THE PHYSICAL GEOGRAPHY

OF THE

South-West of Western Australia:

A Paper read before the South Australian Branch of the Geographical Society of Australasia,

BY

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The subject which I have chosen for your consideration is one which, at the present time, will probably commend itself to your attention, inasmuch as it relates to a neighboring colony which is beginning to attract a good deal of notice as a field for the employment of capital and labor, but which, though one of the oldest of the Autralian settlements, is even now less known than it deserves to be.

The vast extent of the colony of Western Australia renders anything more than a partial treatment impossible, and, in selecting a portion of it for my remarks, I have necessarily been influenced by the intimate relations which exist between that portion and South Australia, inasmuch as Albany, the chief harbor of the country I am about to glance at, is, and must continue to be, the principal point for communication between the two colonies. You are probably aware that a railway is about to be built from Albany to Beverley (a distance of about 220 miles) on the land grant system, Beverley being already in communication, by means of the Eastern Districts' Railway, with Perth and Fremantle; and thus the whole of the district which is in my contemplation will be girt with the iron rail, and its settlement largely facilitated. On this account, if for no other reason, the time seems opportune to offer a few remarks with reference to a district which has too long remained dormant, but which promises in the future to take its place as one of the valuable and prosperous parts of Australia.

I must at the outset disclaim any pretension to original treatment of my subject. This paper will mainly consist of references to the researches of others, supplemented by such general information as I was able to acquire while administering the government of Western Australia.

In confining my observations to so small a portion of the colony, the fact must not be overlooked that, though small by comparison, being only one-sixtieth of the area of the whole of West Australia, it is more than half the size of Scotland, and should be able to carry a large proportionate population. It equals in area the entire British Possessions in the West Indies, and from climate and productions, indigenous and exotic, is as well adapted for the residence of Britons as any part of Australia. We may well believe therefore that the time is not far distant for its full occupation by men of our own race. "There is," says the great poet of all humanity, "a tide in the affairs of man that taken "at the flood leads on to fortune." This tide seems to be now favorable to Western Australia, and her children appear to be taking advantage of it, as from their character I can affirm that they are fully capable of doing.

The time which I can claim for your attention would be found too short for the consideration of this subject, if I were to go fully into a detailed account of the physical features even of this small, but, as I think, most favored section of our sister colony; but fortunately its larger physical divisions are clear and well defined, and therefore an account of them may be compressed within reasonable limits. We may take three as the number of these divisions. Firstly, we have on the east the line of elevated watershed of the rivers of the west and south coasts, dividing the partially occupied country from the great central plateau or basin, which, with occasional tracts of available land, gradually passes into what is commonly known as the great desert, a convenient name for so large an area, which has only been traversed by explorers, and which is intruded on, at present, only at the extreme western border for pastoral purposes; secondly, the great forest land extending to within from ten to fifteen miles of the sea: and lastly, the coast districts of the south and west. I exclude the extreme south-western portion beyond the Lower Blackwood, as being, for reasons which will appear in the sequel, extraneous because abnormal. The first is the course chosen for the railroad from Albany to Beverley, with its great southern outlet King George's Sound; the second contains not only a vast expanse of the finest timber, but in the upper and middle valleys of the rivers, agricultural and horticultural areas still unoccupied, besides the mineral wealth of the hills which awaits development; the third has been declared by more than one competent authority to be the best suited in

Western Australia for settlement by Europeans of all its great extent of surface, and of course is the outlet for the export of the staple products of the whole district.

GEOLOGY.

A knowledge of the geology of any country is the best introduction to that of its physical geography; indeed, in this case, as I suppose in all others, it is the key to its intelligible apprehension. The labors of the brothers Gregory, and of Mr. Brown, have afforded sufficient information on this head, for our present, if not for all purposes, and their reputation is sufficient to justify us in accepting it at their hands without question. From them we learn that in its main outlines the geology of this portion of Western Australia is very simple. The great mass of the Darling ranges, presenting throughout to the west a steep escarpment of from 500 to 800ft., furrowed by the narrow valleys and gorges by which the drainage of its upper surface is transmitted to the ocean, is formed of crystalline rock, for the most part granitic, but with great variety in composition. The terraces in the middle and upper valleys of the rivers, and much of the surface of the hills, present horizontally deposited masses of Ironstone, as it is commonly called, a concretion or aggregation from the denudation of former rock masses, which in many places, broken up and exposed to the action of air and water, takes the form of gravel. We shall see that this Ironstone surface, which promises so little to the eye, is the necessary condition of the growth of the best timber. At the base of the range schistose rocks and slates are in some places largely developed, and between this and the sea appear limestones—containing, as I am informed, secondary fossils—which on the sea-coast are overlaid by a ventose formation, forming a line of sand dunes, often more than 100ft. in height. These sand blown rocks contain shells of the same character as those on the seabeach. What underlies the limestones does not appear to be accurately known. To this, which is sufficiently descriptive of the western portion, we must add that, on the south, the spurs from the ranges stretch toward the sea, forming bold rocky headlands, and that the secondary formation is more largely developed on the surface. That which separates the extreme west is the overflow of basalt, which presenting columnar masses at Bunbury and Black Point, is

