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HISTORICAL GEOGRAPHY
OF THE
BRITISH COLONIES

VOL. VI
AUSTRALASIA

BY
J. D. ROGERS

BARRISTER-AT-LAW
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PART II. GEOGRAPHICAL

WITH MAPS

OXFORD
AT THE CLARENDON PRESS

1907

HISTORICAL GEOGRAPHY

BRITISH COLONIES

VOL. VI
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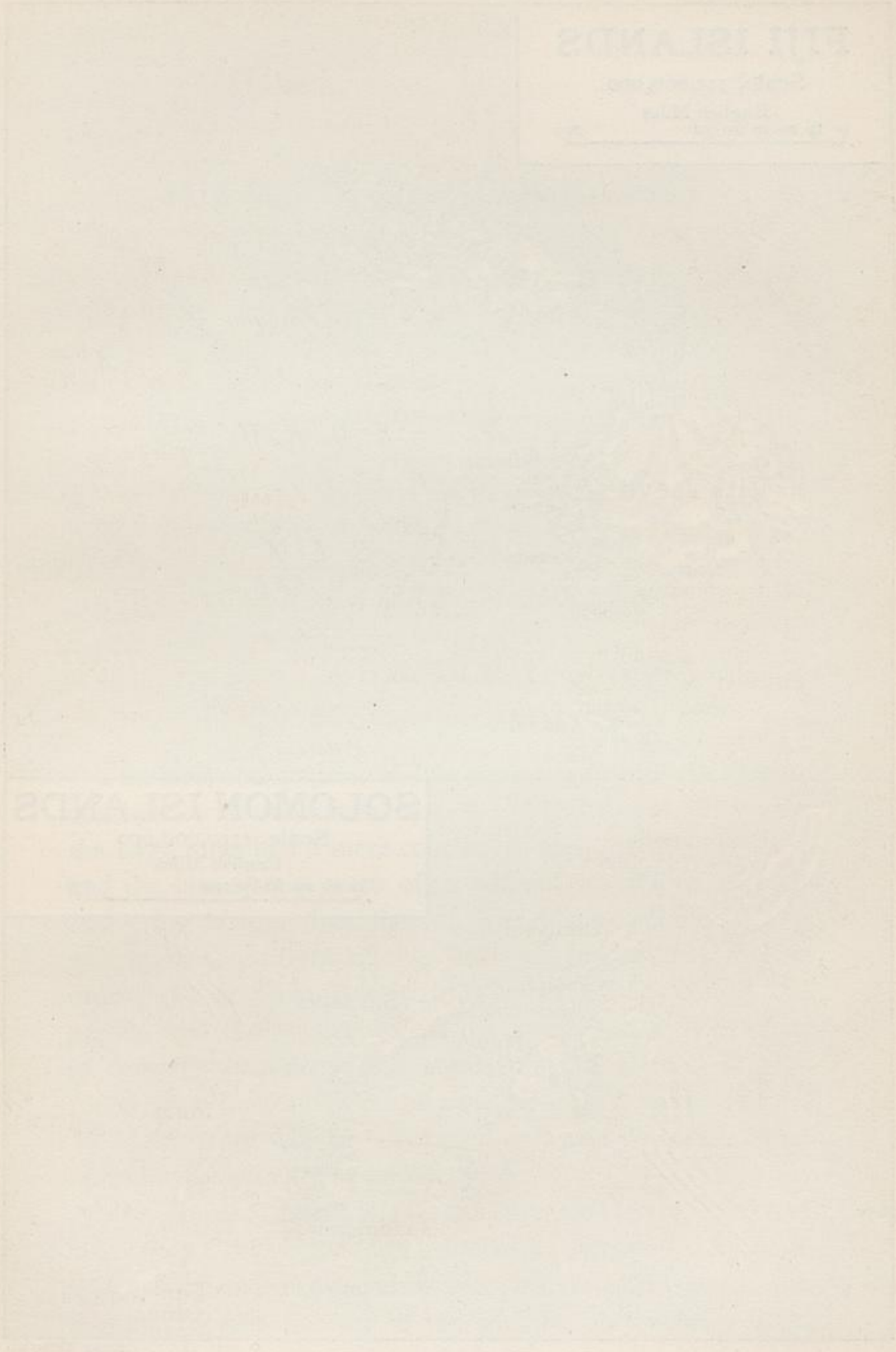
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THE ISLANDS

SOLOMON ISLANDS

SOLOMON ISLANDS

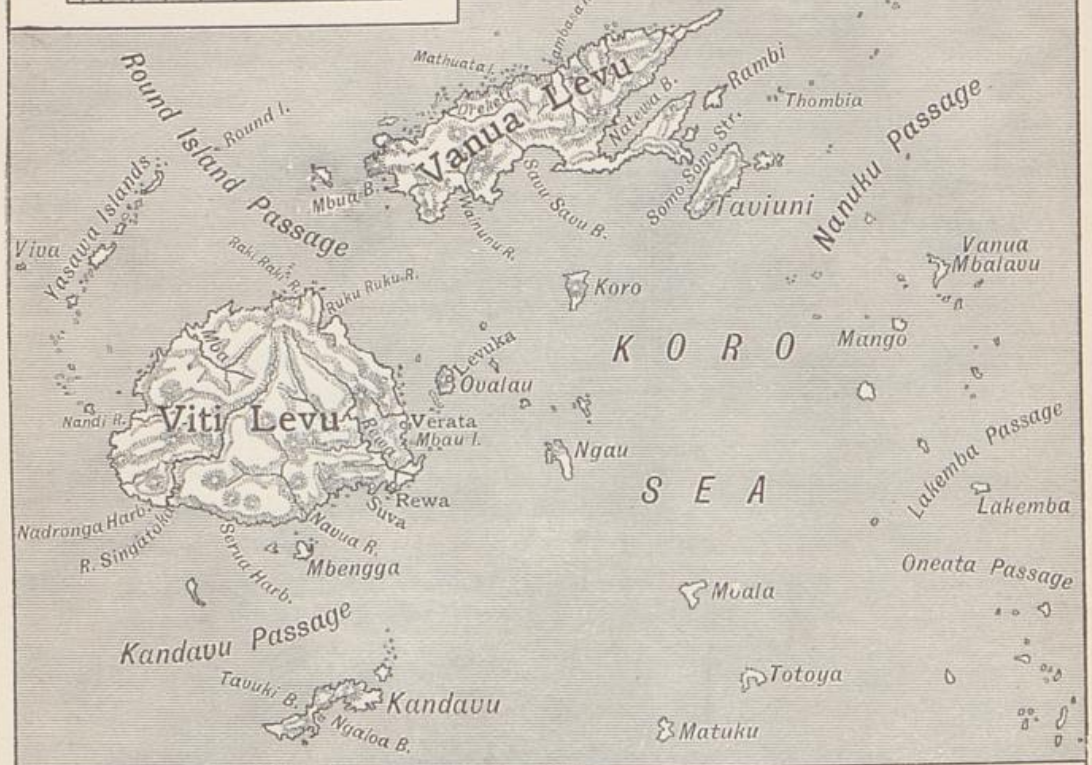
SOLOMON ISLANDS

FIJI ISLANDS

Scale, 1:5,000,000

English Miles

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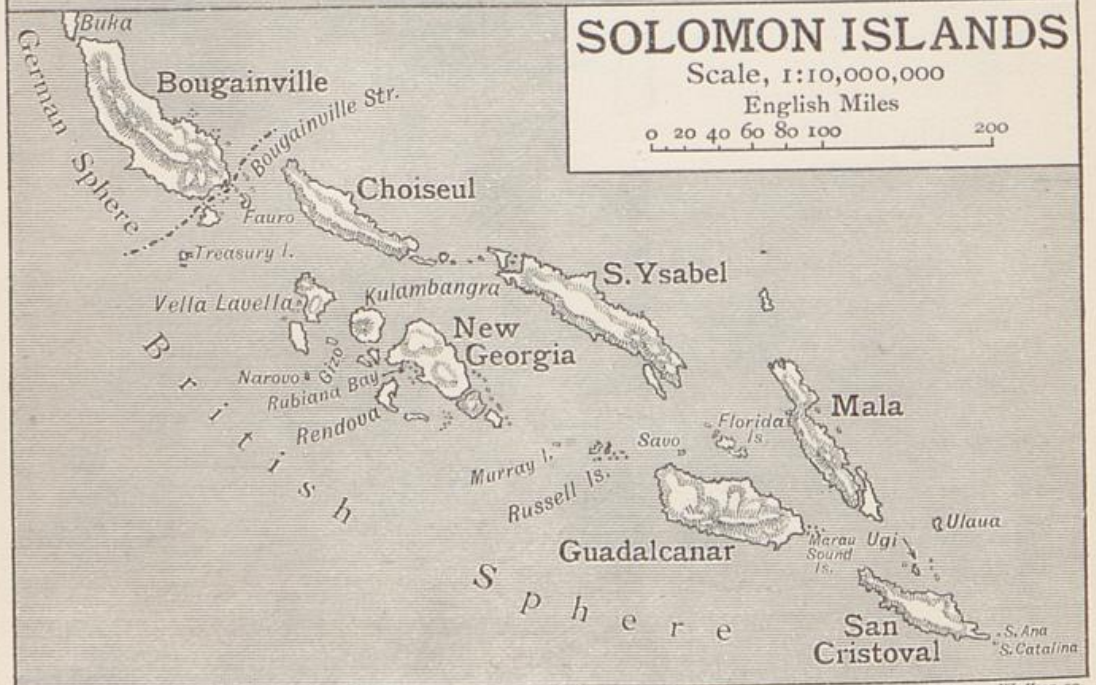


SOLOMON ISLANDS

Scale, 1:10,000,000

English Miles

0 20 40 60 80 100 200



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HISTORICAL GEOGRAPHY
OF
THE BRITISH COLONIES

VOL. VI
AUSTRALASIA

PART II
AUSTRALASIAN GEOGRAPHY

CHAPTER I
PACIFIC ISLANDS

THE historical portion of this book began with continents, continued with continental islands, and ended with islets—for the large units had a more continuous and important history, and the lesser units were often without history, or without any other history than that of their big neighbour. The geographical portions of this book will proceed in a reverse order; the wayside flower will be examined before the garden and the garden before the forest, and a description of complex continents and continental islands will be preceded by a description of the simplest islands of the Pacific. No description will be attempted except that which bears upon history directly or indirectly.

The simplest Pacific islands fall into two classes, coral and volcanic. Coral islands are usually seas surrounded by land, which is again surrounded by sea, and are called atolls, and the atoll is the flat top of an invisible mountain. Thus

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Pacific islands comprise

(1) simple coral islands or flat atolls,

Funafuti (E) is a mountain whose oval base—16,000 feet under the sea—is 30 miles by 28, whose basin-like summit is a pool of still sea—13 miles by 10—surrounded by an inner rim never more than 20 feet above, and sometimes a few feet below sea-level, and by an outer rim of submerged reef. Coming from the sea the rims look like tiaras of silver inlaid with emerald, for the eye only sees white breakers and white coral sand surmounted by coco-nuts. The coral is an animal or rather a multitude of animals which live and weave their winding sheets of lime between the surface of the sea and sea depths less than 300 feet deep; therefore it is asked, how can they have raised mountains as high as Mont Blanc unless the sea-floor has been sinking, like a lift, while they have been rising 'on stepping-stones of their dead selves to higher things'? The answers to this question do not concern us; we are only concerned with the visible interrupted margin on which men live. There mangroves wade into the sea and die, and limy seaweed, foraminiferae, crabs, sea-slugs¹, and pearl-oysters scoop, encrust, absorb, excrete, and die; and out of these dying things soil thin as paper is born; and on the soil coco-nuts and pandanus and undergrowth² strike root; and in the soil gannets and boobies, terns and noddies, and the rapacious frigate bird, burrow, breed, and leave guano; and man, for man is already there—digs trenches inside the inner rim where the soil accumulates, and plants taro, bananas, and bread-fruit. Thus Funafuti rose like Aphrodite from the foam. All the Ellice, Tokelau, Gilbert, Manahiki, and Ongtong Java islands, and all the etceteras of the Pacific are atolls like Funafuti; so are Aitutaki (C), but for its hill, and the Herveys (C).

Atolls are manifold, but whether their outline mimics a

(E) = Ellice group.

(C) = Cook's Islands.

¹ = bêche-de-mer, or trepang.

² purslain, trailing bean, &c.

ring, harp, triangle, bow, boomerang, prism, horseshoe or kidney, part of the outline is hidden below the surface of the sea, and the part which is seen is a long thin strip almost awash or is broken up into many flat islets of unequal size. Funafuti has 22, Caroline 41, Tongarewa (M) 15, Aitutaki 14, and Nui (E), a four-mile strip, has 8. There is only one straight narrow way from end to end of the long thin strips and those who live at either end never merge and seldom agree. Each big islet has little dependent islets; and each atoll is a miniature archipelago. Atoll dwellers are similarly domineering and divided. Ellis found Manahiki split into two and Tongarewa into eight tribe groups or islet groups. The atoll is neither a terrestrial nor a political unit: it is a noun of multitude.

Again, the lagoon may be fresh, as in Lakena (E), Washington and Olosenga; or dry, as in Jarvis, Baker, Flint, and the best guano islands, but it is usually connected with the sea and forms a home for sea-slugs and pearls, and if lagoon and channel are deep, as in Tongarewa, or deepened—as might be done in Aitutaki¹—forms or might form a harbour for big ships, and that was why, when looking out for harbours, England annexed Tongarewa and Aitutaki, while she only protected the other members of the groups to which they belong. Except for guano, pearls, sea-slugs, harbours, and surplus coco-nuts, atolls are useless for commerce.

If the atoll is lifted up a hundred feet or so it becomes an ordinary limestone island, its soil is deeper, its flora is more varied, and its riches are increased. Niue is compared by romantic observers to an inverted coral soup-plate, and by less romantic observers to a spittoon. Nomuka (T) and Atiu (C) are similar. Vavau (T)—the adopted home of

(2) *uplifted limestone islands,*

(M) = Manahiki group.

(T) = Tonga group.

¹ *N. Z. Parl. Rep.* 1891, Sess. 2, A. 3, p. 17; *Narr. of 'Challenger'*, vol. I. pt. ii. p. 765.

the orange—has the safest harbour in the Pacific, Neiafou, because its long, reefless sea-arms are screened by long limestone ridges which rise in one, two, or three stories. Hunga—which is described in Byron's 'Island'—is one of these one-storied ridges cut off from the mainland. Limestone ridges are as rare in the Pacific as terraced or storied limestone is common. Niue is two-storied. Mangaia (C), which resembles Niue, is thus described:—After crossing a fringing reef you ascend a coral wall 45 feet high, on which there is a platform which resembles a broad natural highway; and behind this platform there is a vertical rock wall 75 feet high—which afterwards rises by different stages to 190 feet above sea-level. The summit of the rock encircles the island like a ring, and is broad enough to contain the largest villages. Afterwards, towards the land side, this rock-rim drops vertically or slopes gradually 70 or 80 feet, and forms a foss in which taro is planted.¹ The first white man who landed on Mangaia admired its sugar-canes. All these islands being lower inside than outside are as riverless as atolls; and in Mangaia, as in Rarotonga² (C), the road goes round, not across the island. Similarly, the eleven villages of Niue—a number which recurs in Pleasant Island—dot the rim, and the first road was a circle like one of those roads of which we read in Dante. All these island roads are alike, and the villages upon them are as little fused as they would be if they stood in a straight line along a straight road. Tongatabu, which, though only partially tilted up some 40 or 50 feet, is a characteristic uplifted island of pure coral, is just larger and more fertile than Vavau, the second largest of the group; has Casuarina trees and fruit of all sorts; is as riverless as Niue or Vavau; and it, too, has its chief road round it, though its only harbours and important villages look north.

¹ Baessler, *Neue Südsee-Bilder* (1900), pp. 272-3.

² 'The great road of Toi.' The Mangaian rock-rim is called Makatea.

