



The advantages of the Australian climate

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PUBLICATION DATE

01-01-1906

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THE ADVANTAGES
OF THE
AUSTRALIAN CLIMATE.

BY

F. A. Q.

Sydney :

WILLIAM BROOKS & CO., LIMITED,
17 CASTLEBEAGH STREET.

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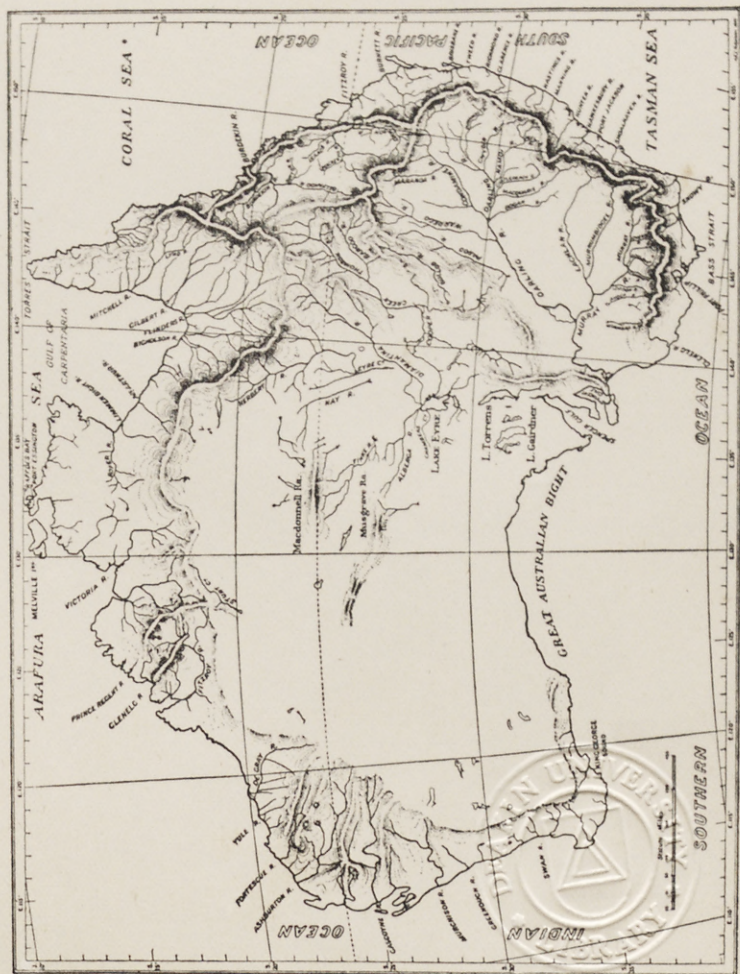
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MAP OF AUSTRALIA, SHOWING THE MAIN PHYSICAL FEATURES.

Introductory.

THE subject matter of these few pages was gathered some time ago for the purposes of a lecture. What struck the writer at once was the paucity and scattered character of the material relating to the climate of Australia on which he had to draw. Another thing that became evident was the general ignorance among Australians of the specific character of the climate of their country. Especially was this exhibited with regard to the bright side of the picture. The worse rather than the better aspect of the Australian climate seemed to be uppermost in people's thoughts. The decision to launch the subject in book form was come to in the hopes that it would supply the need of a comprehensive account of the Australian climate, and at the same time help to dispel some of the prevailing pessimism, both at home and abroad, regarding the country.

When any Australian remembers how well his country stood and how rapidly it recovered from the

disastrous drought of 1902, the culminating misfortune of a number of lean years, he cannot but have a considerable faith in his country. The information hereinafter supplied has been gleaned from a large number of sources. The book is not a mere compilation, however, as the writer has used his discretion freely as to what to put in and what to leave out. Controversial matter has been avoided. No claim to originality is made, save in the method of presentation.



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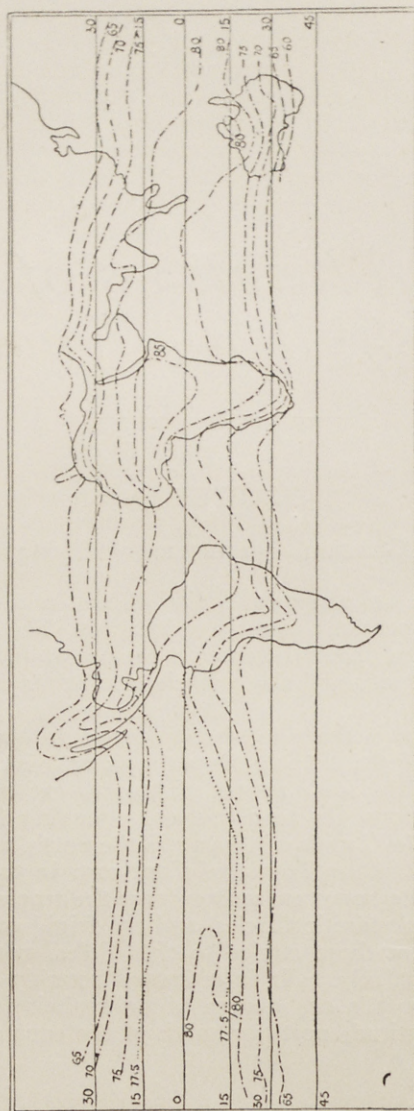
The Advantages of the Australian Climate.

CHAPTER I.

THE GENERAL PRINCIPLES OF CLIMATE.

By climate we understand the effects produced by the environment of a country or locality. The environment includes physical agencies, geological and atmospheric influences, and also artificial conditions contrived by man.

The sun is the chief factor in the production of climate ; and the distance from the equator is the chief modifier of the sun's action. Thus we get our great climatic regions, the torrid zones, extending from the equator to the Tropic of Cancer in the north, and from the equator to the Tropic of Capricorn in the south, the temperate zones extending from the tropics to the Arctic and Antarctic Circles, and the frigid zones, extending from these circles to the Poles, north and south respectively. It is estimated roughly that the temperature falls one degree of Fahrenheit for every degree of latitude north or south of the equator.



THE MEAN ISOTHERMAL LINES OF THE WORLD.