traceable on the Upper Capel river, and on the middle course of the Blackwood, and may therefore be considered as cutting off the south-western extremity, if it has not, according to the Rev. Mr. Nicolay, been the cause of its elevation.

THE WATERSHED.

The division which has the greatest present interest is the eastern, as including the line for the railway, now commencing, and the great harbor of King George's Sound at its southern terminus; by which railway Albany, as already said, will be connected with the so called eastern districts, which, from Beverley, are now connected with Perth and Fremantle, by rail, and may, before long, be connected with Bunbury *vid* the valley of the Blackwood. This line is in fact on the watershed of the country, the Avon flowing north to Newcastle, then trending south-west by Guildford to Perth and Fremantle, where it joins the sea; the Hotham and the Williams uniting with the Murray, which has its outlet below Pinjarrah, some thirty-five miles to the south; while the Arthur and the Balgarup, with their affluents, the head waters of the Blackwood, have like them a south-westerly course, till trending suddenly in its lower valley at a right angle, the latter river has its embouchure in Flinders Bay, to the east of Cape Leuwin. Between the Blackwood and King George's Sound, the Warren and the Frankland descend from the southern gorges of the Darling range, while the Kalgan and the Palinup reach the sea to the eastward of that harbor. From this it appears that the watershed proper is between the head waters of the Palinup and the Avon, there being a continuous slope from the north to Beverley, and from the south to Albany. The intermediate mass, so to speak, buttresses up the great central tableland or basin, as already described, and is continued to the north, forming the eastern limit of the Avon valley; while to the south it extends from the sources of the Palinup, in more than one distinct range, forming the southern limit of the same basin. In the line from Beverley to Albany there are therefore three well marked divisions, each with its respective physical characteristics. Beyond it, to the east, is a country with numerous salt lakes and sandstone ranges, with no exterior drainage. To the west and south the river valleys open from deep gorges in the Darling range, through which their waters pass over a nearly level plain to the sea.

It fell to me to have this line carefully surveyed by the present Surveyor-General, John Forrest (he requires no title to distinguish him), and his assistant, Mr. C. D. Price. It had been examined geologically some years before, by our own Colonial Geologist, Mr. Brown, and, of course, had been traversed by explorers, first by Captain Roe, and by settlers, and is indeed partially occupied, so that our knowledge of it is sufficient. Of the three divisions, the southern appears to be the least valuable for settlement, being comparatively barren, and passing to the east into the rugged spurs of the Stirling and Porongorup ranges, which dominate the country to the north-east of King George's Sound; but Forrest reports well of the central portion; while the northern differs little from the country about the lower course of the Avon before its confluence with the Swan, which excepting Perth and Fremantle, and of course the newly-discovered goldfields, is the most populous portion of Western Australia. The direct distance from Beverley to Albany is about 220 miles, and the country rises from the south coast for nearly half that distance, culminating 1,251ft. above the sea. The central portion, in which are the sources of the Arthur, Williams, and Hotham, falls from both ends to about 900ft. above the sea, and is divided from the Avon valley at Chungamooning, where it attains to 1,277ft. in elevation. The survey I directed to be made was for a railroad, and was to extend twenty miles on each side of the line selected, so that the country surveyed would contain more than five and a half million acres. In the southern portion Mr. Price only estimated some 30,000 acres as fit for agricultural purposes, but he had not taken into consideration a large area of land near Albany, which, as I am informed, only requires draining to be extremely fertile. In the central portion Forrest estimated at least 158,000 acres as good land, that quantity having been at that time taken up in fee-simple, or on special occupation leases, but not therefore necessarily all under cultivation, thus making 188,000 acres in all available for agriculture. There is a peculiarity in this district which is worth observing, because, as I think, it is unusual, the richer lands being on or about the watershed, while the river valleys present very little land fit for agriculture. This is to be accounted for by the fact that not only are the upper valleys of all the rivers narrow, but, having been formed among crystalline and ironstone rocks, the debris washed down by them is not commonly of a fertile nature. There are however many deposits, of too limited extent for agricultural purposes, that are