Many Pacific islands, instead of being built stone by stone (3) *simple live volcanic islands,* by myriads of busy animals, are the product of some sudden volcanic explosion, but live volcanoes are too dangerous to play a leading part in island history. A straight line drawn from the Rotoruan lakes (N.Z.) to Samoa passes through the unquenched fires of White Island (N.Z.) the Kermadecs, Ata, eight lonely peaks, and the three Niua islands¹. The Kermadecs are only sometimes peopled and were first peopled from New Zealand (1837), to which they belong; Ata (when inhabited) and the Niuas are dependencies of Tonga: and the eight lonely peaks stand like clouds by day and pillars of fire by night on the west flank of the Tonga group from which they are severed by 15 miles or so of sea over 5,000 feet deep. All eight peaks are believed to be active volcanoes: Koa, one of them, is 3,380 feet high, Tofua—another—was Tuitonga's demesne, where one of Bligh's comrades was murdered (1789), and Mariner cut Casuarina wood; Amargura, a third, was ruined in 1847: and Falcon island, a fourth, was thrust up from the vasty deep some 200 feet high by the convulsion (1886) which wrecked those marble-like terraces of Rotomahana (N.Z.) which now live only in Froude's less perishable description; was thrust down in 1898, and still bobs up and down. Those others that are inhabited are tributary to Tonga.

Thirteen hundred miles north-west of Tonga there is another line of live volcanoes, different in their direction, associated with dead volcanoes, uplifted limestone, and living coral, and possessing a more fertile soil. (4) *composite islands with volcanoes, ex-volcanoes, coral, and raised limestone,*

Between the living volcanoes of Bagana (Bougainville) (S), Savo (S), and Tinakula (Cr), sleeping or dead volcanoes in Vella Lavella, Narovo, Kulambangra, New Georgia, Rendova, Murray, and Russell islands guard or rather constitute the western flank of the Solomon group; for the Solomons, like

(S) = Solomon Isles.

(Cr) = Santa Cruz group.

¹ Niuatubutu (Keppel), Tafahi (Boscawen), and Niuafuou.

the New Hebrides, are ranged in two ranks, and the association of old and new volcanic and limestone formations raises the rear to an equality with the front rank, and both ranks belong to the class of complex islands. This chain of volcanic peaks is continued SSE. where the eastern and western Banks's Islands¹ and the eastern row of the New Hebrides² smoke, bubble, or burst into flame. Five or six hundred miles east of the New Hebrides are the Fiji islands, where hot springs in Kandavu, Ono, Ngau, Rambi, and Vanua Mbalavu, and on the Singatoka and Wai Ndina in Viti Levu (F), and on almost every river-side or sea-shore, except in the furthest west and east of Vanua Levu (F), are the signs of present volcanic energy; there are no other signs; the fires are out, Enceladus is dead, and no known volcanic line passes through Fiji.

which resemble the simple islands, but have bays, rivers, &c.

The simplest types of extinct volcanoes yield forms quite unlike those of low coral islands and the difference sometimes does and sometimes does not affect men's lives. In Mbengga and the eastern Fijis, atolls cling like necklaces round some half-buried cone, and there the conditions of life are the same as on flat atolls. In Totoya, Moala, Matuku, and Thombia (F), one side of the crater collapsed long ago and the enclosed concavity is a bay and there are no bays in coral islands. A similar collapsed crater forms the fruit gardens amid which the chief Rarotongan tribe dwells: and here the mountain has a convex side famous for coffee—and occupied by two other tribes; and the only bond between the three tribes is a road round the island. Similarly Mota (H) is like a wide-awake hat along whose brim Motans communicate with Motans. Rotumah the greater is a pig forest surrounded by a road so that, as in Niue and Mangaia, men only met one another at a single point

(F) = Fiji group.

(H) = New Hebrides.

¹ Ureparapara, Vanua Lava, Santa Maria, Meralava.

² Omba (Leper's Island), Ambrym, Lopevi, Yazur (in Tanna).

—'Percotevansi incontro e poscia pur li si rivolgea ciascun.'
 A lesser Rotumah is tacked on to Rotumah the greater: for ex-volcanoes often stand in a row just not touching or just touching one another. Thus Fauro (S) alternates wide mountain with low isthmus, and Kandavu (F) is a wasp with three waists, at one of which two bays—Tavuki and Ngaloa—all but meet: indeed Europeans liken Kandavu to four tuff stones on a string. Conversely, Solomon Islanders call the three volcanic Floridas one. Linear articulation makes the one many and the many one, and a new source of confusion is introduced. Ex-volcanoes are usually associated with upraised limestone: thus in Mango, Kotu, and Eua (T), Lakemba (F), Norfolk Island, and Lord Howe Island, limestone and volcanic stuff grow into one another like Siamese twins; and there rivers are seen, and with rivers we get river-flats, deltas, and inlets at their mouth. There are exceptions: Mangaia has volcanic as well as coral elements, but no river; and many pure volcanic islands like Taviuni (F) have rivulets: but as a rule rivers such as we find in the larger New Hebrides, Solomons, and Fijis, are the product of vital as well as volcanic forces, usher in a better type of soil, and a new polity.

Before the relation between the higher and lower type of island is discussed, a common characteristic of all the Pacific islands and atolls must be described. *Pacific islands are grouped*

They are almost all grouped: and where grouping is ethnical it is also geographical. The Gilbert atolls—where the Mikronesians dwell—lie in one or two lines NW. and SE. The Ellice atolls form one line—so do the Tokelau atolls: the Cook's Islands form two rows headed respectively by Aitutaki atoll, and Rarotonga Island. Manahiki and Rakaanga (M) are also aligned, and the alignment is invariably in the direction of the trade-wind from south-east to north-west. The strand which knitted islander to islander across 50 miles or so of 'unplumbed salt estranging sea' *(1) by wind and current, e.g. the Gilberts,*

was woven of the wind, and island-members of a group were more united than dwellers on the same island or atoll. 'These born-playmates of the deep' thought in archipelagos and strove in a vague impossible way after union of a group, instead of limiting their efforts to their atoll or island. The exceptions proved the rule. The inhabitants of Rotumah and Niue—which are isolated—were always cosmopolitan in their ideas. After them, Tongarewans (M) were always the widest sea-farers because they were never wind-tied to their group. Next in order were the semi-detached Aitutakians (C). When we read of Polynesian sailors accompanying some English adventurers on some distant quest after guano or pearls, they are nearly always Rotumans, Niuans, Tongarewans or Aitutakians. The Ongtong Javans were insular in space and spirit. The Phoenix and other wholly detached islands were uninhabited.

(2) or by volcanic line, plus submarine support, e. g. Tonga,

The trade-wind is abeam to the Tonga group, whose direction is determined by the row of volcanic sign-posts on its west. The only unity is submarine. A Brobdingnagian giant, 100 feet or so in height, could walk the whole 165 miles from Tongatabu to Vavau, but for five gaps about 1,800 feet deep. The first gap is just below the Nomuka sub-group of which we read in Cook; the second is just below the Lifuka sub-group of which we read in Mariner; and the others lie between the Vavau and Nomuka sub-groups. The gaps are four, three, two, ten, and one mile wide respectively; so that there is still water almost all the way. Indeed the Lifuka Islands are really the coral islets on the windward margin, and the Nomuka Islands are half-volcanic islets inside the margin of some hidden atoll. If other submerged reefs be taken into account, the Tonga group is a chain of six links which lie end to end. The trade-wind had nothing to do with Tongan unity such as it was, but it had everything to do with the immemorial intercourse between Tonga and Fiji.

An easy sail of 300 miles down-wind brought Tongans to the Fijian archipelago, which may be compared to a huge horseshoe atoll, 750 miles round—200 miles from top to bottom—and 150 miles across its great main entrance which faces south. Moala, Totoya and Matuku rise from depths of 10,000 feet to heights of 1,500 feet in the middle of the entrance; a platform of moderate depth strewn with volcanic islands guards its right and Kandavu its left. Above Kandavu the islands of Viti Levu, Vanua Levu, and Taviuni and the reef islets in their rear occupy the same shallow platform. Five deep-sea passages cut their way through the horseshoe into the Koro Sea, as the magnified lagoon is called—Oneata (SE.), Lakemba (E.), Nanuku (NE.), Round Island (NW.), and Kandavu (SW.) Fijian waters are studded with more than 250 isles whose area exceeds that of Wales¹ and Viti Levu—73 sea-miles broad and 55 long—contains rather more than half and Vanua Levu (105 by 21) rather less than a third of that area. Each big island has a middle-sized satellite, and Kandavu is to Viti Levu as Taviuni is to Vanua Levu. Kandavu and Taviuni are of the long, volcanic type, and are the only representatives of islands of the second magnitude in Fiji. Ovalau—8 miles by 6—represents islands of the third magnitude. It is an oval volcanic mountain.

Viti Levu is oval like Ovalau; its symmetry or rather asymmetry is radial, and its centre is the top of Mount Victoria (4,555 ft.) which is nearer east than west, and is 10 sea-miles from the north and 45 from the south coast. From this uncentral centre the two greatest island-rivers, the Rewa and Singatoka, flow 45 sea-miles—as the crow flies—south-east and south-west; Mba, fourth of Fijian rivers, flows 16 sea-miles west; and the tiny Raki Raki and Ruku Ruku flow north. The only important rivers which do not flow from Mount Victoria are the Navua on the south, the Nandi on the west, and the Wai Delice on the east; and they are less than

¹ Over 8,000 sq. miles.

(3) or like
an atoll on
a gigantic
scale. e. g.
Fiji,

(of Viti
Levu

the Mba in size and length. Of these rivers, the Rewa is greatest because of its depth—40 miles of its tortuous course are navigable; because of its breadth—of more than 200 yards for more than half that distance—and because of its unique delta. The Rewa Delta was the chief seat of Fijian wealth and strife; Mbau and Viwa are bits of volcanic mud washed down by the northern mouth of the Rewa; and Suva, the present capital, is situated on a bay as close to its western mouth as an un-muddy bay may be. This delta is still sugar capital of Fiji; the Nandi and Mba, on whose banks the sugar mills of Lautoka and Rarawai are erected, come next; then the Navua and Raki Raki. The Singatoka, which was opened to industry by the little war of 1876 and by recent rock-blasting at its mouth, belongs to the future. Rivers are the key to Fijian history; and of rivers those which radiate from Mount Victoria are most important. Again, draw a line from the high ground east of the Singatoka's mouth to Mount Victoria and thence to the northern coast—everything to the east is wind-swept, dripping, and luxuriant with undergrowth: and the west is comparatively dry and open. Rewan and Navuan sugar are nearer their market, but have the worse climate. Sheep have been tried in the dry zone at Tawarau (NW.), and Naqara (N.); but Fijian droughts are too wet for them and they only number 1,000 head. Cattle are 17,000. All plants grow in Viti Levu. Indigenous plants include spices, sugar cane (?) and a kind of kauri pine¹ which clothes the heights of Mount Victoria and the banks of the Navua; coffee and cotton are naturalized; and among imported plants maize succeeds in the west.

*and Vanua
Levu*

Vanua Levu is five times as long as it is broad, and its breadth equals the length of Taviuni (which is also long and thin), which equals Tongatabu in length, and is as broad as Ovalau is long. It has no old limestones, like those of Viti Levu, and, like Iceland, was fire-born beneath the sea. Basic

¹ *Dammara Vitiensis.*

in the west, acid in the east, and both in the centre, it is volcanic from end to end. It is a shapeless old trunk with the Natewa peninsula attached to it by a thin thread, as is the case in Fauro Rotumah and Kandavu. In the west Mbua, which sandalwooders despoiled of its sandalwood, seems like the concave half of a tiny island of the Rarotongan type. East of the mountains at the back of Mbua Bay a series of peaks and passes runs east by north some 30 miles, where it meets a series of peaks and passes running due north and south by west almost from sea to sea. This T-shaped figure contains two rivers on the north, the Dreketi, which just exceeds the Mba in length from point to point, and the Lambasa, where sugar is grown and milled; and two rivers on the south, the Dreke ni Wai which forms Savu Savu bay (where there are eleven stores but no town), and the Wainunu, famous for hot water and tea. The mountains are from 2,200 to 3,400 feet in height, so that the volcanic river flats of the Lambasa, Dreketi, and Mbua are screened from the trade-wind and rain, and form open plains of grass, bracken, and reed, varied by Pandanus, Casuarina, and Cycad, and along the coast by the inevitable mangrove. Elsewhere the trees are moss-grown, and the very cliffs hidden by banyan roots. The eastern quarter of Vanua Levu is mountainous, narrow, and unimportant, if we except Kalikoso plain which is a feeble copy of Lambasa plain.

Viti Levu is apparent queen of the Fijian constellation, for it easily excels its only possible rival in size, wealth, variety, and unity of plan. Its unity of plan was not appreciated by Fijians. To them it was a series of river-mouths, and district was cut off from district by rivers which could not be bridged or forded. A road round the island was not to be thought of. Being sea-rovers pure and simple, they lacked the continental instinct of tracing rivers to their sources. They fell into three classes: weak, wild mountaineers driven from their homes beside the sea, which many had never seen

*Viti Levu
is first,*

before 1874 ; rich dwellers by river mouths, who were always attacked front and rear from sea and mountain ; dwellers on islets like Mbengga, Mbau and Viwa, or on isolated points like Verata, who were only attacked by sea and therefore preyed on those who were between two fires. The mountains are now pacified, and supremacy is transferred from islet-offshoots to river mouths and bays. Three mountain provinces, North, West, and East Tholo, have been added to the former six or eight coastal provinces of Viti Levu, and the latter are now called Tai Levu, Naitasiri, Rewa (including Mbengga), Namosi, Serua, Nadronga, Mba (including the Yasawa islets), and Ra ; and all have natural, i. e. river boundaries. The rivers form obstacles to union, and there are no railways and only two towns in Fiji, Suva in Viti Levu and Levuka in Ovalau.

*and Vanua
Levu
second),*

Vanua Levu, like Viti Levu, used to be governed or rather raided from the outside, and this outside centre was usually Somo Somo in Taviuni Island. Strange as it may seem, some of the old islanders of this narrow island have recently set eyes on the sea for the first time. Its old three provinces, Thakandrove (S.) (including Taviuni), Mathuata (N.), and Mbua (W.), have been retained ; their boundaries are artificial and correspond neither to mountain ranges nor to river beds. Its natural divisions are far too confused for political use.

The Windward Islands which form the eastern limb of the horseshoe, the central isles which dot the Koro sea, Kandavu, and distant Rotumah are the four remaining provinces.

Like Tonga and the islands within the New Zealand zone, on its east, and like the New Hebrides on its west, Fiji is exposed to hurricanes, in late summer when the trade-winds and monsoons are at war.

*(4) or by
volcanic
line and
submarine*

The Solomon Islands lie almost 1,000 miles north-west of Fiji, and outside the hurricane belt. East and south of the Solomons, rats and bats are the only indigenous mammals,

but the Solomons possess an 'opossum' which is marsupial.¹ *support plus the form of a gigantic atoll, e.g. the Solomons,*
 The flora of the Solomons contains what Fiji contains, except sandalwood; and their sago-palms yield 'ivory-nuts' useful for buttons. Including Buka and Bougainville Islands, which are German, the Solomons are twice the size of Fiji, and are 600 sea-miles in length. Between Bougainville and S. Cristoval they run in two rows, Choiseul Ysabel and Mala² above, New Georgia and Guadalcanar below. Discontinuous submarine platforms and islets connect members of a row, and there are cross-pieces between the two last members of the double row. The Florida islets connect Ysabel with Guadalcanar, islets from Ulaua to Ugi connect Mala with S. Cristoval, and the enclosed sea is like a lake. Indeed, wherever there are two rows of parallel islands imagination is apt to liken the sea which is between to the lagoon of an atoll. Geologically these islands resemble those of Fiji, in size they equal or are a little less than Vanua Levu, they are torpedo shaped and their outline is more regular than that of Kandavu or of Vanua Levu. The mountains sometimes run along the main length of the island, dividing it bilaterally, and sometimes, like Kavo in Guadalcanar, exceed 8,000 feet, so that rivers are more rapid and gorges more precipitous than in Fiji. In politics and language the Solomons are far less centralized than Fiji. Islets and islet-clusters played and still play the leading part in its history. In old days the islanders of Bougainville Straits (including Treasury Island), Simbo (which dominated Narovo), Vella Lavella and the Rubiana lagoon (off New Georgia), Florida, and to a less extent Ugi and S. Ana (off S. Cristoval), raided their big neighbours for slaves or heads, for the same forces as those which we saw at work in Fiji put power in the hands of these small tormentors. Now the wasps are turned into queen-bees and working bees. Or, to drop metaphors, if the reader looks at Florida through a microscope he will see an islet

¹ Cuscus.