Further subdivisions of these regions can be made as follows :—Equatorial, tropical, sub-tropical, sub-polar and polar. The equatorial region includes that part of the tropics that extends for a few degrees on either side of the equator. It is characterised by the absence of well-defined seasons and by almost daily rains. It is the region, too, of the equatorial calms at sea, and of prodigious plant growth on land. The sub-tropical regions extend from the tropics, *i.e.*, 23deg. 28min. north and south latitude to about 35deg. of latitude. Hence it will be noted that Australia lies almost wholly within the tropical and sub-tropical regions.

Places on the same degree of latitude do not by any means always have the same mean annual temperature. To denote places having the same average annual temperature certain lines have been mapped out. These are called *siothermal* (*isos* equal and *thermos* hot) lines. To properly understand the climate of Australia in comparison with other countries it is necessary to pay some attention to these isothermal lines. The average temperature of the Southern Hemisphere is some degrees lower than that of the Northern. This is due, as will be more fully stated presently, to the much greater expanse of ocean south of the equator. The *heat equator* (the term explains itself) is on the average some 9 degrees north of the earth equator. In the northern summer the *heat equator* moves north of the average, while in the southern summer it moves south, but it never reaches the same degree of latitude south of the equator that it does north of that line. Further, let it be noted that the isotherm of 80deg. F. corresponds on the average with the 24deg. of latitude in the Northern Hemisphere, while in the Southern Hemisphere it corresponds with the 19th deg. of latitude. That is a difference of 5 degrees; so, since the temperature falls one degree F. for every degree of latitude, it may be said that places in the Southern Hemisphere, including Australia, are 5deg. F. cooler than corresponding places in the Northern Hemisphere.



OUTLINE MAP SHOWING THE MEAN HEAT EQUATOR.

Again it will be noticed that the isotherms run more nearly parallel to the lines of latitude in the Southern Hemisphere than in the Northern. This means that temperatures are more equable south of the equator, and this again is due to the greater extent of ocean there.

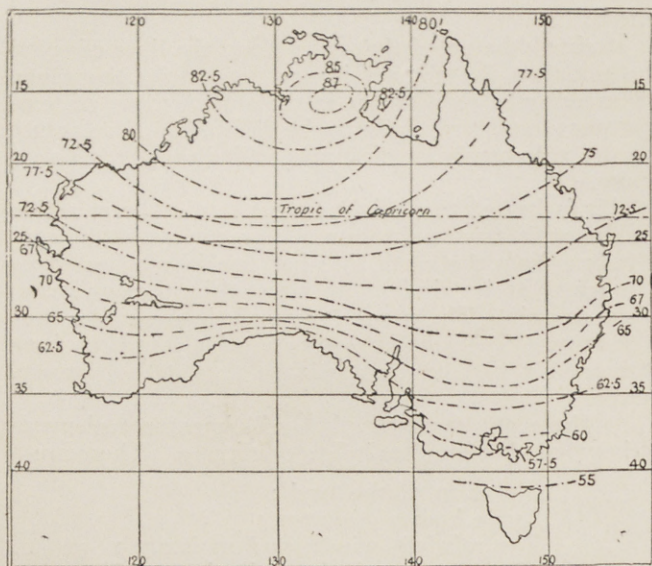
It should be noted that even along the lines of equal temperature the climate is not necessarily the same. There may be a difference in the annual range of temperature, or the rainfall may be different. A reference to the accompanying diagrams will make these points clear.

Air is heated to a slight extent by the direct action of the sun's rays, and to a much greater extent by conduction from the earth that has itself been heated by the sun. Moist air is more affected by the sun's rays than dry air. The upper layers of air are colder than the lower, chiefly because they receive less heat from the earth's surface, also because they are drier and rarer.

There are secondary but still important elements other than the sun, that influence climate. These are—

- Elevation of the land ;
- Large bodies of water ;
- The rainfall, winds, and moisture ;
- The nature of the soil, its configuration, cultivation, and vegetation.

Elevation of the land has a cooling effect. From sea-level the temperature drops one degree F. for about every 300 feet of ascent. At certain heights a region of perpetual snow is reached. Portions of the Great Dividing Range, along the eastern side of Australia, are capped with snow all the year round. Mountain ranges also have an equalising tendency on climate by approximating the summer and winter temperatures. High lands have an important influence on the rainfall. On the slopes facing the sea there is an abundant rainfall, with a corresponding dryness of the



THE MEAN ISOTHERMS FOR AUSTRALIA.

A study of the isothermal lines of the above and preceding maps will show that corresponding latitudes are some 5 degrees Fahr. cooler in the Southern than in the Northern Hemisphere.]

opposite slopes. The reason for this is that the water-laden winds coming in from the sea are compelled to deposit their moisture on striking the cold mountain air. We see this illustrated in the difference between the rainfall on the eastern and western slopes of the Great Dividing Range in Australia. A more striking example is afforded by the southern aspect of the Himalaya Mountains acting on the south-west monsoons. Here the rainfall is some 700 inches per annum, while on the northern side the rainfall is insignificant.

The sea has a cooling and equalising effect on climate. This is because water is much less readily heated than earth, and because it parts with its heat much more slowly. A comparatively small portion of the total land surface of the globe lies in the Southern Hemisphere. The Southern Hemisphere may therefore be called the water hemisphere. In the same way, it may be called the cool hemisphere, and the hemisphere of even temperatures.

The Southern Hemisphere is also the drier or less rainy hemisphere, in part, because the cooler atmosphere takes up less moisture from the sea. These facts all have an important bearing on the Australian climate.

The range of temperature increases from the coast towards the interior. On small islands and narrow peninsulas the climate is remarkably cool, equable, and, owing to the absence of dust, healthy. Sea currents have a great influence on the climate of neighbouring lands. The influence of the Gulf Stream on the climate of the British Islands is well known ; it not only raises and equalises the temperature of those islands, and, indeed, of contiguous portions of North-western Europe, but it ensures a more generous rainfall than would otherwise obtain.

Professor Gregory, of Melbourne, holds that ocean currents play an immense part in the determination of local climates. He thinks also that much of

the seasonal variations of climate is due to variations in these currents.