well fitted for horticulture, and Forrest reports the central division to be suitable for the growth of the vine and other fruit trees, so that it is to be hoped and expected that an industry so suited to immigrants with small capital may be largely developed, when, by the railroad, a market is opened for its produce. There is but little difference in the average annual temperature throughout, which is at York 63°, and at Albany 59°, the extremes being less at Albany as on the seaboard; at Perth it is 65°. The country immediately surrounding Albany is indeed one of fruits and flowers; probably in no part of Australia is there a greater variety and luxuriance in the indigenous *flora*. One of these—the exquisite Boronia megastigma—well deserves to be cultivated, for the sake of its powerfully fragant blossoms. The forest growth on the line of the watershed corresponds to the nature of the soil, and consists of stunted White Gum, Sheaoak, Jam, and Mallee, but the richer flats are indicated by York Gum, as the watercourses, pools, and lakes on the east are by the Casuarina. In the central portion the prevailing timber is the White Gum. Sandalwood has been abundant, and may be again if the young trees are protected. It is still abundant to the east. I shall have occasion to speak more fully of some of these trees when describing the forests. Both surveyors report a sufficient supply of water as obtainable throughout the line.

The outlet of this district to the south has an interest not merely local, but Australian generally, shall I say federally as well as imperially? for the great harbor at King George's Sound is the only one of importance on the south-west coast of our island continent, and therefore commands our southern seas, and the commercial traffic upon them. This fine harbor is formed by masses of crystalline rock, culminating on the south in Mount Gardiner, 1,305ft. above the sea, which separates the Sound from Two People Bay. The same rocks extend to the east beyond forming the coast line. The Sound is divided into outer roads and an inner basin, by two rocky islets, the basin being about six miles in diameter, and from this again access is gained, on the east and west, into two smaller land-locked basins, Princess Royal and Oyster Harbors. The first, as most of you know well, is the port of call for the mail steamers, and is separated from King George's Sound by Mount Clarence, a great granitic boss rising 596ft. above its waters, at the base of which, on the west, is the town of Albany. It is covered to the south by a low limestone neck, the extremity of which, Point Possession, is

only three cables length from the base of Mount Clarence. This harbor is about three miles in extent, but has deep water only for less than two from its mouth. Oyster Harbor is circular, and about two miles in diameter, for the most part shallow, but admitting vessels drawing 14ft. to near the mouth of the Kalgan river; a strip of sandy beach three miles long forms the limit of the Sound, and connects Oyster Harbor with the eastern base of Mount Clarence. Behind this beach is an extensive flat of moist land. The importance of King George's Sound can scarcely be overrated with respect to any of the interests concerned, whether local Australian or Imperial, and the best means for its protection has been consequently well considered. It is obvious that the formation of the outer harbor, as well as Princess Royal harbor, affords great facilities for defence, but the distances to be covered are great, and the cost of fortification and maintenance must be in proportion. It was this that, when local interests only were under consideration, led to the conclusion that its defence would be impracticable, as altogether too costly to attempt; and indeed it would be necessary, for its efficient protection, that the other interests involved should bear a large share in such expenditure. I am certainly not an alarmist, but the occupation of the Sound by an enemy, even for a short time, would have a fatal effect on our commerce, and the dislodgment would probably be as costly as provision for defence.

THE FORESTS.

It has been observed that the forests of the south-west part of Australia are its most important physical feature, and indeed form a large portion of the material wealth of the colony. Knowledge of their extent, and quality, and of the supply they would afford for commercial purposes, was first obtained by an enquiry which I caused to be made in 1880, when desiring to develop the trade in timber, for which the time seemed to be propitious. It was then ascertained that these forests covered an area of some 30,000 square miles, of which only a very small part extended beyond the limits we have at present under consideration. There are other forest lands in the colony, notably those of pine, or more properly cedar, on the north coast, which will probably supply the wants of the Kimberley district, and which are accessible for that purpose, but too distant from other parts of the colony to have been

available hitherto for use. Others there are which have been for the same reason useless, except for local purposes, being too distant from any port, but most of which will be made accessible by the railroads, now commencing, as those on the watershed between Albany and Beverley already noticed. The large area of the forest lands, as then estimated, might I think have been justly increased, as useful timber extends eastward as far as Cape Riche; but for our purpose we may consider it as extending on that side from the upper valleys of the Palinup to the east of Oyster harbor, where saws driven by steampower have been at work for many years.