² *alias* Malaita.

called Tulagi and a harbour called Gavotu, if he then turns his microscope on to the sea between Vella Lavella, Narovo, and Rubiana he will see an islet called Gizo. Tulagi, Gizo, Gavotu, and Treasury Island are British property; the first two are seats of government, the second two are coaling stations. Again, in 1897 the chief seats of English traders were in Florida, Rubiana, Marau Sound, Simbo, Ugi, and S. Ana.¹ Of these names, Marau Sound, a group of islets east of Guadalcanar, is the only name unfamiliar to the historian of head-hunts. The Marist missionaries congregate in Bougainville Straits and near Florida,² the Methodists in Rubiana, and the Melanesian mission uses Ulaua, near Ugi, as a centre. The old savages and the new civilizers attempted to extend their sway from the same spots and by the same geographical methods.

the S. Cruz group,

The Santa Cruz group, which prolongs the line of the Solomons for 200 miles, includes the Swallow group—tiny raised atolls on one of which Patteson perished—Tinakula, the live volcano, Santa Cruz, Utupua, and reef-girt Vanikoro, where La Pérouse perished. It is flanked on the east by the Duff group of islets, Anuda, and Tikopia. Its two harbours lie on the west of Utupua, and on the north-west of Santa Cruz. Its only white trader was living a year or two ago at the mouth

¹ *Ante*, pt. i. p. 258, notes 1 and 2.

² Poporang islet and Rua Sura atoll.

On the Ellice Islands see Prof. Sollas, *Age of the Earth* (1905); Mrs. T. W. E. David, *Funafuti* (1899).

On Fiji: A. Agassiz, *Islands and Coral Reefs of Fiji* (1899), vol. xxxiii of Harvard Univ. Mus. of Comparative Zoology; H. B. Guppy, *Observations of a Naturalist in the Pacific* (1903), 2 vols.; and books referred to in notes to ch. iii and xv of part i.

And generally: Charles Darwin, *The Structure of Coral Reefs* (1842); *Rep. of H.M.S. Challenger Expedition; Voyage*, by John Murray (1880), &c.; *Rep. of U. S. Exploring Expedition under C. Wilkes*, vol. x, *Geology*, by J. D. Dana (1848, &c.); J. D. Dana, *Corals and Coral Islands* (3rd ed. 1890); S. Percy Smith, *The Kermadec I.* (1887); R. Etheridge, jun., *Lord Howe I.* in *Memoirs of Australian Museum* (1889); J. Lister, 'Geol. of Tonga' in *Quart. J. of Geol. Soc. of London*, vol. xlviii. p. 590 (1891); Rev. W. W. Gill, *South Pacific and New Guinea, with notes on the Hervey Group*, 1892.

of Granville river on the north coast, 15 miles from Cape Mendaña on the south coast of Santa Cruz. The area of the group exceeds 500 square miles, and its geology, flora, and fauna recall those of Fiji and the New Hebrides.

Between the Santa Cruz and New Hebrides groups we turn a corner. The trend of islands is no longer south-east but south-south-east, for 500 miles. The supernumerary, volcanic rank changes over from left to right, and the transition is effected in the northernmost islets. We pass too from the Solomons' Protectorate to the Anglo-French region.

The New Hebrides—which equal Fiji in area—compose a symphony in three movements. Five low-lying coral islets of the Torres' sub-group are the prelude. The steep, volcanic or mostly volcanic Banks's Islands represent the first movement; their form is binary—four standing on the right and four on the left, among which Vanua Lava is pre-eminent, because of its harbour. But as yet we only have 'music of preparation and awakening suspense'. Present interest is concentrated on the succeeding group, of which the eastern line—Aurora, Pentecost, Ambrym, and Lopevi, the latter a live volcano 5,000 feet high—awes romanticists; and the big islands in their lee—Espiritu Santo, large as Vanua Levu, and Malicolo, half as large—attract utilitarians; while Omba, which links the two lines, has charms for both, because Santo (St. Phillip and St. James), Malicolo (Port Sandwich), and Omba have harbours. Then the two lines converge, through a cloud of islets (Mae, &c.), on Fate, which serves as coda to the second and introduction to the final movement. Fate contains the two white Governors and half the whites of the group, and has the size of Kandavu and—but for its two splendid harbours, Havannah (NW.) and Fila (SW.)—the shape of oval Ovalau. Fate ushers in the last movement, which is continued as a mere rondo or serial—Eromanga, Tanna, Anaiteum—each number shorter than the last. But

*and the
New
Hebrides.*

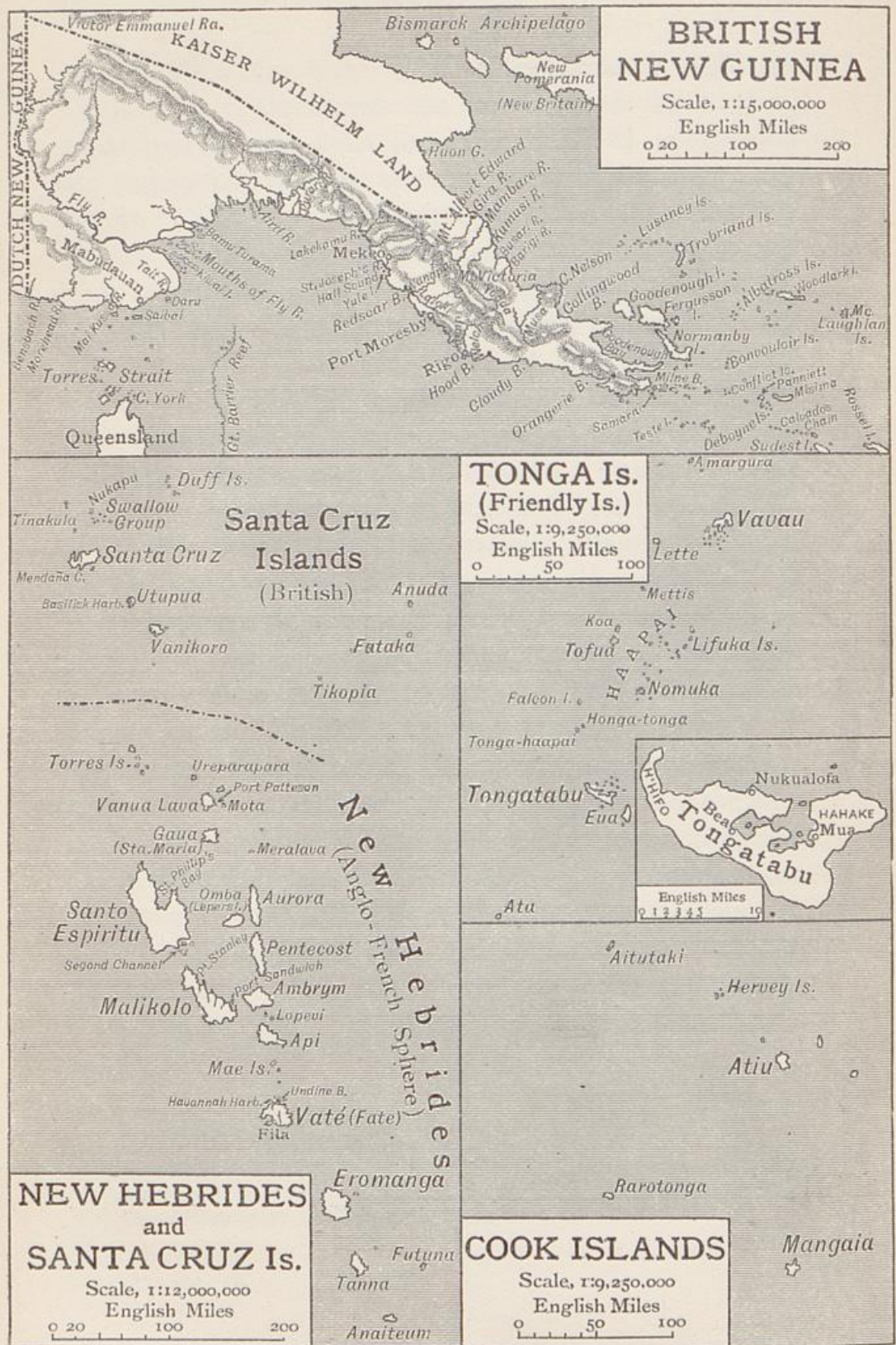
what memories live here! At Eromanga Henry began the labour trade. Tanna was the meeting-place of whalers, sandalwooders, and kauri-timbermen, until its sandalwood was exhausted and its volcano wrecked its only port (1878). Christianity crept north from Anaiteum. As they dwindle in size and taper to a point, the past throws over them an increasing glamour. And the whole tale is not yet told. Away to the east—out of line, out of tune with the rest—lies a raised coral islet. Its name (Futuna), its language, and its people are Polynesian. This odd, irrelevant coda reminds one of similar false notes in the prelude and elsewhere. Polynesians tried to colonize a Banks islet sixty years ago; colonized parts of Mae and Fate,¹ and possess detached outliers of the northern groups—Tikopia, Swallows, Rennell, and Ongtong Java. The islets thus colonized are mostly low, coralline islets, and are situated on the east, whence the incomers drifted from time to time 'like spars upon the ocean stream'. These facts suggest a sequel. When Captain King went to Norfolk Island, 550 miles south of Futuna, he saw signs of past inhabitants or sojourners and a coco-nut which must have drifted thither from the New Hebrides. Five years later summer winds and currents bore him in three days from Norfolk Island to New Zealand, 400 miles away. May not the Maori have sailed to New Zealand, first like the Futunists, then like the coco-nut, then like Captain King? But New Zealand, like New Guinea, is a continental island, and New Guinea claims our attention first.²

¹ = Vaté = Sandwich Island. Efate as it is sometimes written = at Fate. Vaté indicates the pronunciation.

² In addition to the authorities mentioned in this chapter see Stanford's *Compendium of Geography, Australasia* (1894), 2 vols.—vol. i by A. R. Wallace, vol. ii by F. H. H. Guillemard.

BRITISH
ARMY AND NAVY

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Emery Walker sc.

CHAPTER II

NEW GUINEA GEOGRAPHY

LIVE volcanic islands and atolls are things of to-day, made and unmade before our eyes; Polynesian ex-volcanoes and raised coral rocks are things of yesterday; Fiji, the Solomons, and New Hebrides take us back to earlier times, which are probably later than those of Surrey chalk; but the principal mountains of New Guinea, composed as they are of quartz-veined schist and slate, are as old as Wales. Again, the three largest groups hitherto discussed are, if added together, less than Ireland; but British New Guinea, which is not one third of New Guinea, just exceeds Great Britain in area.¹ For these reasons New Guinea is classed with continental islands in spite of its meagre list of mammals, which includes two monotremes (Echidna and Proechidna), and forty-four minute marsupials (cuscus, tree-kangaroos, &c.), besides the usual dog, pig, rat and bat. Other reasons for classing New Guinea with the continents are furnished by its shape and substance.

New Guinea is a continental island,

If lands might be likened to animals, Funafuti would rank as a protozoon, Viti Levu as a bossy echinoderm, Kandavu as an insect, but New Guinea as a vertebrate, with head, spine, and tail complete. The head is hidden in Dutch New Guinea; the spine consists of ridges (not peaks), or successions of ridges, of which Mounts Scratchley and Victoria (13,121 ft.) constitute the best-known British representatives, and from this spine ribs break off north and south and create bilateral symmetry. The tail is fourfold. In the far east two flat coral patches, the Laughlans², and

and its eastern islets are its continuation.

¹ *circa* 90,540 sq. m.

² *alias* Nada, includes 7 islands less than 9 ft. *s. m.*

the reef beyond Rossel, on which Adèle islet stands sentinel, form the outside fold, behind which Woodlark Island—whose quartz supplies far-off blacks with tomahawks, and whites with gold—Misima, Deboyne, Redlick, and the Calvados chain from Real to Sudest and to Rossel, are interrupted continuations of the main chain, and yield gold, timber, and grass, and have been used for cereals and sheep. This wide solid belt incloses a wider, less solid belt composed of Lusancy, Trobriand, Albatross, Jouvency, Bonvouloir, Hastings, East, Sidney, Panaeati, Conflict, and Teste—*islands which are the merest replicas of Funafuti, Tonga, Aitutaki, Mangaia, Niue, and the islands which we already know.*¹ Close by the coast, Goodenough, Fergusson, Normanby, and the islands between Samarai and Teste are chips of the old block, Fergusson and its attendant islets being the island centres, just as Mount Victory by Cape Nelson is the continental centre of present volcanic activity. The true tail appears twice in a further and nearer arc; the further arc is coral-tipped and the two arcs are separated by a wreath of coral which we have traced from Lusancy to Teste, and which continues off and on as a barrier reef to Yule Island 300 miles away to the west. West of Yule Island huge rivers wash the sea clear of corals, and deposit mud islands at their mouth.

*British
N.G. com-
prises (1)
the Fly
district,*

British New Guinea begins on the west with a river—Bensbach River—whence the Anglo-Dutch boundary goes due north to the Fly until the Fly crosses 141° long., thence it follows this meridian to the Anglo-German boundary (lat. 5°), which is thenceforth a mere matter of longitudes

¹ Thus the Trobriands include Kiriwina (which has the size, soil, and structure, but not the shape of Tonga) and Kaileuna, which 'from the point of view of fertility of soil are the gardens of the possession'. In the Jouvency islands Iwa Gawa Kwaiwata and Kitawa have wooded coral walls 100 ft. high or so surrounding 'a depressed central plateau'—as in Niue. The Lusancy coral islets are also volcanic like Aitutaki. The Sidney and Conflict islands are 9 ft. *s. m.* like Funafuti.

and latitudes.¹ The Bensbach and its eastern neighbours, the Morehead, Mai Kussa, Tait, &c., lead among groves of Cedar and Melaleuca and 'rolling grass-land fit for cultivation', and are probably former mouths of the Fly. The Fly's present mouth is guarded by Kiwai Island—a mere detached mudbank, 36 miles by $2\frac{1}{2}$, on which 5,000 people dwell, a foot or two above sea-level, and speak two languages, and visit ever and anon neighbouring islands for fish, yams, and sago. If we substitute coral sand for river mud, tribes for languages, and coco-nut for sago, we might add that it is even thus that Polynesians live; but Polynesians live on the dry, these men on the wet, and because they live on the wet they occupy one house—sometimes over 800 feet long—raised on piles, and suffer from body-ring-worm. So that river-mouth differs, though but a little, from deep-sea civilization.

The Fly is quite unlike anything we have hitherto described, or shall describe, as the following imaginary itinerary will prove: (1-150 miles) the river is tidal, the land is 1-2 feet *s. m.*; (150-240 miles) the land is as before, but has cedar, sago, and malava trees; (240 miles) the junction with an affluent (NE.) is 1,000 yards wide; (250 miles) there are villages on the banks (20 feet high) and on clay ridges (30 feet high) half a mile away; banana, sugar-cane, sweet potatoes, and a few coco-nuts are seen; (284 miles) a grassy hill is seen; (370 miles) the first grass is seen on the bank; (414 miles) the last coco-nut is seen; (460 miles) an affluent (NE.) is passed; (480 miles) the first stones (quartz with gold, limestone, and sandstone) are seen in the river-bed; there are sandstone and clay hills 300 feet high and tall timber trees; (523 miles) the first rapids are passed; (535 miles) the steamer is left; (540 miles) an affluent (NE.) is ascended; (600 miles) sandstones and limestones, then clay-

¹ On east coast lat. 8° ; at long. 147° , lat. 8° ; at long. 144° , lat. 6° , at long. 141° , lat. 5° . Straight lines connect the intersections.

stones, are in the river-bed; (605 miles) the boats are left, and Victor Emmanuel Range (12,000 feet *s. m.*) is seen 45 miles to the north beyond the German frontier.

From which the reader will infer that the Fly is only a little less than the Rhine in navigable length, that its long mud flats are unparalleled in Europe, and that these ridge-dwellers when at home live under circumstances which are not very unlike those of the reef-dwellers whom he knows. Instead of a lagoon they have a sluggish river, instead of sea they have swamp, and instead of an imperfect circle or crooked line of low narrow rock, they have an imperfect crooked line of low narrow river-bank.