The rainfall is heaviest on the slopes of mountains, and is next heaviest near the sea. All coastal regions, however, are not blessed by an abundant rainfall. The shores along the Great Australian Bight have a very poor rainfall, and some portions of the western coast of South America are extremely dry. Ocean currents and the prevailing winds have probably much to do in bringing this about. The rainfall decreases from the equator towards the Poles. The number of rainy days, however, increases in the same direction. In the tropics the rainfall is periodical, and summer is the rainy season. In the sub-tropical regions most rain falls in the winter. In temperate regions the rains are more evenly distributed throughout the year. The interior of Australia gets most of its rain in summer ; along the coast, on the other hand, most rain falls in winter.

Winds play an important part in the making of climate. It is the wind that brings in the moisture from the sea ; it is the wind that causes ocean currents, with their attendant results ; and it is the wind that sometimes warms and sometimes cools the land, that sometimes ripens and sometimes blights the crops.

The wind systems of the Southern Hemisphere are the south-east trades, the north-west monsoons, the prevailing westerlies, and the coastal breezes. The trade winds are existent in the northern part of the hemisphere, and, as far as they affect the Australian Continent, are drying winds, since they are moving from a colder to a warmer latitude. The monsoons bring rain to the northern portions of Australia from the Indian Ocean in summer. The prevailing westerlies are composed of the great cyclonic and anti-cyclonic systems, that chase one another across the Continent from west to east. In summer the storms are chiefly cyclonic or low-pressure in nature, while in winter the

prevailing system is an anti-cyclonic or high-pressure one. The coastal breezes are chiefly in-shore in summer and off-shore in winter.

The nature and configuration of the soil influences climate. Plains are subject to great variations in temperature. Black soils in hot countries are more pleasant than sandy ones, because they part with their heat more readily. Draining the soil raises its temperature. Forests have a cooling and equalising effect on climate ; they also increase the rainfall in their neighbourhood, and have a modifying influence on winds.

CHAPTER II.

THE ADAPTABILITY OF WHITE RACES TO HOT CLIMATES.

THE first and only real variety of acclimatisation is that which enables the white races of Europe to enjoy health and increase in numbers as they do in Canada, U.S. of America, and in Australia. This is tested by their power to work in the fields and on the farms. The other variety is that which enables them to act in capacities not entailing manual labour or continual exposure to the sun, such as overseers to plantations, missionaries, officials, or merchants. It has been written (Cullimore, *Book of Climates*), "That the inhabitants of the cool, temperate zone have been found to colonise successfully, not merely commercially or as sojourning planters, but as tested by their power to work in the fields, many sub-tropical lands ; but unless, as on the high plateaux of Mexico and of Central and South America, they have been unable to form within the tropics without racial admixture per-

manent agricultural colonies." The first part of this statement has been thoroughly borne out in Australia. Colonisation has been successful, and is proceeding apace, in the sub-tropical regions of those climes. But the rub comes with the latter part of the statement, and it has an intimate bearing on the "White Australia" question. Can the tropical portions of North Australia be successfully colonised by the white races? Some answer: Yes, in time; others say, No, never. The former desire the total exclusion of the dark and yellow races of Asia; while the latter would admit these, with or without regulation. The Australian sentiment, on the whole, is at present decidedly against the free admission of Asiatics. A final answer to the question cannot yet be given, but it is only fair to say that the comparative dryness and coolness of Australian latitudes, combined with the absence of a competitive native population, render the tropical regions of that country more amenable to white settlement than the tropical regions of other lands. It is only reasonable to suppose that the climate of Northern Australia would be more congenial to the dark-skinned people of Southern Europe than to the fairer types from the North.

It has been established that Europeans can live with more or less comfort on the hill climates of tropical countries; but, except in the instances mentioned above, not as permanent settlers. Speaking generally, the length of life increases from the equator towards the Poles.

In speaking of hot climates, a distinction must be drawn between hot dry regions and hot humid regions. In hot, moist regions Europeans lose their vigour, and do not thrive and multiply. That Europeans may thrive and increase in numbers, and at the same time retain their vigour, in hot, dry lands, has been abundantly proved in the case of South Africa, Southern United States of America, and Australia. It is interesting to note that many of the

mightiest nations of bygone times flourished in hot, dry regions. The ancient Egyptian Empire is the most striking example. The Saracens, Carthagenians, and Spaniards may be quoted in the same connexion. The natives of warm, moist climates have always been found to be lacking in hardihood and warlike propensities ; but that these regions can be civilised and make considerable progress in the arts of peace has been amply demonstrated in India and Southern China.

It has been predicted that, owing to the increase of the world's population, in the near future a greater call must be made on the tropical regions of the globe for foodstuffs.

As far as can be judged at present, if the unconquered portions of the tropical world are to be brought under the influence of civilised conditions, it will be by aid of the dark and yellow races of civilised Asia. (We no longer speak of the Chinese and Indians as being uncivilised.)

CHAPTER III.

THE SPECIAL FEATURES OF THE AUSTRALIAN CLIMATE.

THE Australian climate may be summed up as being warm, dry, and equable, remembering always that the terms are used in the comparative sense. It is not denied that there are distinct climatic regions in Australia. It is true, as Mr. Coghlan says : "From Kiandra, on the highest part of the Great Dividing Range, to Bourke, on the Great Interior Plain, the climate may be compared with that of the region of Europe extending from Edinburgh, in Scotland, to

Messina, in Sicily." It is true, moreover, that the coastal portions of Northern Australia are oppressed with a moist heat during part of the year ; also that the interior of the country is subject to considerable variations of temperature. But, for all that, the above statement is correct in the general sense. And it is probably the dryness, more than any other factor, that gives to the Australian climate its individual character. This dryness is not due altogether to lack of rainfall ; for the rainfall all along the eastern border of the Continent is copious—nearly double, in fact, that of England. It is due to the warm sun, the clear skies, and the fact that the rain is torrential, and not long-drawn-out. The fact that Australia is a warm land surrounded by a cold sea also, no doubt, has its effect. Supan has divided Australia into four distinct climatic provinces :—