We may confine our consideration of timber for exportation to the six principal kinds, all being eucalypts; but to these might be added several Acacias, Banksias, and other trees, all of which have their economical uses, not to speak of Sandalwood, now, as we have seen, most plentiful to the east of the limit of our enquiry, and of which 2,628 tons were exported in the year 1884. The first in importance of these eucalypts is that commonly known as the Jarrah or Yarra *(E. marginata)*, which is gradually finding its way into the markets of the world – the first not only because it is on the whole the most useful of the Western Australia forest trees, but as covering the largest area, being the principal vegetable product over some 14,000 square miles. This tree attains to a large size, sufficient for all purposes of construction, is of handsome growth, straight and tall, but with the fault so common to the trees of Australia, it is not umbrageous. The white blossoms are, however, very beautiful, and produced in abundance, even when the tree is very young. The Jarrah timber has been the subject of exaggerated praise, and depreciation, and in either case not without some reason, having been found in some places to answer fully the claims made for it of strength and durability, while in others it has failed. The reason for this is not far to seek; like other timber it requires to be cut from trees growing on the proper soil—the ironstone gravel of the Darling range—at the proper season, and the proper age, and moreover certain parts of it are of inferior quality; it is also difficult to season, being liable to split in the process if care is not taken. The great and sudden demand which, at one time, was made for this timber, induced, as I fear, its exportation to fulfil contracts as to quantity, without sufficient regard to quality; but, when the necessary care is taken, it will be found to justify the encomium of Baron von Mueller, whom we all

know well as a competent authority, "that for the durability of its "timber it is unsurpassed by any kind of tree in any portion of the "globe," and under such circumstances it has three properties of great utility—it resists the marine teredo and the white ant, and is not affected by the oxidation of iron bolts or nails. The next in importance is the White Gum *(E. redunca)*, of which there are several varieties. It is the predominant growth on some 10,000 square miles, and, as we have seen, crosses the eastern limit of the watershed. This tree, although it does not often exceed 100ft. in height, has been known to attain to a diameter of 17ft. The wood is hard, and for some works, very durable and valuable, especially for the uses of the wheelwright and machinists; it is remarkable as growing on inferior land, and especially in moist situations. The tree occupying the next largest area is the York gum *(Eucalyptus loxophleba)*, so called from having been first found in quantity near York, on the Avon. It is the principal forest product over some 2,400 square miles; its wood is remarkable for its toughness. Next in point of area of occupation, but first in size, and, as will, I think, be ultimately proved, not second in utility, comes the giant of these forests, the Karri tree, which prevails over 2,300 square miles of the south-western coast of Western Australia. The maximum height attained by this noble specimen of Australian trees is not less than 400ft., some 300 of which are without a branch, and its diameter has been measured to 20ft. Hitherto the timber of this tree has not been much known, even in West Australia, on account of its size, and the consequent difficulty of felling, and reducing it to marketable and transportable dimensions; but there is little doubt that, by means of the works established at Augusta, near the mouth of the Blackwood, it will soon be better known Its durability has been sufficiently established by accidental circumstances; it is more elastic, and quite as hard as the wood of the jarrah. Next in order is the Red Gum, for beauty of form and umbrageous foliage the pride of West Australian forest trees, predominating over an area of only some 800 square miles, but not unfrequent elsewhere. The tree is lofty among eucalypts, and has not uncommonly a diameter of 10ft. at the base; its wood has been considered equal to jarrah, and its gum as a specific against dysentry. The Tuart *(Eucalyptus gomphocephala)*, occupies the comparatively small area of 500 square miles in this district. It grows to a considerable size, often 6ft. in diameter, and very rapidly, on the sandy and limestone hills of the