*to which
the Purari
district
must be
added;*

Let us now pass eastward by the Bamu Turama and many-mouthed Aird and ascend the Purari, which is the second greatest river, even as we ascended the Fly; (1-36 miles) there are sago swamps; the land is 1-2 feet *s. m.*; (36 miles) there are river-banks, low hills and timber; (60 miles) there are sandstone mountains (2,000 feet); (80 miles) the river is 300-400 yards wide; (80-120 miles) we steam westward along the foot of the sandstone mountains (3,000 feet), and coal is seen.

*(2) the dis-
trict be-
tween Hall
Sound and
Redscar
Bay;*

The swamps are shrinking; river-banks begin seven times, and mountains ten times as soon as on the Fly, although as yet the mountains are only outlying buttresses of the great range. We will now pass the Tauri and Lakekamu, which are to the Purari as the Purari is to the Fly, for here swamps cease 12 miles up-stream. Further east, a new type of country is ushered in by the Biaru and St. Joseph, where we note coral at the river mouths in Hall Sound, and the origin of the rivers in Mount Albert Edward, whence the Gira meanders through British and German territory to the

*(3) the dis-
trict be-
tween
Redscar
Bay and
Hood Bay,*

northern sea. After the St. Joseph comes the Vanapa, which empties itself into Redscar Bay, and which is an improved edition of the St. Joseph, and ushers in a still newer type of country, for it will lead us straight up to Mount

Victoria, whence we may descend the Mambare (NNE.) or the Mambare and Kumusi (NE.) to the sea inside the British border. Our *Musa*; imaginary traveller's notes are as follows:—

(1-3 miles) the river is tidal; there are mangroves, sago, &c.; (4 miles) there are banks (12 feet), timber, cedar, &c.; (10 miles) and rapids; (40 miles) the boats are left; slate and quartz mountains continue thence to the lower Kumusi; (5,000 feet *s. m.*) there are Myrtaceae; (6,000-8,300 feet *s. m.*) everything is draped in moss and mist; (9,000 feet) the 'first contact with undergrowth of bamboo' begins; 'bamboo stems are like wheat in a field'; there is no mist nor moss; all is dry; (10,200-11,500 feet) Cypress, and grass patches appear; (11,500-13,121 feet) there are grass, strawberries, daisies, buttercups, &c., and no trees. The descent to the north coast is similar. If the traveller goes by the Kumusi he can go by steamer for the last 50 miles, amid ex-volcanic outliers of the main range.

This idealized traverse suggests the following traverse back. 'Ascend the Busari, Bariji (note the flat-footed ischiatic swamp-dwellers), or Musa (80 miles by boat; then swamp for 36 miles) to Mount Obree (10,246 feet). Descend Laloki River to Redscar Bay via Port Moresby; or descend Kemp-Welch River to Hood Bay, thence by coast or sea to Redscar Bay.'

The distances of the double traverse through the air are (4) and the Redscar Bay to Mambare mouth (80 miles), Musa mouth (64 miles), Hood Bay (64 miles), Redscar Bay (72 miles)—*rest; but in importance the order is* (3) (2) (4) total 280 miles; and this parallelogram contains all that is of present vital interest in the mountains, rivers, and history (1). of the mainland. The region from Redscar Bay to Hall Sound is second; the eastern promontory, with its wonderful bays which even indent Cape Nelson, is third; and the widening swamps of the western riverland—whatever their future may be—are only fourth in interest to the student of the present. The district which we have described as first

in present interest contains two principal seats of government, at Port Moresby, the capital, and Tamata (Mambare River); besides lesser seats at Rigo, near Hood Bay, and at Bogi and Papangi¹ on the Kumusi. The second district contains a lesser seat at Mekeo and the third a chief seat near Cape Nelson. Some of the eastern islands are governed from Murua island,² and the rest of the islands and mainland from Samarai islet (E.) and Daru islet (W.). This method of placing two of our subcentres on islets almost outside our sphere of operations, is the method which we pursue in the Solomons, and is a sure sign that our task is only beginning.

The rainfall is discussed.

New Guinea is a paradise of birds; its flowers are almost as gorgeous as its birds; and its forests are dense and infinite. But we are more concerned with the effect of forests upon rainfall than with beauty. Port Moresby is dry, has but few trees, and is on sea-level; Sogeri, 30 miles away, is 1,600 feet high and wooded and wet; a few miles behind and a few thousand feet above Sogeri, is a far wetter region of mist and moss, and a little further and higher we are again in the dry.

The following table presents recent results:—

N.Z.	Christchurch	25 in.	N.Z.	Hokitika	112 in.
N.G.	Pt. Moresby	51 in.	N.G.	Sogeri	123 in.
	Daru	63 in.	Solomons	Tulagi (av.)	127 in.
Fiji	Suva.	81 in.			

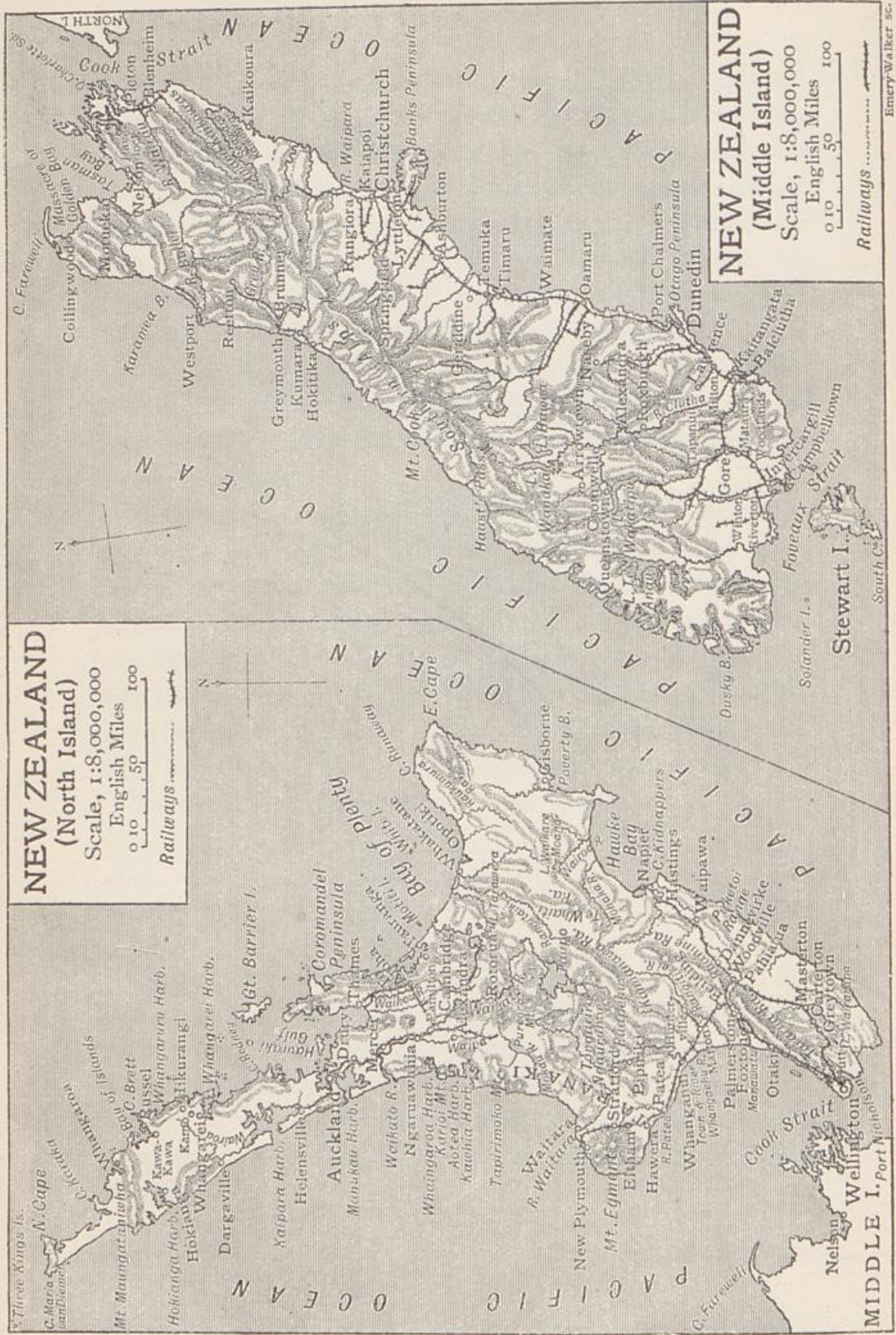
The rain has only been gauged in the drier parts of the Fijis, and Solomons, and of New Guinea; but probably the contrast between the climates at different altitudes is as great as the extraordinary contrast between the flat country on the western half and the narrow, precipitous ravines so graphically described by Mr. Pratt on the eastern half of British New Guinea.

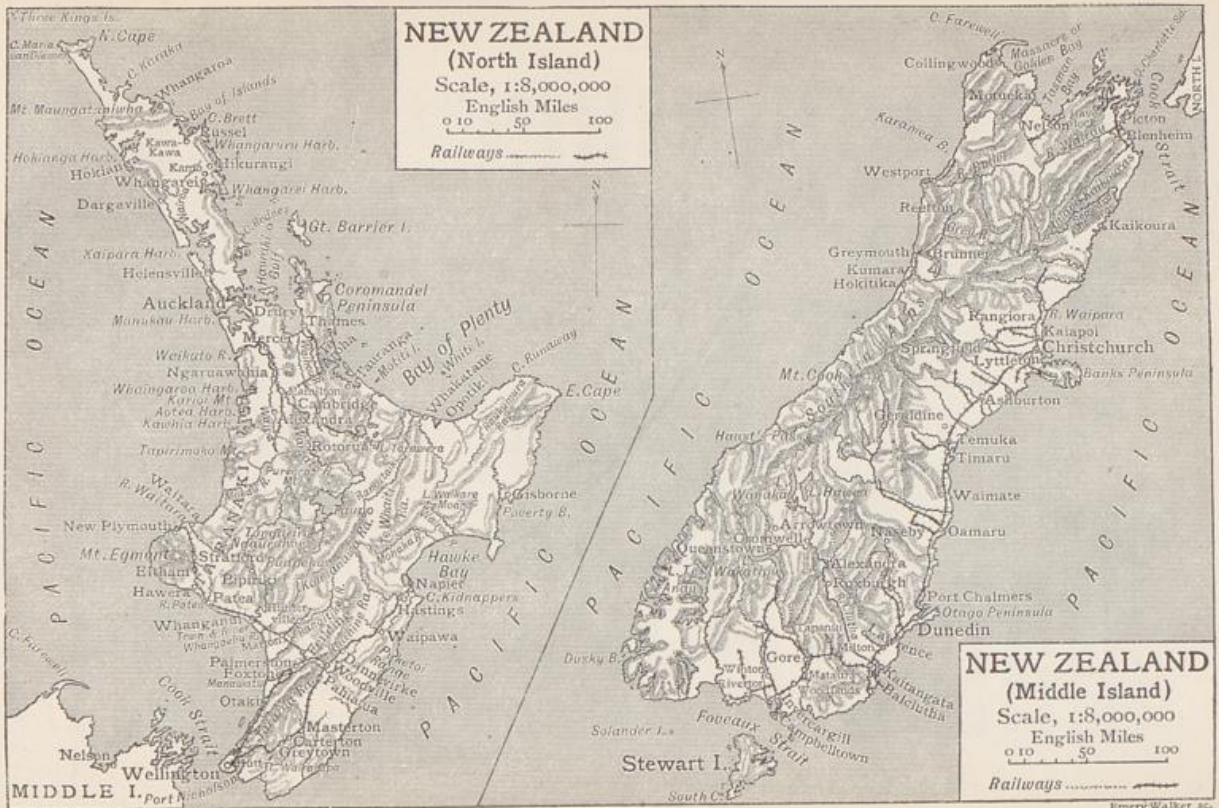
¹ Both stations are now removed to Kokoda (Yodda valley) which is 70 miles inland, has an overland post to Port Moresby, and will probably supplant Tamata.

² *alias* Woodlark island.

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CHAPTER III

GEOGRAPHY OF NEW ZEALAND

THE area of New Zealand equals that of Great Britain *New Zealand is described.* and half Ireland. Middle Island is just the size of England, Wales, and their islets; North Island is half as large again as Scotland; Stewart Island is the same size as Herts. The figures are as follows:—N.Z. : N. I.=44,468 sq. miles, M. I.=58,525 sq. miles, Stewart I.=665 sq. miles; dependencies=1,093 sq. miles. Total=104,751 sq. miles. Dependencies include the Pacific islands which lie 600 to 1,800 miles north-east of Auckland, and which have already been discussed; the Chathams, 536 miles east of Port Lyttelton, and the uninhabited Snares, Bounty, Antipodes, Auckland, and Campbell islets, 60 to 460 miles south or south-east of Stewart Island.¹ These islands on the east, south-east, and south form one country—geologically, ethnically, historically, in flora and in fauna.

New Zealand is a land of lakes—New Guinea is all but lakeless—of flightless birds, even in its islets and in the Chathams (until after white men went there), of Lycopods, ferns, yews, and pines, especially kauri pines.² Kauri pines attain a girth of 50 to 60 feet, put their first branches forth 70 to 100 feet above ground, and rear their heads a little higher than Nelson's in Trafalgar Square. Hochstetter assigns as their southern limit Kawhia on the west and Katikati on the east; but only a few still linger in Coromandel Peninsula, fewer in the Wairoa range, and the rest dwell and dwindle somewhere north of Auckland. Elsewhere, yews—such as 'white pine,' totara, matai, and 'red-

¹ See *Trans. of N. Z. Institute* (1901), xxxiv. pp. 243-325; (1903) xxxvi. pp. 225-333.

² *Dammara Australis*.

pine'¹—take the place of the kauri, for which they are sometimes mistaken. The land is far south of the region of coral, coco-nut, and sago-palm, and has or had a few years ago no poison plants—except tutu seed, no land snakes, and no land mammals, except imported dog, bat and rat, few grasses, few fruits, and few flowers, except flowering trees like the red rata.² The negative unity of New Zealand, or its unity derived from things which might be there and are not there, is gone; and the things which are there and nowhere else are gone or all but gone: for our British colonists have proved that whatever thrives in Great Britain thrives better in Great Britain of the south; and cats are unkind to birds that cannot or will not fly; and builders are too kind to kauris. The lesser has been sacrificed to the larger unity.

*One range
unifies the
three
islands,*

North, Middle, and Stewart islands are geologically one, and like New Guinea have a slaty backbone; indeed, there are traces in North Island of several backbones, two of which run counter to one another.

The backbone-in-chief starts from a granite head in Stewart Island. It is attended through Middle Island by a notochord of granite, but its chief constituent is slate or schist. North of Foveaux Strait it rises into ridge upon ridge, between which tarns, glaciers, and in the west fiords are enclosed, and the ridges converge into a ridge called the Southern Alps, which point north-east, which attain in Mount Cook a height of 12,349 feet, and which create as impenetrable a barrier to rivers as the Alps of Europe. In the north of Middle Island, the range breaks once more fanlike into many ridges, some of which embrace Collingwood Bay, Tasman Bay, and the many Sounds, and two of which, the inland and seaward Kaikouras, are detached branches of the main trunk, like the Ortlers and Adamellos of their European

¹ *Podocarpus dacrydioides* = white pine; *P. totara* = totara; *P. spicata* = matai. Redpine = *Dacrydium cupressinum*,

² *Metrosideros robusta*.

prototype. The Kaikouras dive beneath Cook's Strait, emerge on either side of Port Nicholson and of the Hutt valley, rise into a range which is 2,000-5,000 feet high, forest-clad, and called by many names—Tararua, Ruahine, Huiarau, and Raukumura—and which finally vanishes from sight at Cape Runaway, 750 miles from Stewart Island. The line in North Island is straight but not unbroken. The Manawatu carves out a gorge between the Tararua and Ruahine on its way to the western sea; and the Mohaka breaks through it, but from the west, and where it breaks through, the Kaimanawa and Te Whaiti ridges stand behind in échelon as supports: and they too are of slate, 4,000-5,000 feet high, impermeable to rivers, and point north-eastward. The Manawatu is the only river which rises east of the great range and flows through it. This southern backbone attests the unity of Middle Island with that part of Northern Island which fringes the eastern ocean. It also explains all Middle Island, and the eastern third of Northern Island.