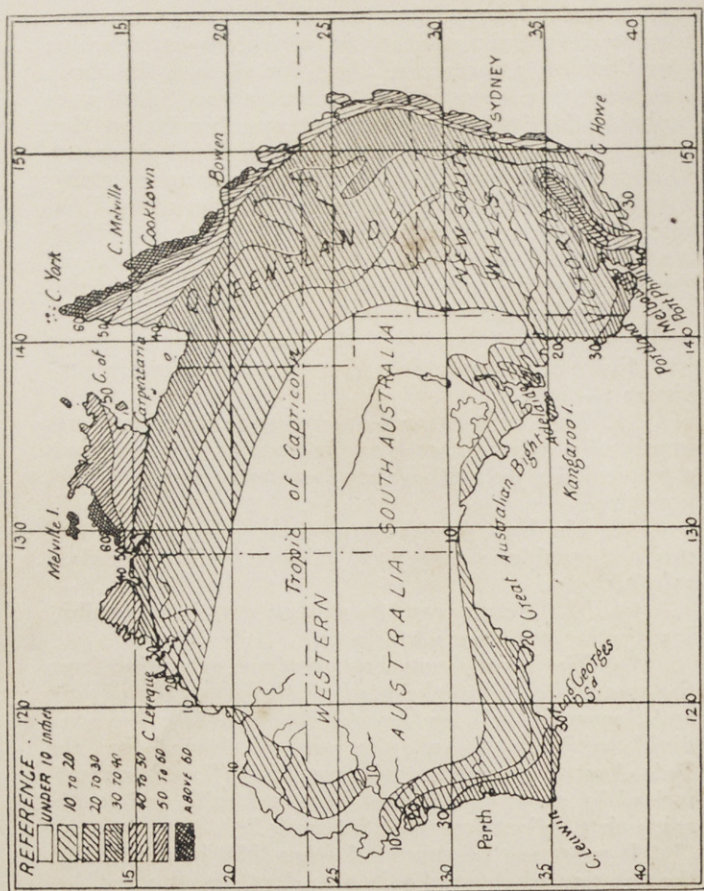
"1. The Indo-Australian monsoon province, embracing the extreme north of the Continent, and having a tropical climate, with a very low yearly range of temperature.

"2. The East Australian province (see map), having an equable, sub-tropical climate, with abundant rainfall.

"3. The South-west Australian province, exhibiting similar conditions to No. 2.

"4. The Inner Australian province, extending from the western coast to the head of the Australian Bight and Spencer's Gulf, and bounded eastward by the main divide of Eastern Australia, and northward by the Indo-Australian monsoonal province. This is characterised by great extremes of heat and cold, and scanty rains that fall at irregular intervals."

It must not be supposed from this, however, that the interior of Australia is a useless desert ; for, besides being astonishingly rich in minerals, this province of Supan's embraces the great artesian water basin of New South Wales and Queensland. Moreover, it is nearly all suitable for pastoral purposes, and in the



future large tracts of it will be cultivated with the aid of irrigation. In short, it may be said that the Australian Desert now no longer exists, except in the pages of out-of-date geographies. It is important to note that only a small portion of North Australia is included in Supan's tropical area. This can be readily understood if we remember what has been said above about the relative coolness and dryness of the Australian atmosphere. It amounts to this, that most of North Australia, while tropical in latitude, is sub-tropical in climatic effects.

Subject to what has been said above, a further subdivision of the Australian climate can be made into a coastal region, a highland region, and the interior plains.

Along the coast the rainfall is greater than farther inland. This varies from 100 inches at Cairns, in North Queensland, to 20 inches or less along parts of the West Australian coast. The average along the eastern and south-eastern coast is between 40 and 50 inches. The air is more humid along the coast than farther inland, but the peculiar dryness of the country's atmosphere begins to assert itself a few miles inland. Coghlan, speaking of this region, says :—"Taking the coast generally, the difference between the mean summer and mean winter temperature may be set down as averaging not more than 24deg., a range so small as rarely to be found elsewhere. The famed resorts on the Mediterranean seaboard bear no comparison with the Pacific slope of New South Wales, either for natural salubrity or for the comparative mildness of the summer and winter, while the epidemics and pestilences which have devastated those regions of ancient civilisation have never made their appearance on these shores."

The highlands of Australia encircle the Continent near the sea. They are most important on the eastern side of the Continent. These regions (the eastern highlands) have a rainfall of about

30 inches per annum. They are cool and healthy, being much patronised in summer by city folk. They are rich in minerals, and in pastoral and agricultural possibilities. The very centre of Australia is occupied by an extensive independent range of mountains, called the Macdonald Range. Somewhat south of these mountains is the Musgrove Range, another extensive system. The possibilities of these ranges have yet to be made known.

The main features of the climate of the interior plains have been already alluded to. Coghlan says of them :—"The climate of the great plains, in spite of the great heat of part of the summer, is very healthy, and an inspection of the death-rates of both children and grown-up persons amply bears out this view. The town of Bourke may be taken as an example. Bourke has exactly the same latitude as Cairo ; yet its summer temperative is 1.5deg. lower than that of the Egyptian city. New Orleans also lies on the same parallel ; but the American city is 4deg. hotter in summer. As regards winter temperature, Bourke leaves little to be desired. The mean winter reading of the thermometer is 54.3deg., and, accompanied as this is by clear skies and the absence of snow, the season is both refreshing and enjoyable." Further, he says :—"From the standpoint of health, it is fortunate for the country that dryness is one of its chief characteristics ; otherwise, instead of being the abode of health, the interior of the State would, with abundant rains, have become an impenetrable jungle, the lurking-place of those malarial fevers which devastate so many fair regions of the old world and America." The soil of Australia is rich and varied, and can produce in abundance everything that is necessary to a civilised people. The country is only gradually revealing its riches. The terrors of the interior are fast disappearing. The difficulties of settlement in the tropical regions prove to be more imaginary than real when boldly faced. Much of the country that was once sup-

posed to be desert land is now under close settlement. The North of Australia is rich in tropical products. The highlands of the south-east favour the produce of colder climes ; while over the rest of Australia there are large tracts of rich soil, where man and his plants and his animals find a congenial home.

In addition, the country is phenomenally rich in minerals of all kinds. New South Wales has almost unlimited supplies of good coal ; the goldfields of Australia are amongst the richest in the world ; and there are immense deposits of silver, lead, tin, copper, and other minerals. The iron and shale deposits promise much for the future. There are unlimited supplies of stone suitable for building and ornamental purposes. Diamonds and precious stones of all kinds have been found. Further, the timber resources of the Continent are great, and edible fish in fair supplies are to be found all round the coast.