southern and western coasts, where, unfortunately, it has been in many places destroyed, being that most ready to hand for domestic use among the early settlers, its remains testifying that what is now a treeless waste was once a verdant forest; and it is to the growth of this tree that we are said to owe the remarkable hollows in the coast limestone, familiarly known as pipes. The stone being in process of gradual and continual formation from blown sand, the rain, admitted into the soil by the rootlets, decomposes the lime, and thus permits their enlargement, and pipes thus formed, left hollow by the decay of the roots, may be commonly seen of 1 to 2ft. or more in diameter. The roof of a cave at Rocky Bay, near the mouth of the Swan, formed artificially, is supported by a pillar of the indurated lime which has surrounded one of these roots, and which, to the casual observer, appears to be a large stalactite. The wood of this tree is solid, and does not rend, and is used in shipbuilding. These are the principal timber trees, but these forests produce others of value for purposes of utility or beauty; for the latter, the *Eucalyptus ficifolia*, with its gorgeous crimson blossoms, is pre-eminent. Obviously the vast forests of the south-west of Australia form one of its most important physical features, as they are and must continue, at least for many years, a primary source of wealth, but unless their conservancy go *pari passu* with their utilisation, it is to be feared that, like those of north-east America, they may ultimately disappear altogether, unless like those of Southern India they are restored by science, art, and labor. One is an example of entire denudation from neglect, but the latter of restoration by timely care. It is not so many years since the dockyard at Bombay was supplied with teak from Moulmein. Now, under the scientific supervision of foresters, the neighboring hill-country produces an abundance, both for use and exportation. The number of timber works in south-west Australia is increasing; the export of timber was in 1884, 17,234 tons.

The forest growth in that district is, as elsewhere, the cause of atmospheric action and reaction, producing a greater rainfall and a greater conservation of water, by preventing evaporation from the surface of the ground. The average rainfall throughout the district approaches thirty inches; in other parts of the colony it descends to one-half that quantity. There is this to be observed, however, that the valleys opening to the north, as the Avon, or to

the west, as those of the coast from the Swan southward, being more exposed to the action of the sun, the surface evaporation is more rapid, and the waters therefore less permanent than in the south.

We cannot quit this portion of our subject without grateful remembrance of the labors of von Mueller, whose work on this subject is most interesting and exhaustive.

THE COAST DISTRICTS.

I need not detain you long with the description of the coast districts, omitting the portion to the west of the Blackwood, which, as I have said, is extraneous, and possesses its own peculiar interests, which, so far as is known, are rather scientific than economical; unless indeed the great overflow of basalt which characterises it should be found to cover deposits of the precious metals, as has been not unfrequent in other parts of Australia, and it should become a mining district with deep leads, in which case its proximity to the sea, and to the timber forests, may give it prominence among the more productive districts of Western Australia.

We have seen that the coast districts of the south and west are in some respects similar, while yet they have characteristic differences. I may say a few words on both. In the floras, the contrast is marked; the White Gum and Peppermint, so named from the scent of its leaves, were, and in less proportion are still, the principal trees of the west coast, until it approaches the district of the Karri, which stretches across to the south coast, and is then continuous eastwards; but the special habitat of the Karri is on the lower Blackwood and Warren, though gigantic specimens have been found as far east as on the Frankland. We have already noticed the effects produced on the coast limestones by the White Gum, but a word must be said for the graceful Peppermint, with its drooping branches and long train of white blossoms, and more especially its verdant foliage, which no doubt was what proved so grateful to the eyes of the first British explorers of this coast, comparing it, as they would do, with the russet green of the trees of New South Wales. There are few trees which grace the garden more than this beautiful tree. Besides these, a characteristic feature of the flora of the west coast is the Black Boy (*Xanthorrhœa*), common indeed throughout the country, but persistent in retaining