The Alps divide Middle Island into a western and eastern half; the western half is steep and narrow, the eastern gradual and wide. Further, a little north of Mount Cook, straight plains and valleys lead from east to west; elsewhere they are attracted towards the centre so that the north is creased and crumpled like the south. Christchurch (57,041)¹, capital of the former province of Canterbury, lies due east of this centre, seven miles from Lyttelton, its port (4,023). West of Christchurch, an open plain stretches seaward from the great range on the west, from the sandstones and limestones of the Waipara on the north, and from the basalt downs of Timaru on the south, and is girt by a semicircle of mountains—Peel, Harper, Clent, Somers, Hutt, the Mal-

*and explains
Canterbury Plain
and Christchurch, E.,*

¹ Figures in brackets after the name of a town mean the population at the census, 1901. Capitals include suburbs. Urban districts are in certain cases classed as towns. In making this classification I follow E. J. von Dadelszen's *Off. Yearbook of N.Z.*, from which later figures are also taken.

verns, Torlesse, Puketeraki and Grey—all of which are outposts of the great range, built as it is built, but disguised like Glaukon by later overgrowths. The plain is 120 miles long, and descends little by little 1,252 feet from Springfield on the west to Christchurch and the sea on the east, a distance of forty-four miles. Twelve rivers pierce the outposts' line, wash lime, sand, marl and tuff from the outposts' feet, and scatter these sweepings broadcast over the descending plain. A road leads from Springfield to Hokitika (1,653), former capital of Westland, over passes which barely exceed 3,000 feet. The great rivers are on the south-east, north-west, and north-east. On the south-east, the Clutha, after an eventful journey of 220 miles from the neighbourhood of Haast's Pass (1,716 ft.) over the great range, pours into the sea some fifty miles west of Dunedin (52,390), former capital of Otago.¹ Blenheim (3,222), capital of the former province of Marlborough, is on the north-east of Middle Island, close by the mouth of the Wairau, whose source is 100 miles away to the south-west of it. At or near a point some seventy miles up-stream, there is a triple watershed whence rivers flow east into the Nelson, N., Wairau, north into Tasman Bay, on which is Nelson (7,167), capital of the former province of Nelson, and westward into the Buller, at the mouth of which Westport (3,158) lies, 100 miles away. This watershed is a ganglion for river, road, and the railway that is to be; and the latter is destined to lead west to Reefton (1,722) whence trains already run down the valley of the Grey by Brunner (1,572), Greymouth (3,837) and Kumara (1,121), to Hokitika. Hokitika, Kumara, and the towns on the Buller and the Grey, are mineral towns. Far away, in the south, Invercargill (10,637), capital of the former province of Southland, and Campbelltown (1,653) its port, nestle in secluded bays which resemble inverted miniatures of Tasman Bay.

¹ 53,853 if Mosgiel is included.

The shape of the Alps determines the course of streams, valleys, and plains, at the foot of which all the towns which have been mentioned lie except Dunedin. The situation of Dunedin, where the metallic riches of the Clutha find a vent, is due to another cause which is also geological, and which also affects Christchurch and Oamaru. The Alps crouch like Issachar, between two sheepfolds. Below the eastern sheepfolds there are agricultural plains fertilized by lime, marl and tuff from the west, and east of the plains ex-volcanoes create peninsulas, bays and harbours at Banks's Peninsula and Dunedin, and a cape without a harbour at Oamaru; marl and limestones performing the same task at Kaikoura. Otherwise the eastern coast is smooth and straight. Banks's Peninsula is an oval basalt mountain group (3,050 feet), just tacked on to the mainland as Natewa Peninsula is to Vanua Levu; and Lyttelton lies in a deep bay north of the point of junction. But Lyttelton is itself cut off from the island plain by another basalt mountain (1,600 feet *ca.*), and had to be connected with Christchurch by a railway (seven miles), the first in New Zealand, and a tunnel (2,866 yards). Christchurch was built at the only spot where there is a direct route from east to west, and its port was built at the nearest spot where volcanic action supplied a harbour. Railways and a port were also the first necessities of Dunedin. There Otago Peninsula resembles Banks's Peninsula in the function which it performs; Port Chalmers (2,205) plays the part of Lyttelton; and Dunedin, though it stands at the head of the bay is cut off from its hinterland by hills and forests.

Dunedin would have been of little use to the coal and gold miners of the Clutha but for railroads. Coal and gold pervade Otago from end to end. Oamaru (4,853), which owes its prosperity and fertility to a limestone resembling Bath stone, is the only considerable town in Otago which is not beholden either to gold or to coal. Go due west from Oamaru by Naseby to Lake Wakatipu; south to Riverton and back or all

but ex-volcanoes also explain Dunedin and Port Lyttelton.

The range makes Canterbury agricultural, and the rest of the provinces of M. I. mineral.

but back to Oamaru. Then go north from Lake Wakatipu to Lake Wanaka, south-east to Naseby and back to the starting-place. These two triangles comprise the coal and gold districts of the south, and the first is served by rail, the second by coach. If we ignore capitals, their ports and suburbs, there is not one town in Otago or Southland with a population of 500 or more which does not owe its existence or prosperity to coal or gold more or less. Mines enrich Gore (2,354) (A.P.F.), Kaitangata (1,463) (T.), Milton (1,241) (A.P.), Lawrence (1,159) (A.), Balclutha (1,017) (A.P.), Mataura (867) (F.), and Riverton (815) (P); Alexandra (818), Queenstown (690) (T.), Cromwell (642), Naseby (505), Roxburgh (478), and Arrowtown (410), are mainly mining towns; Winton (474), Tapanui (350), and Woodlands (200) are non-mineral. The five coal and gold centres of the north-west, which have been mentioned, have the character of Arrowtown and the size of Gore. Canterbury boasts of Timaru (6,486) (A.P.F.), Ashburton (3,440), Kaiaipoi (1,795), Rangiora (1,768), Temuka (1,465), Waiamata (1,359), Southbrook (1,070), Geraldine (868), and Pleasant Point (749), all of which have the character of Woodlands and a size exceeding that of the nine largest towns of Otago and Southland, capitals excepted. Nothing could more vividly illustrate the parallels and differences in the east, south, south-east and north-west of Middle Island. In the south and south-east mines are ever present, in the north-west they are almost the only, in the east they are hardly ever an element of great wealth. The towns which face north and north-east—Picton (970), Motueka (886), Collingwood (400 *ca.*), and Havelock (316)—play a part like that played by the towns of the far south, but upon a smaller stage and with poorer accessories.

Geography has decided that the east shall be richest in corn and the north-west in minerals; that the south shall (A) = Agricultural (P) = Pastoral (F) = Factories' (T =) Tourists' centre.

be richest and the north poorest in both combined; and the structure, shape, and direction of the great range contain the key which unlocks every geographical secret of Middle Island. With the aid of this key, Middle Island is read off as easily as Italy or South America.

North Island, in so far as it lies east of its range, is exactly similar to Middle Island and is therefore equally simple. Wellington (49,344), the capital of the colony, lies in the south-west corner of Port Nicholson, secure from every wind that blows through the windpipe of the Pacific, as Cook's Straits are called. The hills which protect it are of the same structure as those which bestow scant shelter upon Nelson and were once forest clad like those behind Dunedin. Between Wellington and the mouth of the Manawatu are Levin (1,147) on the Horowhenua and Otaki (629) on the Otaki. On the Manawatu but west of the range are Foxton (1,211), Feilding (2,298), and Palmerston North (6,534). North-east of Wellington a pass leads through the Hutt valley (1,162 feet) to Lake Wairarapa at the southern end of Wairarapa plain which is 40 miles long and 10 miles broad, open, and fenced in on the west by the Tararua range and on the east by limestone hills which grow up into the Puketoi range, then sink and rise like the billows of the sea until they join the sea at Cape Kidnappers. North of the plain comes 'Seventy-mile bush', a forest which is being rapidly cleared, and which lies between the Puketoi and main ranges. The approach to Napier (9,015), the capital of the former province of Hawke's Bay, lies through 50 miles of reclaimed marsh and the like. Forest succeeds plain, and marsh succeeds forest. The cities of the plain are Masterton (3,949), Carterton (1,205), Greytown (1,122): the forest owns Dannevirke (2,315), Pahiatua (1,209), and Woodville (926): while Hastings (3,650), Waipawa (669), and the capital rule the marshes. The plain and marsh are agricultural, the forest is mainly pastoral. The

In N. I. it explains Wellington,

the Manawatu district,

everything east of the range,

*and the
Whaka-
tane
district,*

fertile land from end to end is due to the later formations of limestone and the like which clothe the interval between the great range and the sea. The same formations account for Napier harbour—the only tolerable natural harbour between Wellington and Tauranga. Red Island—the only instance of basalt on this coast—is an island of no importance. North of Hawke's Bay to East Cape, and from East Cape almost to Whakatane, range and sea are too close to admit expansion—except pastoral expansion at Gisborne (2,795), Clyde (623), and Opotiki (627); and the older and newer formations intermingle with fantastic results. One result is Lake Waikare Moana, an upland loch whose surface forms a cross with a handle—like lake Lucerne—and whose depths and surrounding valleys have the same form.

*but nothing
else.*

The other side of the range presents a startling contrast. Except between Wellington and the Manawatu, the Whakatane and East Cape, no rivers flow westward from the range; and instead of lochs and valleys there is a plateau of basalt with tanks, cauldrons, rifts, and walls. East does not correspond with west. If we know the east of Middle Island we can guess what it is on the west. The east of both islands is similar; yet if we guess the west of the range of North Island from its east the guess will be wildly wrong. Another architect has built the west on a pattern as opposed to that of the east as Gothic to Greek, or insular to continental architecture. We are in the presence of the old force which fashioned Fiji. The clue which has guided us in safety from Stewart Island to East Cape fails; and another clue must be devised. But before following out this new clue we must trace the other thread of the old clue which starts in the far north and runs south-east, almost at right angles to the thread upon which we have hitherto been engaged.

The second slaty backbone runs through the great northern peninsula of Northern Island for a distance of 250 miles

or more: but it is incipient, tentative, and intermittent. It appears first in the far north at Three Kings' Island (890 feet), then at North Cape (*circa* 1,000 feet), then at the Maungataniwha (2,150 feet), and Tutamoe Mountains (2,576), and at Capes Kara Kara, Wiwiki, Brett, and Rodney. South of Whangarei it disappears beneath later marl and limestone, and just as we expect it to reappear, basaltic ex-volcanoes which have attended it on its course usurp its place and form Auckland peninsula. The peninsula of Auckland is an isthmus which lies east and west, and is more slender than the isthmus of Corinth. Two creeks from Waitemata harbour lead respectively within a mile and $\frac{3}{4}$ of a mile of the Manukau estuary which is reached over 'portages' 111 feet and 66 feet high. When standing on the peninsula Hochstetter counted sixty-three extinct craters (600 feet high or less) in 240 square miles¹. South of Auckland the slate range resumes its course under the name of the Wairoa and Taupiri mountains which trend south, then west, then south, and lose themselves near Whaingaroa and Kawhia among the limestones and sandstones of the west, without having any influence on a single river or a single valley. True they form the east border of the lower Waikato basin; but where they turn west the Waikato river passes through them as though they did not exist; so that the habit of calling the Waikato below this point 'the Lower Waikato' is little more than convention.

The Wairoa-Taupiri continuation is a mere yarn of the original thread: a second yarn resembles a daisy-chain of islands across Hauraki Gulf; and the chain leads to a ridge 1,200 feet high which runs from north to south through the Coromandel peninsula, and then plunges down beneath piles of superincumbent tuff. This, too, is a lost clue. Let the

¹ 20 x 12 miles. F. von Hochstetter, *Geologisch-topographischer Atlas von Neu-Seeland* (1863), *Erläuterungen*, p. 13; *New Zealand*, transl. by Sauter (1867), p. 230.

A second range runs from furthest north (a) towards Kawhia, W.,

(b) and to the Thames, E.,

(c) and appears W. of L. Taupo, S., reader now look 140 miles south of Hauraki Gulf to a point 10 miles west of Tongariro mountain. A well-defined interrupted slate range runs thence due north for nearly 50 miles to Rangitoto (or vice versa), attains in Pureora Mountain 3,780 feet *s. m.*, and represents the third—unless perchance it is a jag end of the second—yarn of the missing thread. The original thread and its second and third yarns play an important part in moulding the geography of Northern Island.

and explains the west coast down to Kawhia,

The great peninsula north of the mouths of the Thames and Waikato has many bays; and 'inlets nearly divide the peninsula' 'into an archipelago':¹ but the eastern and western inlets are unlike. The gradual side is on the west, instead of the east. Thus the Wairoa starts from near Kawa Kawa in the Bay of Islands and flows into the muddy shallows of Kaipara, 40 miles below Dargaville (505). The Kaipara too, which debouches at Helensville (531), brings mud from the far east. Nor is mud the only impediment. Wind and rain come from the west—not from the east as in Fiji, so that each western inlet is barred by sand; and that is why there are no natural harbours for large vessels on the west coast of New Zealand. What Hokianga harbour is was described by E. J. Wakefield,² what Hokitika harbour was is described by E. Reeves.³ The accommodation now afforded at Westport, Greymouth, Hokitika, and New Plymouth is artificial. Hokianga, Kaipara, Manukau, Whaingaroa, Aotea, and Kawhia are still traps for the unwary. Further, there is scarcely one islet on the west coast. Doubtless nature intended ex-volcano Mount Egmont (8,260 feet), to be the centre of a circular islet, but placed it so near the mainland limestones that the two formations overlapped. Tuff and limestone are *les deux mammelles* of its

(after which ex-volcanoes explain Taranaki).

¹ Wilkes, *Report*, vol. x. p. 437.

² E. J. Wakefield, *Adventure in New Zealand* (1845), i. 156.

³ E. Reeves, *Brown Men and Women* (1898), p. 6.

twin rivers, the Patea and Waitara. As a result, Taranaki is the garden of New Zealand; and New Plymouth (4,405), which was its capital, Hawera (2,131), Stratford (2,027), Eltham (1,400 *ca.*), Waitara (765), and Patea (691), are market towns whose prosperity is second only to that of the market towns of Canterbury. Further north, ex-volcanoes—such as Tapirimoko (2,074 feet), and Karioi (2,800 feet)—line the coast as far as those limestones and sandstones of Kawhia and Whaingaroa, which have been described, without forming either harbours or gardens.

The eastern inlets are deep, clear, and calm. No wild west wind blocks, no rivers choke them with silt and sand. Whangaroa, Bay of Islands, Whangaruru, and Whangarei, are encircled more or less by hard slate; a hundred islets of the same material shield the Bay of Islands from the mild east wind; and the solid islands which stand like the piers of an invisible bridge between the northern range and Coromandel peninsula convert Hauraki Gulf into a lake, within which is Waitemata harbour—a lake within a lake. Auckland (67,226)—once the capital of New Zealand and still one of the great ports of the Pacific—is built on the south side of Waitemata harbour. Coal as well as kauri swells the population of Whangarei (1,429), Kamo (260), Hikurangi (495), and of Kawa Kawa (263) near Russell (246), alias Kororarika alias Blackguards' Beach, the oldest English settlement in New Zealand; and Drury (364), Mercer (208), and Huntly (622), are the coal towns of the lower Waikato.

The main thread and its first yarn take us through the most thinly peopled, the second yarn takes us through the most thickly peopled district of New Zealand.

At the base of Coromandel Peninsula, where tuff-streams from the south meet, overwhelm and drive into the earth the slate range from the north, vast crowds are gathered together at Thames (4,020), Shortland (1,217), Paeroa (1,504), Waihi

and the east coast down to the Thames

(after which volcanic action helps to create gold mines).

(3,813), and Te Aroha (888), in pursuit of gold. These towns occupy a line only 36 miles in length, at or near the foot of the wall of slate and tuff 2,000 feet high which fences in the Thames on the east; yet their population equals that of the five chief mineral towns of Middle Island, where there is a double lure of coal and gold. It is the only district of Northern Island where mines and minerals concentrate people more densely than at Whangarei.

The third yarn of the original thread exercises no separate influence of its own, and its part played in moulding Northern Island is indissolubly united with the part played by an actor of a very different type.

*Volcanic
action
centres
round
L. Taupo*

Volcanic force, which was the joint-architect of Northern Island, always acts from a centre from which streams radiate like spokes of a wheel, and around which slopes, coasts, plains and forests dispose themselves harmoniously. In Northern Island the centre of action was Lake Taupo (1,211 feet *s. m.*) or rather its margin (2,000 feet *ca.*).

