathoms, with good anchorage close up to the shore. The chief drawback to the many natural advantages of the port is the extraordinary rise and fall of the tide, the spring tides rising to from 16 to 24 feet, and the neaps from 2 to 12 feet. This disadvantage has, however, been combated by the erection of a splendid jetty, provided with every convenience for mooring. A peculiar feature of the harbour is the presence of a natural dock, formed by a sloping sand bank at the foot of Fort Hill, where vessels may be safely stranded at spring tides, repaired at low-water, and re-floated on the next recurring high tide. The town of Palmerston is situated on a plateau-like expanse 60 feet above the level of the sea, and occupies a commanding position near the entrance. Opposite Port Darwin, and to the westward of the large inlet of Van Diemen's Gulf, are the two large islands called Melville and Bathurst Islands. The former is 75 miles long and 38 broad, and is fertile and well watered. A military station at one time existed at Port Dundas, but since its abandonment in 1840 the island has been given over to the almost exclusive possession of the blacks. Between the Coburg Peninsula, enclosing the western portion of Van Diemen's Gulf and Melville Islands, the passage is known as Dundas Strait. Rounding the peninsula numerous groups of islands are passed through, the chief of those which have received names being the Goulburn, Crocodile, Elcho, and Wessel Islands, but none of them has any commercial importance, and indeed they are rarely visited, except perhaps by the proas of the Malay traders. In the Gulf of Carpentaria, the principal inlet is Blue Mud Bay, off which there are numerous islands, the largest bearing the Dutch name of Groote Eylandt.

#### GENERAL PHYSICAL CHARACTERISTICS.

As previously stated, the only river of importance discharging into the Southern Ocean is the Murray, which flows through South Australian territory from the 141st meridian of east longitude, and debouches into Lake Alexandrina, and thence into the sea at Encounter Bay. The entrance is dangerous during the prevalence of certain winds, but much has been done in the way of deepening and improving the channel. Proceeding westward from the Murray, two small rivers,

the Hindmarsh and the Inman, empty into the bay, but their mouths are obstructed by sand bars and reefs. The Torrens rises in the Mount Lofty Ranges, and, after many twists and turns in a westerly direction, reaches the Torrens Gorge, whence it emerges from the hills and drains the fertile Adelaide Plains. After separating North Adelaide from the southern portion of the city, it spreads its waters over a vast tract of swampy land at a short distance from the coast. Ten miles north of Port Adelaide, the Gawler flows into St. Vincent's Gulf at Port Gawler. Farther west there are no streams of importance, the country surrounding the Bight in particular being destitute of streams of any magnitude.

In the Northern Territory, however, there are several fine navigable rivers, and with the further development of this portion of South Australia they are certain to assume considerable importance. The McArthur flows into the Gulf of Carpentaria opposite the Sir Edward Pellew Islands, and is navigable for small vessels for a distance of 50 miles. Much of the basin drained by this stream consists of good pastoral lands. The Roper, which debouches into the Gulf at Limmen's Bight, is navigable for about 90 miles. This is the best known river on the northern coast, and much of the country surrounding it has been taken up for pastoral purposes. The Goyder flows into Castlereagh Bay, and is navigable for 13 miles, but the lower course of the stream is lined by dense and impenetrable mangrove jungles. The Blyth enters Boucaut Bay, and is navigable for a distance of 18 miles. Into Van Diemen's Gulf flow the three Alligator Rivers, discovered by King in 1820, and named respectively the East, West, and South Alligator. They are all navigable for some distance from their mouths. The Adelaide discharges into Adam Bay, after draining a large extent of good pastoral country. It is accessible to vessels drawing from 10 to 12 feet, and has been navigated for a distance of 80 miles. The Daly River debouches into Anson Bay, and is navigable for vessels of light draught for 60 miles. In spite of the fact that there is only about 3 feet of water on the bar at low tide, the rise of tide, being from 18 to 24 feet, permits the largest vessels to negotiate the entrance with safety. Good agricultural land is found on its banks, and deposits of copper also occur within its basin. The Victoria, discovered by Stokes in 1839, is the finest river on the northern coast. Between Turtle and Pierce Points the entrance is 20 miles wide, and the stream is navigable by vessels of the heaviest burthen for 50 miles from its mouth. The area of the basin of the Victoria has been computed as, approximately, 90,000 square miles. Little is known of the major portion of its watershed, but extensive tracts have been occupied for pastoral purposes.

Many watercourses are found in the interior, and some of them extend for hundreds of miles, but their volume varies with the season. Cooper's Creek, the Diamantina, and other streams from South-Western Queensland at times inundate the country for thousands of square

miles, at others dwindle to mere chains of pools. The Todd, the Finke, and the Macumba either sink into the plains or, in favourable seasons, reach the inland lakes.