its ground when others have been destroyed. Some day it may prove of economical utility. To this we may add the *Zamia*, which is found over the rough surface of the limestone, where worked into ridges and hollows by the action of the rain, and hardened as well as altered by the same influence, like the pipes I have already noticed. The flora of the south coast has not only these, but additional characteristics peculiar to itself. There we find dense and almost impenetrable masses of what might be termed in England copse wood, with varieties of eucalypts and other trees not known in other parts of the colony. The wealth of vegetation here is easily accounted for by the southern exposure, and the nearer approach of the crystalline rocky hills to the sea, and consequent abundance of fresh water. I have already remarked that this district, from the lower Blackwood eastward, has been esteemed by more than one competent judge, as better fitted for settlement by Europeans, especially on account of its climate, than any other part of Australia. It may be asked why then is it still unoccupied and so little known. The answer is simple. It is naturally cut off from the rest of the colony, and the early settlers having been extravagantly scattered over the country, Augusta was abandoned, and Albany languished until postal steamers required its harbor. Those whose flocks and herds have since fed over this district were not likely to publish its adaptability to other industries The coast was formerly one of the principal stations for the whale and seal fisheries, the inlets in giving shelter to small craft, and the headlands and islets offering secure anchorage to larger vessels, whose commanders are sufficiently acquainted with them. Herein also a difference appears between the south and west coast. These inlets are not all like the lagoons on the west formed by the sand dunes keeping back the drainage of the interior, which consequently stagnates at their inner bases. The difference of the outlines of these coasts, as shown on the map, is sufficient to indicate their difference in this respect. The south is emphatically the country for the man of small capital and great industry, whether directed to agriculture, dairy farming, or horticulture. The fruits of our European gardens and greenhouses are produced there spontaneously, but receive little cultivation, because a market is wanting. The same might be said of dairy produce, but the railway constructors will prove there, as elsewhere, great consumers, and neither the produce of gardens or dairy will soon want a market. If I term this district the garden of West

Australia, I think I shall not be contradicted by those who know it. Of the native inhabitants, or of the *fauna*, I need say but little. The aboriginal "humans," as our American cousins might term them, find the northern and warmer parts of the colony more suited to their constitution and habits Some are still found about the settlements, and their labor is utilised; some few still range the forests, where they can follow the same life their fathers did before them. The forms of animal life which are most abundant are the birds and the fish. The waterfowl especially swarm on the inlets and lagoons, as well as on the small freshwater lakes, which are common in both districts of the coast, as well as not infrequent in the interior, and which generally afford a belt of rich soil available for culture.

CONCLUSION.

Thus far I have spoken almost exclusively of the natural features of the country. A few words before I close as to the condition of its towns and settlements may have some interest for you.

Perth and Fremantle (at the northernmost point on the western seaboard of the country which I have been describing) are the two principal towns of the colony. Perth, as you know, is the capital, and is situated about ten miles from Fremantle, at the mouth of the River Swan. Perth is the Adelaide of Western Australia, and Fremantle the Glenelg and Port Adelaide combined. "With the "exception of Sydney," I quote from a former lecture of mine, "I have seen nothing in Australia to equal the situation of Perth. "The town contains about 7,000 inhabitants, and has several "excellent public buildings, Government House and the Town "Hall, both erected by convict labor, are commodious and hand- "some, and when built, some eighteen years ago, were considered "in advance of the times. For its population, the city covers an "unusually large area of ground, and, with the exception of one "or two central streets, has still the appearance of being all "suburb. As the population increases the vacant spaces will be "built upon, and I quite believe that, what with its beautiful site "and splendid climate, Perth will ere long become one of the most "agreeable places of residence in Australia. The projected rail- "way to Albany may possibly draw population towards the south, "but Perth will always be the political capital of the southern "part of the colony, as distinguished from its tropical portions,

"and Fremantle, the shipping port of Perth and the central "districts, will probably hold its own also."

The value of land in and about Perth and Fremantle has risen rapidly within the last few years. Indeed, I believe that a mild form of syndicate fever has made its appearance there; though I do not think that the complaint has yet assumed so virulent a type as in some other places that we have heard of.

Descending the coast from Fremantle, the next town of importance is Bunbury, ninety miles from the Swan, and picturesquely situated on the west side of the entrance to Leschenault inlet. in which debouch the Preston and Collie rivers, with several smaller streams. The harbor is a tolerably safe one, being sheltered from all but the north-west winds. Bunbury is the capital of the district of Wellington, and a port for the shipment of timber, sandalwood, horses, and general produce. It is the outlet to a considerable tract of productive country, and possesses a fine jetty, built of Jarrah timber, which affords facilities for the loading and discharge of vessels. The coastal steamers call at this port. The town is under municipal government, is already well provided with churches and schools, and will in course of time become an important place.

Thirty miles south of Bunbury we reach the pretty little town of Busselton, the capital of the agricultural district of the Vasse. The works of what is known as the Ballarat Timber Company are situated at Lockville, five miles from Busselton, where sawmills, a jetty, and other buildings have been erected. Cereals do well in this neighborhood. Couch grass thrives remarkably well, and it is not too much to say that the bulk of the sandy, and apparently inferior, country along the coast could be converted into valuable paddocks, capable of carrying large quantities of stock. The climate of the Vasse is superb. The hot winds seem to stop short of this district, consequently the heat is seldom excessive, and as the cold is never so severe as in Tasmania, for instance, it may, I think, be said, without fear of contradiction, that the country from the Vasse to Albany enjoys one of the finest climates in the world. It is a land of flowing rivers, magnificent timber, and scenes that are grateful to the eye, and the traveller there is impressed with the conviction that what is now primeval forest will one day be the home of a large and prosperous population.