The lake itself is mysterious. Its bottom is 681 feet *s. m.*, almost exactly on a level with the lowest bottoms of the Hot Lake District,¹ and is clean cut like a tank. Its size is 238 square miles, almost exactly the size of the area within which the craters of Auckland or the hot lakes are contained.² The shape of the lake is more or less triangular, and does not suggest a crater, although a volcanic rock rises up in its midst, volcanic rocks surround it, and live volcanoes lead to it from south-south-west and lead from it to the north-north-east. The 'volcanic line' passes right through it.

*and this
volcanic
centre plus
the slate*

South-south-west of the lake three huge active volcanoes stand in a row, each behind the other like the three bears, the largest furthest, and the smallest nearest, and gaze across the lake north-north-east³ to the hot lakes; and by White Island

¹ The bottom of Rotoiti is *cā* 680 feet *s. m.*; see *Geogr. J.* (1904), xxiii. 645, 744.

² *Anle*, p. 31, note 1; post, p. 36.

³ 26° north of east, *N.Z. Inst.* (1888), xxi. 339.

to the Kermadecs, Tonga, and Samoa. Ruapehu (8,878 feet) is the big bear, Ngauruhoe (7,481 feet) the middle, and Tongariro (6,450 feet) the little bear. From Ruapehu the uppermost Waikato pours into the lake, the Whangaehu flows due south, and the Whanganui starts north-by-west until it reaches a volcanic rift 20-25 miles west of Lake Taupo, which is on the same level as that of the bottom of the lake, and is filled by the southward-flowing Ongarue. When joined by the Ongarue the Whanganui flows southward to the sea. Between Ongarue rift and Lake Taupo is one-half of the terraced Patetere plateau, a tuff plain 1,500 to 2,500 feet *s. m.*, near whose western edge are the Pureora slate mountains (3,780 feet).

mountains on either side are the source of most rivers in N. I.,

The Ongarue is the joint product of Patetere tuff and Pureora slate. Two other rivers rise close by and must be credited with the same mixed origin: the Mokau which flows west, and the Waipa which flows north into the Waikato at Ngaruawahia, four miles above the Taupiri gorge, where the lower Waikato begins.

Ruapehu, the tuff plateau and Pureora slate form the outer margin of the lake on the south and west. Ruapehu, Kaimanawa slate and a pumice plain form its outer margin on the south and east. These two margins are V-shaped; and Ruapehu is the point of the V.

The volcanic line which starts from Ruapehu is north-north-east, the Kaimanawas trend north-eastward, consequently Ruapehu is only separated from the Kaimanawas (5,226 feet) by a four-mile strip of barren pumice called the desert of Rangipo, while opposite the lake the pumice strip is 15 miles wide and continues north-eastward as the Kaingaroa plain. The southward-flowing Rangitikei springs from Kaimanawa slate and Rangipo pumice; the Rangitaiki, which flows north-east between the Kaingaroa plain and Kaimanawa range, springs from Kaingaroa pumice and Kaimanawa slate; and a stream of old lava, which trespassed

over a pass in the Kaimanawa range, taints the source of the eastward-flowing Mohaka.

On the north the lake has no margin other than the plateau with its rifts and walls and terraces. North-north-east of the lake there is a low watershed from which the Waiotapu flows towards the lake, but before arriving at the lake it meets and merges in the upper Waikato, which issues from the lake on the western edge of the Kaingaroa plain. After the junction, the upper Waikato turns sharply to the left through a volcanic rift, crosses a volcanic region amid seething mud and boiling fountains, cuts the whole Patetere plateau in two, descends 1,000 feet, and 14 miles above Cambridge becomes the middle Waikato. From here to Ngaruawahia it has swamps, pools, and Maungatautari mountain on its left, swamps and lowlands on its right, and still further on its right more swamps and the Thames, which is merely its right leg severed at the hip and lying where it was severed. East of the Thames stands the tuff wall, 2,000 feet high, which continues the line of the Coromandel range and forms one border of the Patetere plateau. The eastern border of the plateau consists of the hot lakes and a narrow strip of pumice and the like which is strewn on either side of the volcanic line between the hot lakes and Lake Taupo. A volcanic wall, called the Paeroa ridge, divides this strip from Waiotapu river, and leads to Mt. Tarawera, whose eruption wrecked Rotomahana in 1886; wall, strip, and river are all parallel, and streams flow into the hot lakes from wall, strip, plateau, and subterranean boilers, and perhaps through subterranean channels from lake Taupo, and find their way to the north coast as rivers Maketu and Tarawera. A line traced round the edge of the outermost hot lakes includes an area of 240 square miles; so that the hot lake group, the old crater group of Auckland, and lake Taupo are equal to one another in area and coincide.¹

¹ *Ante*, pp. 31, 34.

Most of the rivers of Northern Island are navigable. Tourists descend the Whanganui 79 miles by canoe and then 57 by steamer. Alexandra, the head of the navigation of the Waipa, is 122 miles from the mouth of the Waikato, and in winter traders paddle from Mangawhitikau, 30 miles further up-stream. On the northern Wairoa steamers ply from 30 miles above Dargaville to its mouth (70 miles), and thence to Helensville on the south side of the Kaipara (25 miles), a total distance of 95 miles. Steamers constantly ascend the Thames from Thames to Te Aroha (34 miles), the Manawatu (25 miles), the Mokau (25 miles), the eastern Wairoa (15 miles), the Patea and Waitara.

The rivers of the central district of Northern Island rise amid the coarse tussock grass and scanty manuka of the pumice plain, or amid the sombre forests of the slate ranges or on the tuff plain, much of which is 'covered with stunted brown fern not a blade of grass, not a green tree nor shrub nothing but brown fern',¹ and pass through wooded limestone heights and across plains of marl and clay, with rare strips of real grass and with every opportunity for pastoral and agricultural prosperity. The country improves as they approach the sea. If we apply 'the town test' which we have hitherto applied, we shall note Marton (1,101), Mangaweka (956), and Hunterville (576) on the Rangitikei, Whanganui (7,334) and Pipiriki (233) on the Whanganui, then omitting Taranaki, the lower Waikato and other districts which have been discussed--Hamilton (1,253), Cambridge (989) and Te Kuiti (134) on the Waikato; Tirau (70) on the Thames; Tauranga (946) and Rotorua (914) near the hot lakes, and Whakatane (239) on the Rangitikei. The hub of this wheel is Taupo, with a population of 79! a clear proof that English civilization has not been centripetal like geography. Indeed, where geography has been most centripetal, civilization has been most

many of which are navigable;

and those in the central district are less populous near their sources.

¹ P. W. Barlow, *Kaipara* (1888), p. 45.

centrifugal, and the rule is almost invariable that the population thins away towards the centre, as we see in the sequence of Tauranga, Rotorua and Taupo, of Marton, Mangaweka and Hunterville. The extremities are most alive, as though the vital principles were outside. As a whole, the towns of this district compare for populousness with those of Taranaki; but the two districts are unlike in every other respect.

The distribution of towns is analysed.

The hundred best towns which have been enumerated, and which are reduced in the following table to ninety by omitting negligible quantities, exhibit six grades of populousness which symbolize six planes of prosperity—(a) One third of the people dwell in ten sea capitals, of which two in each island are big, and the remaining six are small; (b) The exclusive mineral districts of either island are exactly on a par and form a second class; (c) The third class comprises the nine Canterbury towns in Middle Island and the fifteen towns east of the main range, of Foxton and of Opotiki in Northern Island; (d) Geographically and historically Taranaki is a thing apart; yet its five towns compare with the ten residuary towns grouped round the volcanic centre of Northern Island; (e) The twenty-one residuary towns of Middle Island figure side by side with the twenty residuary towns of Northern Island, the latter including items mentioned in (d) and (f); (f) The ten towns on the unique peninsula between North Cape and Taupiri gorge show the poorest average and occupy a class by themselves. If the scattered settlements by the fiords in the south-west of Middle Island could be called towns they would form a seventh and still poorer class. Excluding Maori these town-dwellers only account for half the population, and we are left to infer the distribution of the unknown half from the known half for which it supplies the *raison d'être*. Care has been taken to make the towns representative, and important urban districts are reckoned as towns. The table

illustrates the analogies between the eastern halves, between the mineral districts of both islands, and between the north and south of Middle Island; it also illustrates the different conditions prevailing in the far north, far west and centre of North Island, and the wide dispersion of the population throughout both islands.

<i>Urban Population (× 1000) of New Zealand arranged in 6 classes.</i>		<i>Totals × 1000.</i>	<i>Average Density × 1000.</i>
(a) ¹	4 capitals (2 in each island)	232	} 272 58
(a) ²	6 do. (4 in Middle Island)	40	
(b) ¹	5 mineral towns (M.I.) (north-west)	11.4	} 2.28
(b) ²	” ” (N.I.) (Thames)	11.4	
(c) ¹	9 Canterbury towns (M.I.) (east)	19	} 2.11, &c.
(c) ²	15 towns, Foxton to Opotiki (N.I.) (east)	30.2	
(d) ¹	5 Taranaki towns (N.I.) (west)	7	} 1.4
[(d) ²	10 'remaining' towns (N.I.) (centre)	14.5	
(e) ¹	21 'remaining' towns (M.I.) (north and south)	20.9	
(e) ²	20 towns (N.I.) comprising d ² and f	19.5	
[(f)	10 peninsular towns (N.I.) (north)	5	118 } 1.45 .99 .975 .5]

Total white pop. (1901) = 773; total of above = 390.

N.B.—(a) to (f) items are given *supra* in the text but omit Campbell-town, Mosgiel, Otaki, Te Kuiti, Tirau, Taupo. The big capitals of M.I. include their ports. (e)¹ is partly mineral.

Northern Island has been moulded by two artists of different schools, and its big rivers—Mohaka, Rangitikei, Whanganui, Mokau, Waikato, Rangitaiki, and the rest—represent their blended work. This dualism and strange fusion, has also characterized the history, as though the geography were only a metaphor or mirror of the history of New Zealand. The English, as we have seen, looked on the whole land as one, and covered its whole length and breadth with a hundred towns. They treated it as a continent, the most continuous part of which was in Middle Island and the prolongation of Middle Island into Northern Island. They cared little for the central volcanic

There is national as well as geographical dualism in N. I.;

the English were continental,

region of Northern Island and still less for Northern Peninsula—if we except Auckland. It was the continental part of New Zealand, the part of New Zealand explained by the southern backbone—which they wanted most and the Maori wanted least, and which they got so easily and cheaply.

*and the
Maori
were atollitic
in instinct.*

To the Maori New Zealand was a chain of islets, or the next best things to islets, peninsulas and marsh-ridges. Maori civilization was infected through and through by its origin in atolls; and Maori were never happy unless they had water or wet mud on two sides. Their favourite haunts were lakes and small lake-like seas on which there were many islets like Motiti, Mokoia, Motaremo (Kaipara), Tipuna (Bay of Islands); or else were peninsulas such as Maunganui (Tauranga). They built Waiwiri Islet (Horowhenua) artificially in a lake,¹ and they made Auckland an islet to all intents and purposes, for they dragged their canoes across its western and eastern 'portages',² so that it proved an object of desire and an Armageddon where they committed mutual suicide, and so paved the way for their successors. To them the hot lakes were a chain of lagoons like the lagoons of an archipelago of simple volcanic atolls, and their only word for river was the old word for lagoon-channel.³ They spoke of Lake Taupo as the sea, and Te Heu Heu built his village on 'a peninsular projection', others upon a narrow sand spit separating a detached backwater from the main lake⁴. Who but atoll-dwellers would have lived thus? Moreover, like all atoll-dwellers, they longed for multitudes of islets and peninsulas; therefore the east coast of Northern Peninsula, Hauraki Gulf, and the central lakes appealed most strongly to their archipelagic instincts, for there life was full and collision perpetual. When Cook described the

¹ Tregear, *Maori Race* (1904), p. 303.

² *Ante*, p. 31.

³ = Awa = river. Wai-roa = long water, and sometimes = river.

⁴ Hochstetter, *New Zealand*, transl. Sauter, p. 386.

west coast as uninhabited he was wrong, but not very wrong. The purely continental part of New Zealand also had its lakes, peninsulas, and islets, such as Napier, L. Wairarapa, Kapiti, the islets in the Sounds, and the peninsulas of Kaikoura, Banks, and Otago; but they were far too far from one another to attract the Maori. These lonely posts were sold for 'a handful of silver'. When the Awa clan got to Port Nicholson they felt isolated and defenceless, and would have probably gone home but for the English purchase. The Toa clan were only loath to sell the Manawatu district because they held Kapiti; the Englishmen only wanted to buy it because of its relation to the Tararua range; and there there was a source of conflict. The Sounds were the last and dearest of the purchases of Middle Island. But for a few detached posts by peninsulas and lakes, and but for the lure of Hokitikan greenstone, Maori history in Middle Island and the south-east of Northern Island—that is to say, in the area dominated by the great range—was almost a blank. No wonder they sold all, or nearly all, this area for a mess of pottage.

Taranaki seems to have attracted Maori and Englishmen with equal force: the former because it was so insular, the latter because it was so essentially a part of the mainland; and that was why it proved a source of strife.

In districts where they could not dwell on some rock between water and water, the Maori dwelt on some ridge between swamp and swamp. Captain Cook found on the Thames an 'Indian town built upon a small bank of dry sand, but entirely surrounded by deep mud'.¹ On the Waikato and Waipa, Gorst noticed village after village on the bank between river and 'large swamps in a state of transition from water to dry land'.² This picture recalls the Rewans in Fiji, or (but for their piles) the Papuans on the Fly in

¹ *First Voyage of Capt. Cook*, ed. Hawkesworth, ii. 352.

² J. Gorst, *Maori King*, p. 21, &c.

New Guinea; and those who are fond of military history will recollect Okaihau, Te Ngaere, Rangiriri, Orakau, and Gate Pa; while philanthropists will reflect how much more fatal peace by the swamp has been than war on the wold. Swamps which now bring consumption once brought power. The King-state was nothing more or less than the swamp state of the Middle Waikato basin. Even now, old fashioned Maori hug the swamps, where swamp-hens, eels, flax,¹ thatch,² taro, and kumara thrive. The Englishmen, noting that the swamps were flat and had some coarse grass, wanted to drain and reclaim them, and use them for agriculture and pasture. 'The Maori prefer to make a swamp than drain one'.³ Hence strife arose in the Waikato marshlands.

If driven from islets, peninsulas, and swamps, the Maori fled to the mountains, where they often did without cultivated food. As in Fiji and the Solomons, mountains and forests sheltered, not the hunters but the hunted. The hunters of men stayed by mere, marsh, and shore. Rugged forests and mountains had no more attraction for Maori than for Englishmen.

It may be doubted whether the Maori thought of New Zealand, except as 'a long white cloud' of numerous islets, peninsulas, and marsh-ridges, which were most numerous somewhere north of the centre, and more numerous on the east than on the west of Northern Island. There they spent their crowded lives; there they fought most; and there their fittest survived. The wild men of the mountain, who are represented by the Uriwera of to-day, were least organized and civilized. They have not been pursued into their rugged fastnesses by Englishmen who were busy finding civilized uses for plains and less intractable mountains elsewhere. Perhaps, too, the land of the Uriwera was too far from any

¹ *Phormium tenax*.

² Raupo.

³ *N. Z. Inst.*, xxi. 338.

harbour; and harbours meant ports, and ports meant overseas markets, and the English colonizing instinct has always been commercial, although it has had other aspects.

In the above I have used the *Official Handbooks of N. Z.* by Sir J. Vogel (1878, &c.) and Sir J. Hector (1885, &c.); E. J. von Dadelszen's annual *Official Yearbook of N. Z.*; R. A. Loughnan, *Settler's Handbook of N. Z.* (1902); Colonial Museum and Geological Survey *Reports of Geological Explorations*; F. W. Pennefather, *Handbook of New Zealand* (1893) in Murray's series of travellers' handbooks; Von Haast, *Geology of Canterbury and Westland* (1879), &c.