Few countries have the same all-round natural resources that Australia has. For instance, the Argentine Republic, while rich in agricultural and pastoral pursuits, is poor in minerals ; Canada is rich in agriculture, in minerals, and in fisheries, but is poor in pastoral wealth ; South Africa is rich in minerals, but it lacks coal ; moreover, its pastoral and agricultural wealth is seriously handicapped by disease.

CHAPTER IV.

ADVANTAGES.

WE are now in a position to consider the advantages of the Australian climate in the material and personal sense. We have seen that, except, perhaps, for

a small portion of the interior of the Continent, the whole of Australia is habitable. We have gathered that a large part of the country is capable of supporting a dense population ; also that the country is extremely rich in natural resources, and that, except for the extreme north, about which there is a difference of opinion, the whole of Australia is eminently suited for colonisation by white people.

There is an all too prevalent pessimism amongst Australians with regard to their country. The writer feels none of this. No country was ever made to order by man. The better has to be taken with the worse. The prevailing dryness has always been considered to be the great drawback to Australia. It has already been intimated that a prevailing wetness would have been much worse for the country. And, indeed, when it is closely considered, it will be found that it is this very dryness that gives the Australian climate its individuality, and is responsible for many of its advantages.

In the following pages, some of the benefits of the climate of Australia as it affects animals, plants, and man will be noted. Then a final word may be said on health resorts and beauty spots.

Before coming to that, however, it will not be amiss to discuss how a new environment or climate can affect living beings. An essential characteristic of organic or living matter is that it has the power, within limits, of adapting itself to, or, what is much the same thing, of defending itself against, external forces. Inorganic matter is the sport of physical agencies, and, beyond a certain tendency to get into stable forms, has no power of defence against them. Organic matter, on the other hand, has the power of altering its form to meet new conditions. Further, it has the power of yoking the forces of Nature to its own use.

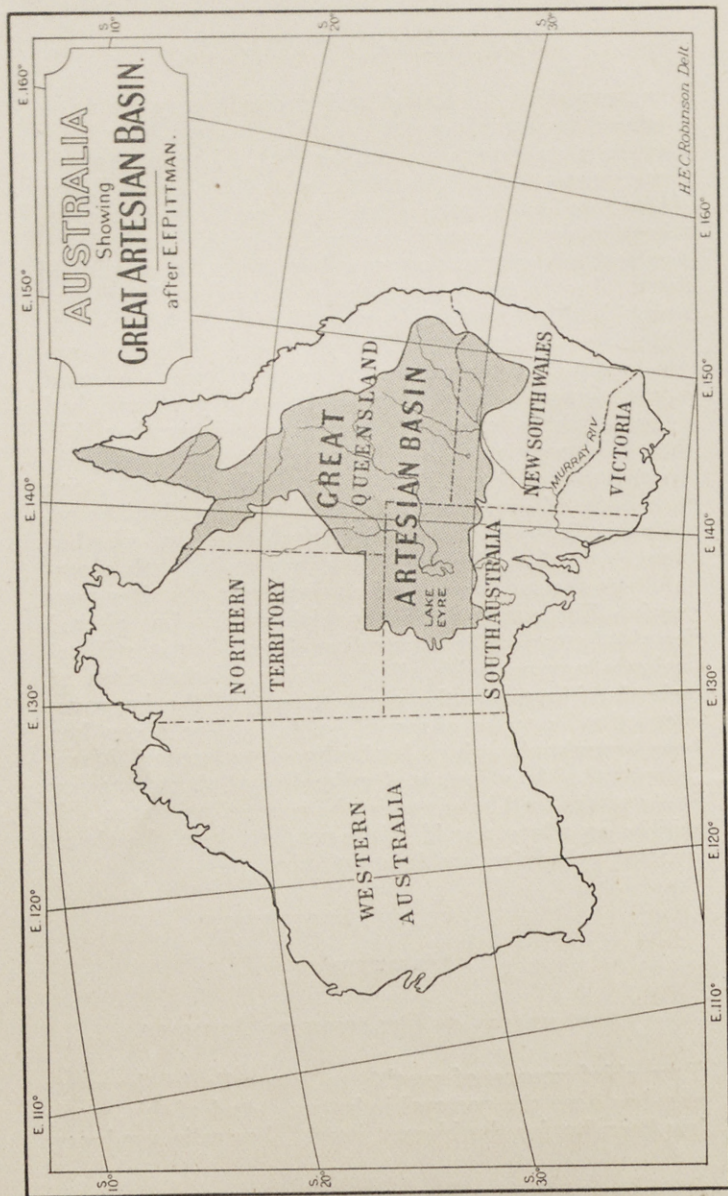
In a new climate there are new external forces, and consequently new responses on the part of the organism. It is quite easy of comprehension that these

new responses in plants and animals may be in a direction favourable or unfavourable to man. Or there may be a gain in one direction and a loss in another. For example, on the inland plains of New South Wales sheep gain in wool production, but lose in flesh. Again, wheat, under the warm, sunny skies of Australia, loses somewhat in gluten contents, but gains in starch or flour. In the same way, the new surroundings may bring forth alterations in man himself, either to his betterment or to his detriment. Such influences are not so easy to gauge in man as in animals, for man is not always a good judge of what is good and bad in man. It is important, however, to remember this, that environment does not form character ; it only develops it. Hence the nature of the original stock or race is of extreme importance in estimating the resultant effect of climate. Every organism, whether plant, animal, or human being, has at its birth a certain bias that no amount of environment can alter very much. For example, the Spanish merino has altered for the better under Australian skies ; but it still remains a merino, with all the points of that class of animal. Moreover, the greatest part of the improvement that is to be observed in Australian sheep has been brought about by selective breeding by man. Many examples of how imported animals and plants prosper in Australia will be given in the succeeding pages. It will be an advantage if, while reading them, the above general principles are kept in mind.

CHAPTER V.

ADVANTAGES IN RELATION TO ANIMALS.