Fifty miles south from Busselton is Augusta, a very useful port at the mouth of the Blackwood river, in the neighborhood of

which, one of your enterprising and respected citizens, Mr. M. C. Davies, has established extensive timber works. From this the coast trends eastward, and passing the mouths of the Warren and Frankland rivers, Albany is reached, at a distance of about 180 miles from Augusta, and 360 from Fremantle. From Albany (of which I have already spoken) to Perth by road is 261 miles, and the country traversed by it is practically identical with that which I have described to you when speaking of the route selected for the railway, with the exception that the road bends to the westward after passing the Williams, the railway line continuing north to Beverley, which is at present the south-eastern terminus of the railway. Of the journey by road from Albany to Perth but little need be said. In the first place it will, ere long, be a thing of the past, and secondly, it really differs but little from country travelling in other parts of Australia. The country inns at Kojonup (100 miles north of Albany), the Williams, and other points along the road are neither better nor worse than those in other similar places, while the road itself is by no means a bad one, considering the sparsely peopled country through which it passes. There are worse things in life than a three or four days' drive from Albany to Perth, for what with the exhilarating atmosphere, the park-like beauty of the scene in places, the wealth of bush flowers, with now and then a touch of the mysterious silence of a great Australian forest—to say nothing of an occasional shot at a kangaroo or a bustard—I have found the time pass pleasantly enough while travelling on that much-abused, but, as I think, unjustly maligned highway.

In conclusion, I might express my fear of having wearied you with details, and yet I have omitted many not without interest; but I have been addressing those who, acknowledging that science is based on accumulated facts, may not have been unwilling to accept those which I have presented, and which I believe to be fully authenticated, respecting so important a portion of our sister colony of Western Australia. It has seemed to some that the interests of the Australian Colonies might be separated. It appears to me that all their interests must be mutual. The knowledge of each is therefore in my estimation necessary to all, the prosperity of one advancing also that of others. In this view the facts I have offered for your consideration should have almost as much interest here as in Western Australia.

As regards myself personally, I may say that everything connected with Western Australia will always be invested with peculiar interest, for some of the most arduous and responsible, and consequently happiest, years of my official life were spent there; and when I left the colony at the end of my second administration I had the gratification of knowing that feelings of friendship and regard had been established between the people and myself, which at all events on my side neither time nor distance can obliterate.

MAP
SHEWING PART OF
WESTERN AUSTRALIA

WESTERN AUSTRALIA. SURVEYOR GENERAL'S OFFICE

Lancelin I. Edward I. Ledge Pt. Leschenault Pt. C. Leschenault Wreck Pt. Eglinton Rocks Little I. Triggs I. Rottnest I. C. Vlaming Garden I. C. Peron C. Bouvard Bouvard Reefs Naturaliste Reef Cape Naturaliste C. Clairault Cowaramup Pt. C. Mentelle Freycenet Pt. C. Hamelin C. Leeuwin Matthew Flinders St Alouarn I. Black Pt. Black Hd D'Entrecasteaux Pt West Cliff Pt Cliffy Hd Chatham I. Nuyts Pt. Hillier Pt. Knapps Hd C. Howe W. TOR BAY Stony I. Passage Reefs Eclipse Is