CHAPTER IV

AUSTRALIAN GEOGRAPHY

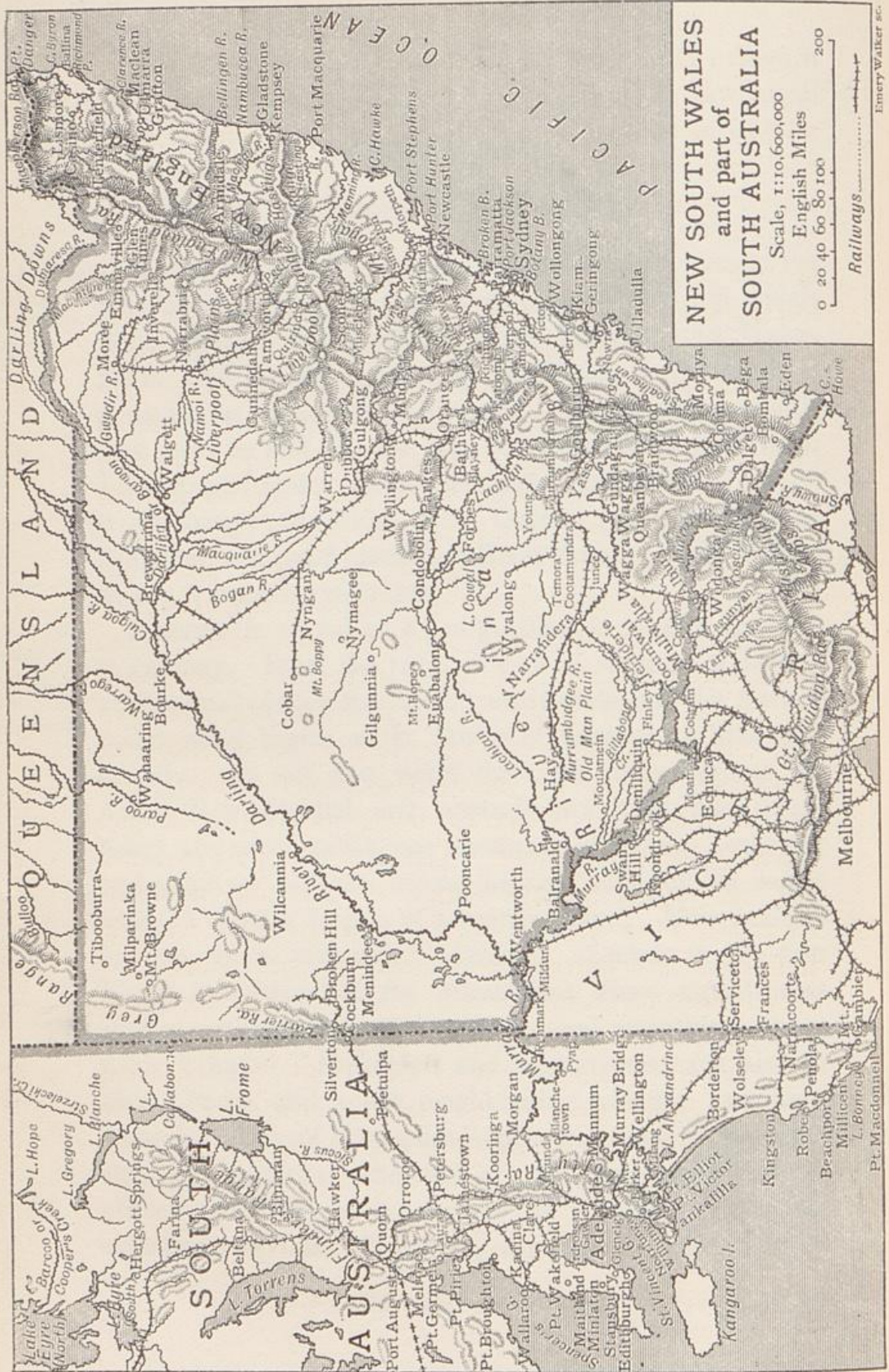
*Australia
is a con-
tinent like
Europe,*

HITHERTO we have compared Australasian colonies to the United Kingdom or to one of its parts. Thus Fiji equals Wales, Middle Island (N.Z.) equals England and Wales, British New Guinea equals England, Wales, and Ireland, or three-fourths of the United Kingdom. These puny standards must now be laid on one side, for Australia is built upon a continental scale. It is 2,972,906 square miles in extent, is to Europe as British New Guinea is to the United Kingdom, and could contain 39 Great Britains, 99 Scotlands, or 113 Tasmanias with ease.

*and is con-
trasted
with N. Z.
in its flora
and fauna,*

Australia is as unlike its neighbours in quality as it is in quantity. From the point of view of students of botany and natural history the Asiatic world ends, and the Australasian world begins at the Straits of Lombok, a little east of Java. In this new world there are many regions, of which New Zealand and Australia are most like themselves and most unlike one another. If a New Zealander had come to Australia before the days of Cook, he would have felt like the denizen of a strange planet. New Zealand has no native mammals.¹ Australia abounds in the two lowest sub-classes of the mammalian class—monotremes such as ornithorynchus and echidna—and marsupials whose name is legion. Marsupials and monotremes exist also in New Guinea and a few neighbouring islands; two non-Australian kinds of marsupials—coenolestes and opossums—exist in America; otherwise all living mammals belong neither to the monotreme nor to the marsupial but to the eutherian sub-class. Rats, bats, dogs, and men are the only

¹ Unless a native otter exists.

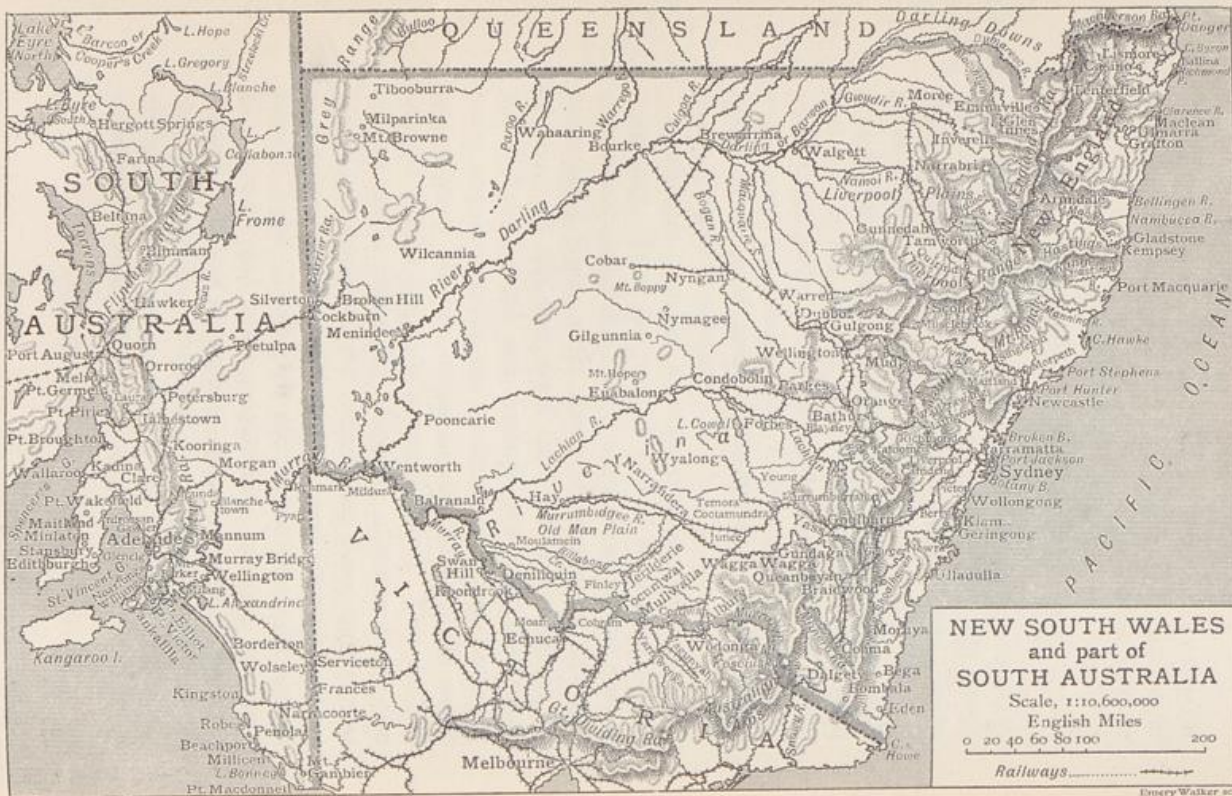


NEW SOUTH WALES
and part of
SOUTH AUSTRALIA

Scale, 1:10,600,000
English Miles
0 20 40 60 80 100 200

Railways.....

Emery Walker sc.
To face p. 45



V. 1 (2)

Emery Walker sc.
 To face p. 45

eutherian land mammals in Australia; and their domicile of origin was probably Asia. Again in New Zealand there are no land snakes, in Australia there are sixty-five kinds, mostly poisonous; in New Zealand no plants are poisonous, if we except 'tutu' seed, but Bailey and Gordon have drawn up a list of eighty-five Australian plants 'reputed poisonous' to stock; and almost every explorer has in his hour of need lost horses or camels from this cause. Again, Tennyson's 'Brook' could have been written in New Zealand but not in Australia for drought, unknown in New Zealand, is the particular curse of Australia, and running water rarely 'goes on for ever'. Except on the coast and coastal ranges the rainfall rarely exceeds ten inches in the year. Nature provides some compensation in the peculiar herbs and trees of Australia. Everywhere throughout the interior 'salt bush' prevails.¹ It is akin to our spinach, is rare outside Australia, has in Australia many kinds and many names, feeds stock, especially sheep and camels, clothes vast loamy waterless plains like Old Man Plain, south of the Murrumbidgee, is sprinkled over the sand waves of all but the worst deserts, and thrives where every grass withers except spinifex;² and spinifex is as uneatable as 'the quills upon the fretful porcupine' which it resembles. The Australian trees are either like the pine-trees—world wide, or like the Casuarina,³ Australasian—or like Melaleuca,⁴ Acacia, and Eucalyptus (gum-tree) characteristically Australian; and those three characteristically Australian orders are Protean in size, shape, and form, are equally adapted to profit by prosperity and resist adversity, and are wholly absent from New Zealand. These characteristic trees cast but little shade and are evergreen, if they can be called green, so that the poet who

¹ N. O. Chaenopodiaceae, gen. *Atriplex*, *Rhagodia*, *Salsola*.

² *Triodia irritans* is commonly called spinifex in Australia.

³ Casuarina includes she-oaks, swamp-oaks, &c.

⁴ Melaleuca includes the Australian tea-tree.

wrote οἷη περ φύλλον γενεή, τοιήδε καὶ ἀνδρῶν was not born in Australia. Gum-trees include more than 160 Australian kinds, and are confined to Australasia. Sometimes they are giants. In the south-east, near the sources of the Yarra Yarra, they form forests of trees, one of which was said by F. von Müller to attain 471 feet in height.¹ Along a mountain strip, 350 miles long, between Perth and Albany in the south-west of Australia, there are forests of 'jarrah'² varied in the Blackwood river district by a forest of 'karri';³ both jarrah and karri are gum-trees, the former yielding the finest timber in the world, and the latter rising to heights exceeding 400 feet, or more than twice the height of the tallest kauri pine. Red gum, iron-bark, box, blue gum, stringy bark, and white gum are gum-trees, which are valuable for their timber, which are mostly of medium size, and which often grow in open ground with fine grass beneath—as in 'a nobleman's park'—to quote the words of the first settlers. In Tasmania a loaded cart went through country of this description from Launceston to Hobart before a road was built 'without felling a single tree'. Gum-trees also frequent the desert, where they stand like mourners beside the bed of a river that is dead and gone; and the vast timberless levels and upland plains of the Australian interior are often interrupted by dense matted scrubs consisting of dwarf gums, called mallee, twelve to fifteen feet high, grassless and waterless below, and with leaves overhead. These too have their use, for five kinds of mallee store water in their roots.⁴ If the scrub does not consist of 'mallee' it usually consists of 'tea-tree' or else of certain kinds of Acacia—myall, mulga, boree, brigalow, gidya, and the like. Acacia too pervades Australia. Sometimes 'it spreads out in many branches from the root

¹ *Eucalyptus amygdalina.*

² *E. marginata.*

³ *E. diversicolor.*

⁴ *E. microtheca, paniculata, populifolia, incrassata, and oleosa.*

upwards, interlacing with its neighbours, forming an impervious hedge'. It also provides wattle for hurdles and (like mulga) drink for man and food for stock, so that 'during the drought it saved the lives of thousands of cattle which would otherwise have perished owing to the failure of grass'.¹

The economic history of New Zealand and Australia has been almost the same, yet the developments of town life in the two countries are as vividly contrasted as their fauna and flora. Two Australian towns, Melbourne and Sydney, contain more than the whole population of New Zealand; and Australia, though twenty-eight times as large, is only four times as populous as New Zealand. There were 3,771,715 whites in Australia in 1901, more than one-fourth of whom were cooped up in Sydney and Melbourne. This disproportion between two towns and the whole country is only equalled by Scotland, which is after all a manufacturing country, and as we have seen not much larger than Tasmania. There is no other modern parallel in white men's countries. The figures of separate States tell a still more striking story. In 1852 Lang denounced Sydney and Melbourne as wens because they contained more than one-fourth of the population of New South Wales and Victoria. Nowadays in New South Wales, Victoria, and South Australia more than one-third of the inhabitants dwell in the capital; in Queensland nearly one-fourth; and in Western Australia nearly one-fifth. The latter is the proportion which prevails between greater London and England.

The cause of this disproportion between country, where the elastic is stretched to splitting point, and capital cities, where it is rolled up into the smallest ball, is partly historical and partly geographical. All colonies are exporters before being self-supporters; and colonization is in the first instance an incident of external trade. Colonial and especially

¹ R. L. Jack, *Handbook of Geology of Q.*, &c. (1886), p. 7.

*and in the
distribu-
tion of
its popula-
tion in
towns.*

pastoral products demand the minimum of labour and the maximum of space, and capitals are looked on as centres which collect these products and send them to market. Sometimes the shape of the country or some military necessity counteracts these influences. Thus New Zealand, which is long and thin and has suffered from war, is exceptionally decentralized. Australia which has always been at peace, which is broader than it is long, and has many barren intervals, only exaggerates a universal colonial tendency in the intense concentration of its distributors and in the vast spaces over which its producers are scattered.

*Its history
is affected
by*

Australia, though so unlike its Australasian fellows, is partly guarded like some Pacific island by a coral reef; has one great range which like that of New Guinea or New Zealand unites it with other islands; and although destitute of living or half-living volcanoes seems, in the remote past, to have experienced basaltic flows and geysers of which the Darling Downs and Mount Morgan are respectively types and monuments.

*(1) its
barrier
reef,*

Queensland is shadowed along its eastern shore from Cape York to Sandy Cape (1,250 miles) by a half-sunken coral reef which is 12 to 160 miles away, which is studded with innumerable islets and is pierced by twenty-two deep sea passages. Not the islets on, but the passages through this barrier reef have played a part in history. Eleven passages are north of Cooktown, three near Cooktown, one opposite Port Douglas, two opposite Cairns, two a little south of Cardwell and Dungeness, and Dungeness is a little more than half way from its northern to its southern extremity. In its southern or lesser half there are only three entrances which are broad because they have been scooped out by three great rivers—the Burdekin, Fitzroy, and Burnett. Townsville and Bowen share the first, Rockhampton and Gladstone the second, Bundaberg and Maryborough the third of these three entrances. South of Sandy

*which de-
termines
the position
of the
northern
ports.*

QUINTUS

...

...

...

Cape the Barrier Reef, after a journey exceeding the whole length of New Zealand or half the length of eastern Australia, ceases, and the coast trends for the first time to the west instead of to the east or south. North of Sandy Cape every port, except Mackay, Johnstone River, and St. Lawrence, faces some breach in the coral wall. 'No breach, no port', is the rule; but the converse does not hold, for half the breaches are north of Cooktown where there are only two ports, Thursday Island, in Torres Straits, and Somerset; and other causes make the ports prosperous or the reverse.