THE chief source of wealth to Australia in the past past has been the pastoral industry. And of this, wool has been by far the biggest item. Australia produces



somewhere about £20,000,000 worth of wool every year. Whatever else fails, the wool never does. In drought years the production falls off somewhat ; but even in the worst seasons a valuable wool clip can be looked for. Australia produces both more wool and better wool than any other country in the world. Undoubtedly this is owing to climatic conditions. The great extent of dry, healthy pasture land, whether highlands, mountain slopes, or plains, a clear sky, and a dry, pure atmosphere are the conditions under which the wool industry has prospered. And although the available pasture land in Australia is fast being used up, and although the dairy-farmer and the wheat-farmer are taking slices out of the old sheep country, the days of great things in wool are likely to continue for a long time yet. For instance, by intelligent breeding, the average weight of fleece for sheep is continually increasing, and at the same time the average quality of the wool is improving. Again, the progressive use of artesian water is increasing the carrying capacity of the land. Much is also promised by the systematic grassing of sheep country, and by the judicious application of mixed agricultural and sheep-farming. The occasional droughts that occur are not without their uses. During such times, the soil has an advantageous rest. Moreover, the flocks are improved, for stock-owners take care that the inferior animals are the first to go when a sacrifice is necessary.

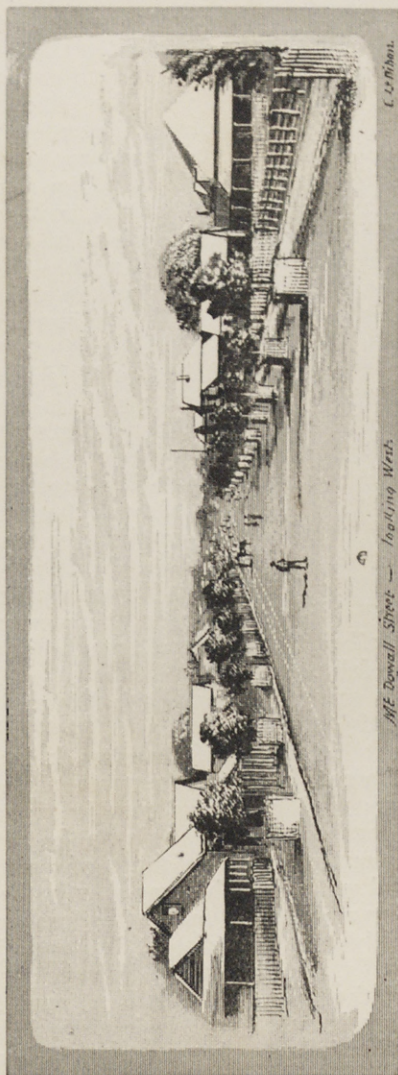
That sheep tend to lose in flesh on the warm inland plains is pretty certain. Nevertheless, all the famous mutton breeds of sheep prosper in certain parts of the highlands. There is a large local consumption of mutton, and the possibility of an immense frozen mutton export trade.

The principal diseases of sheep in Australia are foot-rot, fluke, or liver-rot, and anthrax. All of these diseases flourish in wet seasons, and under marshy conditions, and may be said, therefore, to be kept in check by the prevailing dryness. That such

is the case with regard to fluke and foot-rot is well known; and with regard to anthrax, it is written (*Freedberger and Frohner's Veterinary Pathology*): "Anthrax likes a certain change in the moisture of the soil, and develops best on a swampy, boggy soil which has partly dried up by summer heat. It occurs most frequently in lowlands and plains that are exposed to inundations."

Cattle do well in Australia, and are a source of great wealth to the country. While New South Wales is the chief wool State, Queensland is the chief cattle State. Within recent years the dairying industry has made great strides, chiefly on the eastern and south-eastern coast and highlands. This industry is still on the up-grade, and is making gallant efforts to catch up to the wool industry in importance. All the well-known breeds of cattle thrive in the country. The store cattle of Queensland and New South Wales grow to a great size, and the dairy herds yield satisfactory quantities of milk. A breed of dairy cattle peculiar to Australia has been evolved by judicious crossing. Among these are to be found some of the best milking cattle in the States. The dairy pastures of the coast and highlands are sweet and clean. The mild climate enables the cattle to be kept in the open all the year round, much to their benefit.

The chief cattle diseases in Australia are anthrax, pleuro-pneumonia, black-leg, tuberculosis, cancer, and actinomycosis; and in North Australia tick-fever. Anthrax has been already alluded to. Pleuro-pneumonia is more destructive in cold, wet climates than in warm, dry ones. Black-leg occurs chiefly on swampy ground. It is said to carry off 50 per cent. of young cattle in the Transvaal, and causes great loss during the rainy season in the Punjaub. Tuberculosis is much less prevalent in Australian cattle than it is in those of Europe. Cancer and actinomycosis do not cause serious loss. Tick-fever, known in America as Texas fever, and in



Mc Dowall Street — Looking West.

ROMA, CENTRAL QUEENSLAND: A TYPICAL INLAND TOWN.

South Africa as the Coast disease, has done a good deal of damage to the cattle herds of Queensland, and the fear of its spread has greatly exercised the minds of breeders in New South Wales. But this can be said about it, that it is distinctly a disease of warm, wet countries, and that, therefore, the dry soil and air of Australia tend to keep it in check. Tick-fever in cattle is somewhat analogous to malarial fever in man. Both are tropical diseases ; both are due to a small parasite (not the same in each case) that attacks the red blood corpuscles ; and both are conveyed to the victims by an insect, this being the tick in one instance, and the mosquito in the other instance. Of that dreadful scourge, rinderpest, and of the South African tsetse fly disease, Australia knows nothing.

There are somewhere about 2,000,000 horses in Australia. The country is eminently suited for the breeding of horses. The horse has been called man's best friend. It has been and is still that in Australia. The horse draws the wool to market ; he rounds up the cattle ; he drags the plough, and carries the back-block mails. The horse is in large measure the country's legs. He supplies also on the race-track legitimate sport, albeit at the same time he often teaches the fool his folly.

Coghlan says :—"New South Wales is specially suitable for the breeding of saddle and light harness horses, and it is doubtful if these particular breeds of Australian horses are anywhere surpassed. The bush horse is hardy and swift, and capable of making long and rapid journeys when fed only on the natural herbage of the country ; and in times of drought, when the grass and water have become scanty, these animals often perform astonishing feats of endurance." Horses are remarkably free from disease in Australia. They differ markedly in this respect from horses in South Africa. All the diseases that afflict domestic animals seem to find their most congenial home in South Africa.