KARAKIN LAKES · MOORE RIVER · DURINGEN SWP. · BEERMULLAH L. · SOLOMONS BK. · New Narcia · NITTYMARRA HILL · Toro W. · Wyening tank · Yulgan Sp · CINGIN · Bindoon · Chittering · BEJOORDING · Waltening · Goomalling · Koombekine · COWCOWING · Yarraging · L. BROWN · Gelakin · Naaning · Dwortwollaking · Noongorin · Goomarin · Boodalin · Caromin · Nalyaring · Minkadine · Durdgudding · Dulyalbin · Todagin · Cuttering · Karembrenin · Youndegin · MT STIRLING · Cookeen · Waddern · Narembeen · Wogolin · Tampin · Boongarra · YANCHEP · TOODYAY · NEWCASTLE · Quelquelling · Jurendine · Meckering Sp. · NORTHAM · LAKE PINJAR · JOONDALUP · Cockman's · Bailup · Woodside · Boyadine · Little I. · Triggs I. · GUILDFORD · YORK · Cubbine · Rottnest I. · C. Vlaming · PERTH · FREMANTLE · CANNING R · St Ronans · Fleays · Yangedine · Dangin · Avondale · BEVERLEY · COCKBURN SOUND · CLARENCE · KELMSCOTT · Garden I. · ROCKINGHAM · WOONGAR R. · Annandale · Old Hos. Pool · COUNTY PEAK · Wogolin · Tampin · Robert Pt. · PEELS INLET · PINJARRA · Coach & Horses · N. DANDALUP R. · Meldrum Sp · Brookton · Quagelberwoording · Morambine · Staunton Sp · Jocadine Pool · Boyamooking P · Noombling · Cubballing P · Chungamooning · Narrogiking · Farmers · Fouracres · Yabup · Mt William · Cookernup · SADDLEBACK · BANNISTER · WARREN R. · Wollwolling Pool · Tarwonga · WILLIAMSBURCH · AUSTRALIND · BUNBURY · GEOGRAPHE BAY · Duderling P · Eddie's · Dardanup · Minninup · COOLINUP · Donnybrook · TOWERINNING LAKE · Boyamine · Boyerine Pool · Yowangup · COYRECUP L. · Twonkwillingup · Murdong P. · BUSSELTON · Condinup · Balingup · DARLING HILL · KOJONUP · Eetakup · Martinup · Mngedup · Cartup · Walkenup · Kylobunup P · Jayes · BRIDGETOWN · Dooleelup · Dwalganup Sp · Jalbarragup · Camballup · Tingarup · Watergarrup · Magitup · Mungerup · Maallalup · PALLINUP · Wilgarup · Dicksons · Belbarup · YEETICUP L · Yerriminup · GORDON R · OMUNRILLUP L. · Pootenup · Peerabeerup · Morallup · Perup · LAKE MUIR · Warrenup · Munup · WARREUP · Toovey's · Warrungup · STIRLING RA · ELLEN PEAK · TOOLBRUNUP · L MATILDA · Moorilup · Kendinup · KALGAN · Pardelup · MT BARKER · Nooronup · MT MANYPEAK · ALBANY · WYNDHAM · Lookout Pt · Bird Pt · Bald I. · Twin Is · PORT TWO PEOPLE · C. Vancouver · KING GEORGE SOUND · Bald Head · Peak Head · Eclipse Is · WILSONS INLET · OYSTER HARBOR · PRINCESS ROYAL HARBOR · Breaksea I · Boranup · HARDY INLET · AUGUSTA · Dombakup · CHOMDALUP HILL · MT ROE · MT MITCHELL · MT FRANKLAND · MT LINDESAY · Faheys · Tingarup · Penuup

MOORE R. · DURINGEN SWP. · BEERMULLAH L. · CINGIN BK. · SOLOMONS BK. · MOORE RIVER · CHITTERING BK. · WANDERING BK. · BANNISTER RIVER · MURRAY RIVER · HOTHAM RIVER · CROSSMAN R. · 14 MILE BK. · HARVEY RIVER · WILLIAMS RIVER · WELLESLEY R. · HARRIS R. · BRUNSWICK R. · COLLIE RIVER · PRESTON RIVER · DONGARA · COLANILLING CK. · HILLMAN R. · ARTHUR R. · BEAUFORT R. · TOBY INLET · VASSE R. · ST JOHNS BK. · MARGARET R. · BLACKWOOD R. · CHAPMAN · HARVEY INLET · WARREN R. · DONNELLY R. · FLY BROOK · MEERUP BK. · GARDNER RIVER · SHANNON R. · FORTH R. · WALPOLE R. · BROOKES INLET · HORNALUP INLET · ROCKY H. · BOAT H. · IRWIN INLET · BENNETT · DENMARK R. · PARRYS INLET · HAY R. · RING · NAPIER R. · FRANKLAND R. · KALGAN · JACKATUP CK. · TONE R. · PEENEMUP CK. · EYRE R. · COYRECUP L. · NORRING L. · PARKEYERRING L. · WAGIN L. · DUMBLEYUNG L.

SCALE OF ENGLISH STATUTE MILES
60 50 40 30 20 10 0 5 10

East Long. 117° RATCLIFFE B.

117°

32° S. Lat. 32°

34° 34°