A reference to the map will make it appear as if South Australia were well provided with lakes, some of them being of considerable extent. These expanses of water are, however, mostly salt and useless for purposes of navigation.

The largest group of salt lakes is found to the north of Spencer's Gulf, and includes Lake Eyre, the surface of which is 39 feet below sea-level, Lake Torrens, Lake Gairdner and Lake Frome. The largest of these occasionally exceed 100 miles in length, but in periods of drought they dwindle into comparative insignificance and at times become quite dry. Their sites are then marked by expanses of black mud with saline incrustations, and the earlier explorers who attempted to cross these hideous bogs had to turn back repeatedly in despair. Farther to the north, and towards the centre of the continent, is the salt morass called Lake Amadeus.

Several lakes are situated close to the south coast between Cape Banks and Guichen Bay. Lake Bonney is fresh and has a length of 25 miles by a breadth of 2 miles in its widest part. Its waters are, however, shallow, although it is surrounded by fairly high banks. Lake George is about 10 miles long by 5 in width at the broadest part. Lake St. Clair is a much smaller expanse, and is salt and shallow. The morass called Lake Hawdon lies north and east of Lake Eliza, and is 40 miles long by 8 wide. The Coorong, 40 miles west of Lake Hawdon, has an opening to the sea near the mouth of the Murray. It is about 70 miles long and 4 wide. Lakes Alexandrina and Albert are situated at the mouth of the Murray and are joined by a narrow channel. From their appearance, it seems a likely assumption that they were originally arms of the sea, and that their coastal banks have resulted from upheaval. Lake Alexandrina is 24 miles long and 14 miles wide, and is generally shallow. Lake Albert is 14 miles long by about 8 in breadth at its widest part.

In the Mount Gambier region several remarkable lakes are found occupying the craters of extinct volcanoes. The most celebrated of these is the Blue Lake, which is irregularly circular in shape and about a mile in diameter. The sides of the lakes which are several hundreds of feet in height, descend precipitously to the water and are agreeably diversified by charming verdure. Soundings have proved the depth of the lake to be about 240 feet, and on clear days its waters are of a most beautiful deep blue.

The general physical contour of the surface of South Australia in no way resembles that of the eastern states already described. In those States the general trend of the mountains is parallel to the shore, and there are the three more or less well-defined zones of coastal district, tableland, and interior plain. But in South Australia the mountains pierce the interior and end abruptly amongst the inland salt

lakes and swamps. North of Lake Torrens no well-defined system of mountains exists. The first group of mountains is that of the Adelaide Chain, which commences at Cape Jervis and penetrates in a northerly direction to Lake Frome, a distance of 350 miles. The range attains its greatest elevation in the Mount Lofty and Barossa districts, the highest points being Mount Lofty, 2,334 feet, and Razorback, 2,834 feet. Its course is interrupted here and there by a few narrow gorges, through which flow the small streams discharging into St. Vincent's Gulf. The Flinders Range commences in the conspicuous landmarks called the Hummocks, at the head of St. Vincent's Gulf, and pursues a northerly direction to the head of Lake Torrens. The highest points in this range are the Bluff, 2,404 feet, and Mount Remarkable and Mount Brown, each about 3,000 feet. On the west side of the Adelaide Chain are the fertile and extensive Adelaide Plains, one of the finest wheat-growing districts in the world. Plains of similar fertility, but of less extent, are found between the longitudinal ridges of the Flinders Range and the northern prolongation of the Adelaide Range. On the eastern side of the Adelaide chain stretches the plain of the south-east, towards the western boundary of which the Murray flows. From north to south this plain is 290 miles in width, and about 100 miles from east to west. A vast plain district also stretches north and west from Lake Torrens. The Gawler Range originates in Eyre Peninsula, on the western side of Spencer Gulf, and, reaching an elevation of 2000 feet, extends to the southern shores of Lakes Everard and Gairdner. The Warburton and Stewart Ranges lie west and north of these ranges, and where the province adjoins the boundary of the northern territory the country rises to the McDonnell Ranges, the highest elevation between the northern and southern watersheds. Respecting the mountains in the Northern Territory, little can be said, as they have not, up to the present, received any detailed examination.

In the south-eastern portion of the province are situated Mount Gambier, Mount Schanck, Mount Terrible, and several other isolated peaks, which were formerly volcanoes, the craters being now occupied by fresh-water lakes. The best known of these, the Blue Lake of Mount Gambier, has already been alluded to.

For a long time it was supposed that the interior of South Australia was a barren desert, the home of the hot blasts that periodically visit the south. Although a large portion of the territory is admittedly arid and inhospitable, in many places near perennial waters the soil is of surprising richness. With the further exploitation of the large stores of artesian water underlying the country, much of the seemingly hopeless wilderness will, in time to come, be made to "blossom as the rose."