The swine industry has not assumed very great



THE TWEED RIVER, NEW SOUTH WALES.

proportions in Australia yet ; but, in conjunction with dairying and corn-growing, it is sure to take a prominent place soon. Pigs are subject to two epidemic diseases, namely, swine erysipelas and swine fever, the latter also known as hog-cholera. The former is most prevalent in valleys and low-lying plains with sluggish streams. This disease is not prevalent in Australia. Swine fever occurs in the country, and fairly extensive epidemics have prevailed even in dry regions. The disease, however, has usually been easily stamped out.

CHAPTER VI.

ADVANTAGES IN RELATION TO AGRICULTURE.

So much for Australia as a pastoral and dairying country. What about its agricultural resources ? The final test of a country must rest on its agricultural capabilities. Well, Australia is fast proving itself in this particular. Indeed, it has proved itself. But its greatness depends not so much on the present production as on the vast potentialities that are everywhere apparent. Australia can produce in abundance almost any kind of grass, grain, root, or fruit crop. Reference need only be made to a few items here.

Wheat is, and must be for a long time to come, the chief source of food for people of European descent. Although Australia's contribution to the world's wheat supply is at present small, yet great strides have been made during recent years in the cultivation of that cereal. Some seven or eight million acres are at present under wheat, yielding a crop worth about £10,000,000 per annum. A moderate estimate of the land in Australia suitable for wheat-farming is

50,000,000 acres. The white wheats of Australia are noted all over the world for their superior qualities. This is a result of climatic influences. Morrow and Hunt, in their *Soils and Crops of the Farm*, say:—"In all countries a comparative dryness of the soil is favourable for the production of large crops of wheat. Wheat of hot, sunny climates, with dry weather during the latter part of the growth, is brighter, and makes a better quality of flour the world over." Rust is the chief disease of wheat. It is most prevalent in damp soils.

Sugar, like wheat, is a "child of the sun" ; but, unlike wheat, it requires a certain humidity of the atmosphere. At the present time all the sugar required for internal consumption is grown in Australia, chiefly along the eastern coast of North Queensland. There is any amount of good sugar lands available for cultivation. There is not likely, however, to be any further rapid extension of this industry, as the white labour conditions that prevail prohibit successful competition in the open markets of the world. It has been demonstrated, too, that coffee, cotton, and rice can be successfully grown in the north. The exploitation of these products, however, is not likely to be large in the near future, as they also require a cheaper labour than a white country can give them. The tobacco plant is grown in the south, and there is no reason why it should not be largely cultivated. All the important cereals other than wheat thrive well in parts of the country, and only await a greater internal market for their more extensive cultivation. The grape-vine grows to perfection, and it must be only a matter of time when Australian wines will come into general favour.

Australia is a great place for fruit. From the north come bananas, pineapples, mangoes, date-plums, and other succulent fruits. Tasmania, in the south, exports annually hundreds of tons of the finest apples. In Victoria and New South Wales there are

innumerable orchards, producing quantities of all the fruits known to temperate and sub-tropical lands. On the inland slopes, where the struggle for water begins, fruits develop a delicate flavour, and have fine keeping qualities. In the Perth-Albany section of West Australia great success has attended fruit-growing, and some of the best orchards in the Continent are to be found in that part. Like every other fruit-growing country, Australia is subject to insect and vegetable pests, but these can be overcome by proper attention. Garden vegetables, or what the Americans call truck produce, grow as well in the Commonwealth as anywhere else. It must be admitted, however, that the large towns are indifferently supplied with this class of produce. Vegetables are absurdly scarce and expensive during a large part of the year. Hence there is room in the country, especially near the large centres of population, for capable farmers of truck produce.

Victoria is the chief agricultural State in the Commonwealth. The tide of agricultural progress, however, is steadily northward. One of the finest stretches of arable land in the world is to be found in the basalt-covered tablelands of New England. These and other parts of the Continent are ready to be wooed and won by the enterprising farmer.

CHAPTER VII.

ADVANTAGES IN RELATION TO MAN.

THERE is no doubt that, in whatever way it is looked at, Australia is a healthy country. Both the general death-rate and infantile death-rate is far below



A GENTLEMAN'S RESIDENCE, NORTH QUEENSLAND.

that of European countries. About 11 out of every 1000 persons living die annually in Australia, against 18 in England and Wales. Again, out of every 100 children born in Australia, 10 die before reaching their first year, against 15 in England and Wales. This favourable result is due in part to a less-congested state of the population ; but it is also due in large measure to climatic conditions. The people of Australia are favourably situated both as regards tropical diseases and the ailments incidental to cold climates. Malaria is the chief scourge of tropical climates. There is very little of this disease in Australia. It is mildly prevalent in North Queensland. Then diseases of the chest, such as bronchitis and pneumonia, are much less fatal than they are in colder lands. Acute rheumatism and heart disease are also less severe in Australia than in Europe. Cholera, yellow fever, typhus fever, hydrophobia, smallpox, and some other diseases of less importance do not exist in the Island Continent. Of the disease known as rickets, which results in the crippling of a considerable number of children in England and Europe, Australia is practically free. In the large towns of Europe 25 per cent. of the school children are said to suffer from short-sightedness and lateral curvature of the spine. In Australian cities not more than one per cent. of the school children are so afflicted. Again, tuberculosis, in its various forms, is more common in European countries. There is one disease that Australia has its full share of. This is the enteritis of young children. Every summer there is a large death-rate from this disease. Happily, however, this rate is falling under the influence of improved sanitary conditions. If it were not for this disease, the mortality figures for Australia would be quite remarkably low.

A somewhat unsatisfactory feature in Australian affairs is a low birth-rate. At present this is 26 per 1000 inhabitants, as compared with 28.5 for England and Wales. There is a tendency for the birth-rate to

fall amongst all peoples of European descent. Whether there is anything in the Australian climate that heightens that tendency must be left for the future to disclose. Mr. Coghlan's researches, however, have made it clear that the decline of the birth-rate has nothing to do with a diminished fertility of Australian women.

That there is something in the air of the Southern Commonwealth that tends to develop beautiful voices cannot be doubted. The number of high-class and successful songstresses that have arisen in Australia is phenomenal, compared with the population. Whether there is any material advantage in this will no doubt depend on the point of view. Again, those capable of judging assert that for personal beauty the women of Australia can hold their own against the world. That the Austral climate tends to develop and enhance female beauty is a belief of the writer's. It is interesting to note that in the matter of fine merino wool, enchanting voices, and beautiful women Australia is improving the example set by Spain.

Now a word on the future hardihood of the Australian. Some people profess to believe that the European is likely to degenerate in the hot climate of Australia. The writer does not think so. There is no evidence to show that, either physically or mentally, the Australian is deteriorating. Quite the reverse. In all branches of athleticism and the manly sports Australians hold an honoured position. The settlers in the country are full of grit and hardihood. The inhabitants, moreover, have shown their willingness to enter the field of battle when duty calls. Intellectually, too, the sons of the Commonwealth have proved their worth. Not a few of them have distinguished themselves abroad, while in the country itself the young men are rapidly getting into positions of responsibility in the professional and commercial world. Some notable inventions have originated in Australia. The Brennan torpedo, the Hargreaves meteorological kite,



THE BARRON RANGE—BACK OF CAIRNS.

and the Australian combined harvester bear witness to this. History has abundantly proved that, while a hot humid climate leads to the production of a soft people, a hot dry one does not do so. There is no reason to believe other than that the Australian will retain his mental and bodily vigour for many ages to come, and that there is in the country all the elements required to make a great and lasting nation.

CHAPTER VIII.

HEALTH RESORTS AND BEAUTY SPOTS.

ALL parts of Australia are healthy. And, although all parts of the Commonwealth are not equally desirable to live in, there is no part that is not really pleasant during some period of the year. Cairns, in North Queensland, is hot and sultry in summer, but it is becoming a favourite winter resort for the Southerners. Tasmania is a cold spot in winter, but in summer it reckons its visitors from the North by the thousand.

Seekers after health or change of environment have three climates open to them in Australia. There is the marine, equable climate of the east coast, and of the south-west coast; there is the cool, bracing climate of the tablelands and mountain slopes; and there is the great continental climate of the interior plains, with its permanently dry atmosphere and its great variations of temperature. Of the capital cities of Australia, Brisbane, Sydney, Hobart, and Perth are under marine or coastal influences; Adelaide has a continental climate; while Melbourne comes under both influences, with a preponderance in favour of continental conditions. Sydney is the premier city of Australia. It

is the natural centre of a vast and rich province, and is situated right over the centre of the great coal measures. It is destined to keep on growing in richness and importance. Sydney Harbour is noted for its beauty, its safety, and its deep-water frontages. The indentations, ramifications, headlands, bays, and beaches provide a series of never-ending delights. Within easy distance north and south of Sydney there are a number of ocean beaches and harbours that provide excellent seaside resorts and fishing rendezvous. West of Sydney are the famous Blue Mountains, where mountain scenery and mountain air can be enjoyed after a few hours' train journey. Melbourne is somewhat cooler than Sydney, but is subject to greater extremes of temperature. In summer it is subject to hot spells, which forbid comfortable sleep at night, and in winter it is subject to cold blasts from the south. For all that, it is a fine city, and its inhabitants are full of vigour and speculative energy. Perhaps the healthiest spot in Australia is comprised in the north-coast district of New South Wales. Here the infantile mortality is very low, and the death-rates from most diseases are also favourable. The mountain ranges of Victoria and New South Wales also provide exceptionally healthy spots. All parts of the country are suitable for consumptives. There is no need for this class of patient to go into the interior, for the coastal and mountain districts give just as good results, while the conveniences of life are more to hand there. The highlands are studded over with enticing beauty spots. There are caves, waterfalls, gorges, panoramic views, and fishing streams in profusion, and more or less accessible to the main highways.

The inland parts of Australia are hot in summer, the most disagreeable feature being the succession of hot nights that occurs. During the rest of the year, in spite of cold snaps in winter, the weather is delightful. Sufferers from chronic bronchitis and asthma, as a rule,

do well in these parts. This portion of the Continent is not without its interesting characters. A glance at any reliable topographical map will show that the interior of Australia is not so featureless as might be supposed. The face of the country changes with the rainfall. The great, rolling, treeless plains, with the ever-present mirage, is a sight not to be forgotten. In parts there is an abundance of game. In the artesian water belt there are already some hundreds of flowing bores, and at some of these successful irrigation farms have been established. The inhabitants are hardy, enterprising, and independent, and life in the more settled parts is by no means unpleasant.

West Australians claim that the south-west corner of their State has an even more equable climate than has the Pacific slope of the Continent. Be that as it may, there is no doubt that this part of Australia is very healthy. Moreover, it abounds in interesting features. The newly-discovered caves at Bussulton are highly spoken of. The colony is also justly proud of the great goldfields water-supply scheme, with its 300 miles of water-pipes and its 60 large pumping engines.

CHAPTER IX.

THE NEEDS OF AUSTRALIA.

THE great need of Australia is population. All other problems dwindle in importance alongside of this one. In fact, most of the other problems that are exercising the minds of men in Australia to-day will settle themselves when the call for a greater population is answered. The country has the land and has the wealth ; it only requires men to work the one and

win the other. The demand for more people is all the more urgent since Australians have decided on having a White Continent. Indeed, the encouragement of a stream of white settlers from other lands is a corollary to the White Australia decision. Recruits are needed from England, Ireland, and Scotland ; but the demand should not stop there. Germans make excellent citizens and settlers. They are, moreover, for the most part, men of high ideals and good morals. The call from North Australia is to the South of Europe. Let them all come, and let them come in great numbers. Every immigrant of the right stamp is an additional asset to the country. What matters it if, to some extent, the struggle for existence is increased thereby. A little more struggling on the part of Australians would not be to their disadvantage. One fault of the country is that it is too rich. The earth vomits forth wealth in such profusion that man is apt to get the idea that it is unnecessary to work, or, anyway, to work hard, for a living. Every year £20,000,000 worth of wool grows on the backs of the sheep, £20,000,000 worth of minerals is mined, and £20,000,000 of wheat and dairy produce is raised ; every year 4,000,000 people sit down and watch this wealth growing ; then, when the time is ripe, they rise up and divide the spoils. This is why the cities are so full and the country so empty, for it is in the city that the division of the spoils goes on. This must change, and the only way to do it is to work the land for something like what it is worth ; and the only way to do this is to fill up the Continent with the right sort of people. And surely that should not be difficult in a country that presents such solid advantages as does Australia.