Some of the ports are helped by their rivers: thus Maryborough and Rockhampton are situated more than half-way up the navigable course of their respective rivers, Maryborough 25 miles up the Mary, and Rockhampton 41 miles up the Fitzroy. Bundaberg, Cooktown, Johnstone River, and Dungeness are also river-ports on a small scale; but none of these ports depend on their river as London depends on the Thames or Calcutta depends on the Hugli. All are helped also by local industries. Thus Charters Towers gold-fields are within 80 miles of Townsville, and Mount Morgan within 30 miles of Rockhampton; Mount Perry copper-fields are within 70 miles of Bundaberg; and the Burrum coal-fields and Gympie gold-fields are respectively within 20 and 60 miles of Maryborough; and both Maryborough and Bundaberg shine with the reflected glory of Brisbane. Maryborough, Bundaberg, Mackay, Dungeness, Port Douglas, and Cairns are built of sugar; but all except the first three and the last are fourth-rate towns. Land traffic, from north to south, enriches Mackay, which is the half-way house between Townsville and Rockhampton; but north of the Burdekin the ports, isolated as they are by mountains and forests, are like a group of islands, which only communicate with one another along the smooth sea pathway within the Barrier Reef. Even a fine natural harbour does not necessarily bring prosperity: thus Bowen and Cardwell, which have the finest

(2) by eastern rivers and local industries which make the ports prosperous,

(3) and by the range

*behind the
ports and
the country
behind the
range.*

natural harbours north of Rockhampton, occupy the third and fourth rank as towns. Both are cabined, cribbed, confined by the great range in their rear. The secret of the prosperity of Cairns and Cooktown is that they have penetrated the great range with road and rail. Behind the range are gold-fields on the Palmer and Hodgkinson, and fields of tin and copper on the Tate and Walsh; all these rivers unite to form the Mitchell, and the Mitchell debouches on the western coast of Cape York Peninsula by many channels and amid swamps and mangroves which make a port impossible. Indeed, Cape York Peninsula has no western port, therefore the riches of the tableland all go to Cairns and Cooktown, especially to Cairns. Cooktown also supplies a port to the pearlers and bêche de mer fishers of the coral sea and New Guinea on its east, although in this respect Thursday Island has to some extent supplanted it. Further south, Townsville and Rockhampton have also reached beyond the range in their rear; but the range is much further off, and the prospect beyond it is far wider. Thus Cairns is about 30 miles from its watershed and the country beyond is under 300 miles wide; but Rockhampton is nearly 300 miles from its watershed and the country beyond is over 2,000 miles wide. The scale is different but the principle is the same; and the principle is that the sea passage makes the port exist, and the country at its back makes it great; for the port is only the link between the vast expanse of inner Australia and the distant English market.

The following list of ports from north to south will illustrate the point that those only who cross both barrier reef and mountain bar achieve greatness in the northern half of eastern Australia. Population is a symbol of greatness, and numbers are figures of merit; but the numbers include suburbs (if any) and exclude country folk, so that our mathematical standards are far from precise, and full ports seem fuller and empty ports seem emptier than they really

are. The distances from Brisbane are only roughly measured from point to point.

<i>Port.</i>	<i>Population.</i>	<i>Distance to Brisbane.</i>
Somerset	64	1,450 miles.
Cooktown	1,936	1,050 "
(Port Douglas)	(494)	
Cairns	3,557	970 "
(Johnstone River)	(353)	
Cardwell	139	900 "
(Dungeness)	(53)	
Townsville	15,000	850 "
Bowen	1,585	750 "
Mackay	5,157	620 "
(St. Lawrence)	(206)	
Rockhampton	19,691	420 "
Gladstone	1,622	320 "
Bundaberg	9,666	220 "
Maryborough	12,900	160 "

It is to this mountain barrier that we must now turn.

As the reef in front of its coast makes Queensland one and calls all its ports, except its capital, into being, so the range behind the coast unifies and vitalizes eastern Australia. Its steep and rainy side is on its east side. It is impassable by rivers and it is long and low. It is seldom less than 2,000 to 3,000 feet, has few passes, and few heights. Mount Kosciusko (7,256 feet) near the source of the Murray is its highest peak. In Victoria five peaks exceed 6,000, 18 exceed 5,000 feet; in New England two are about 5,000 feet; near Darling Downs two are about 4,000 feet; near Cairns two outliers are 5,438 feet and 5,158 feet respectively; and north of Cairns it sinks towards Cape York, but sinks to rise again. The western islets of Torres Straits—including Thursday Island, where fishers of every race and creed catch or cure pearls, sea-slugs, and souls—are detached continuations of the same range, their feet being laved by waters 50 to 70 feet deep, and 80 miles across; and the apex of the range is Mabudauan Hill, 150 feet high, which is actually in New Guinea. The barrier range throws a bridge of islets across

The great range unifies eastern Australia, New Guinea, and Tasmania.

the straits and annexes New Guinea. So too some islets of the Barrier Reef as they pass north of the Australian shores assert their kinship with other distant coral islands of the Pacific by growing coco-nuts, coco-nuts being unknown in Australia.

If we follow the range upon a map it looks like a picture of the tree Ygdrasil, whose summit and root are hidden in other spheres; for, as its summit is on the far side of Torres Straits, even so its root crosses a strait, four times as deep and not quite twice as wide as Torres Straits, unseen save for a few rocky islets, and with its fibres envelops Tasmania.

In Tasmania it is double and most of Tasmanian history took place between the two ranges;

In the south-east of New South Wales a river called Snowy River rises in an angle of the range. The sides of the angle resemble a V turned upside down; one side of the V forms Manero Range, and points more or less towards Cape Howe, and the other side forms Mount Kosciusko. As we follow the latter south-west another jagged dented V opens northwards, and in its opening the Murray and its tributaries the Mitta Mitta and Ovens rise. Further west less definite openings conceal the origins of the Goulburn and Loddon which also flow into the Murray. The sides of these V's, openings and dents are prolonged into ranges which on the north separate tributary from tributary, and on the south make for the coast between Cape Otway and Cape Howe, avoiding bays, but crowding towards Wilson's promontory in such confused numbers that less than twenty years ago a traveller noted a range 30 miles long and 3,000 feet high which was not marked on any map. These southerly prolongations may be compared to the fibres of a root. The fibres dip beneath Bass's Strait, emerge as rocky islets, and reappear in Tasmania. The extreme eastern fibre starts from Cape Portland, twists down the coast at a distance of from 5 to 25 miles, and ends in Pittwater and in the ravines of Tasman Peninsula. The extreme

western fibre starts from Cape Grim and soon attains a distance of 50 miles from its coast, which it retains more or less until its finish in Mount Wellington (4,166 feet). Both ranges frequently exceed 5,000 feet, and have their steep side on their sea side. The east coast is dry, but the west coast is as rainy as the west coast of New Zealand, and contains forests of pine¹ and beech,² tangled undergrowths all its own,³ and little grass. In 1876 the only people who dwelt west of the western range were villagers at the mouth of the Huon near Hobart, a few families at Port Davey, and a few miners who had just come from the north coast to Mount Bischoff grubbing for tin. The thin east coast-strip possessed only a few scattered villagers, some of whom had been there more than half a century. Tasmania progressed only on the gradual sides of the two ranges, and these gradual sides meet in the centre of the island and form a greenstone plateau 2,000 to 3,000 feet high, diversified by 'tiers' and terraces, by mountains 4,000 to 5,000 feet high, and by lochs more in number than all the lochs of Australia. This plateau is the watershed from which the principal Tasmanian rivers flow north and south, and it is so limned that all its lochs except Lakes Arthur and Woods belong to the southern river system, which consists of the Derwent and its numerous affluents, and of Coal River, which has no affluents to speak of. The northern river system includes more than twenty river-mouths, the chief of which, Port Dalrymple, belongs to the Tamar and its affluents. Tasmania has two ranges and two climates on its east and on its west, and two important river systems on its north and on its south. Its history has also been dual; but the dualism of its history is due neither to the two ranges, nor to the two climates, but to the two river systems.

¹ *Athrotaxis selaginoides*, &c.; *Dacrydium Franklinii*, &c.

² *Fagus Cunninghamii*.

³ *Anodopetalum biglandulosum*; *Bauera rubioides*.

Until the last thirty or forty years the history of Tasmania was the history of the two river systems, dominated by the Derwent and the Tamar, and might be described as the tale of two rivers.

*in the south
the Der-
went,* Hobart, the capital city (34,815), is a river as well as an ocean port, and lies 12 miles up stream on the right bank of the Derwent. Huon pines are cut, roots and fruits are grown, and coal has recently been quarried 20 or 30 miles south-west of Hobart on the mouth of the Huon which boasts of three towns, Franklin (765), Victoria (261), and Lovett (230). East of Hobart, Richmond (395), Sorell (245), and Colebrook (147) on Coal River serve it with wheat and coal. Every other important town in the south, whether agricultural like New Norfolk (1,151), or pastoral like Hamilton (232), or both like Oatlands (616), is on the Derwent or its affluents.

*and in the
north the
Tamar
made its
history,
until
minerals
developed
the N.E.,* Launceston (21,153)—an ocean and river port on the Tamar, situated at a spot where its affluents flow in from west, south, and east, and 40 miles from where Port Dalrymple, as its tubular mouth is called, sucks in the sea, and 120 miles from Hobart—is virtually the second capital. At or close by Port Dalrymple are Beaconsfield (2,658), Georgetown (274), and Lefroy (709), which began their career as gold-towns less than thirty years ago. The two eastern affluents which join the Tamar at Launceston are the North Esk and South Esk. The sources of the North Esk are near those of the Ringarooma, which flows in an opposite direction to that of the North Esk and reaches the sea a few miles west of Cape Portland. The Ringarooma is flanked on the north-west by a range which culminates in Mount Cameron, and on the south-east by the east dividing range which is here called Blue Tier. An offshoot of the Cameron Range forms the watershed between the Ringarooma and North Esk, and blends with the Blue Tier range in Mount Victoria; then the merged mountains split up once more into Tower

Hill and Ben Lomond on the west, and Black Boy and Mount Nicholas on the east, which are the chief sources of the South Esk. More solid boons flow from the mountains of North-east Tasmania. On the northern slope of the Cameron range a railway runs from Launceston to Scottsdale (636), whence coaches cross the range to Ringarooma (230), Derby (587), Weldborough (283), Moorina (350), Pioneer (150), and Gladstone (163), all of which collect much tin and a little gold from Mounts Cameron and Blue Tier. If we take the train from Launceston to Hobart, change at Conara junction, and travel east to Fingal (372) and St. Mary (281), we shall be within the shadow of Mount Nicholas, where the best Tasmanian coal is mined, and within easy reach of Matthina (Mount Blackboy) and Mangana (Tower Hill) gold-mines. The tin mountains are of granite, which has forced its way up through superincumbent masses of slate and the like; the gold and coal mountains are of greenstone overlying slate and overlain by coal measures. All the gold of the east is quartz gold, and the best gold is found where greenstone and slate are nearest, just as the best tin is found where granite meets slate. Greenstone has replaced slate or driven it underground all the way from Mounts Victoria and Blackboy in the north to Tasman Peninsula in the south; and these are the very parts from which the whites tried to drive the blacks down into Tasman Peninsula or back into the wild slate region in 1829. There was something geological about Colonel Arthur's operation. The slate region of the north-east is dotted with basalt plains which only began to attract farmers a little before the advent of miners in the seventies. Geology is no respecter of watersheds: thus tin, gold, and coal trespass beyond the eastern crests, and coal seams surround the central greenstone plateau like a girdle.¹

(Colonel
Arthur's
'unsettled
district')

¹ R. M. Johnston, *Systematic Account of the Geology of Tasmania* (1888).

and the
N.W.
(where the
V.D.L. Co.
had been
isolated).

The southern and western affluents of the Tamar (or the railway trains) take us to pastoral centres like Campbelltown (735) and Perth (442), to agricultural centres like Longford (1,223) and Westbury (1,027), or to towns which, like Deloraine (949), combine both characters; and these towns, most of which are built on basalt plains, crouch beneath the eastern or northern escarpment of the central plateau. Before the sixties Deloraine was 'the last town ere we pass the Rubicon and enter the wilds of the north-west'.¹ In 1871 an agriculturists' railway was built from Launceston to Deloraine, which turned these wilds into gardens. Latrobe (1,360) is on the Mersey, which is 7 miles west of Deloraine; and the Mersey is the first of five rivers which have only been important since 1871, and which run side by side, at 5 miles interval, from the plateau or the west dividing range to the northern sea. The Mersey, Forth, Leven, Blyth, and Emu compose the Tasmanian Punjaub. In their upper reaches are plains about 1,000 feet lower than the central plateau, and known as Emu Plains, Middlesex Plains, and Surrey and Hampshire Hills; at or near their mouths are Devonport (3,515), Hamilton (160), Ulverstone (1,164), Penguin (540), and Burnie (1,548). Burnie, Surrey, and Hampshire Hills are basaltic, open and well grassed, and have been since 1828 the scene of the pastoral operations of the Van Diemen's Land Company, but until recent times they were almost cut off from the rest of Tasmania. Thus in 1854 Hampshire Hills, where 'the Company have laid out a large sum of money in farm-houses, gardens, and other improvements', were reached by a rough forest track from Emu Bay on the north, or by a rough inland track grandiloquently called 'the midland road' from Deloraine on the east;² and the Company traded more with Melbourne than with Launceston. It

¹ *A Year in Tasmania* (1854), p. 269.

² *Ibid.* pp. 283, 287. Comp. C. P. Sprent in *Royal Geogr. Soc. of Australasia*, Melbourne, 1885, pp. 51 et seq.

is only since the Sixties that the forests, which intervened between the possessions of the Company and the Tamar river system, have been cleared for agriculture, and that this region has been an essential part of Tasmania. Moreover, the railway now goes to Burnie, and the ridges which fence river from river, yield coal at Devonport and other minerals elsewhere. These ridges are only other fragmentary fibres of the great root; but their material varies; thus the ridge which borders Emu river is granite, and meets the westernmost fibre, which is slaty, in Mount Bischoff, where the richest Australasian tin mine was opened in 1873. After meeting in Mount Bischoff, the two fibres part once more, and further south, amid hills and valleys of slate and the like, granitic fibres reappear in Mount Heemskirk, where there is tin, in Mounts Zeehan and Dundas, with their famous mines of silver-lead, and in Mount Lyell, whose copper mine is the richest in Australasia and also yields gold and silver. This district, whose mineral history began in 1873, has proved so rich that a railway has been pushed from Burnie beyond the Surrey Hills to Mount Bischoff (350), Dundas (1,500), Zeehan (5,014), and the new port on Macquarie Harbour named Strahan (1,504), and from Strahan and Pillinger (637), which is also on Macquarie Harbour, to Queenstown (5,050) and Gormanston (1,760), near Mount Lyell. The reopening of Macquarie Harbour is a matter only of the last ten years and is solely due to mineral enterprise, which in this case began just beyond the point reached by the old Land Company in the first half of last century. Except in this new mineral district and at Corinna (120)—a mineral town on the Pieman—the whole district between the western dividing range and the sea is still but little more than a howling wilderness. Two small detached posts of the old Land Company, and one or two other pastoral settlements, between Burnie and Cape Grim, have recently been connected with Burnie by a fair road.

*Tasmania
is decen-
tralized
like N.Z.*

Tasmania is almost as decentralized as New Zealand. It has two capitals; New Zealand, which is five times as populous and rich, has ten. Tasmania has one purely mineral district; New Zealand, which is more than twice as rich in minerals, has two. Excluding capitals, there are sixteen Tasmanian towns whose inhabitants exceed 500. All of these towns owe something to their mines. Almost these very words have been written of Otago and Southland.¹ Our list of Tasmanian towns, which is fairly complete, accounts for 55 per cent. of the population; our New Zealand list yields almost the same ratio. The average density of the ten New Zealand and two Tasmanian capitals is almost the same; pure mining towns of both states are on an average of the same size.²

	<i>Average Density</i> × 1000.
2 capitals (N. and S.)	27.9
7 mining towns (WNW.)	2.26
11 towns (NNW. and C.)	1.1
12 towns (NE. and E.)5
9 towns (S.)4

But analogies of this kind should not be pressed too far. The size of a town is sometimes a matter of opinion, and opinions differ in different States. These figures are only offered as rough and ready bases for comparison and as something less than mathematical exactitudes, though more than figures of rhetoric.

*The range
unifies
N.S.W.,
Q. and V.,*

It is time to leave towns and return to the mountains. Somewhere near the border of New South Wales and Victoria an inverted V was mentioned, one of whose sides contained Mount Kosciusko, where the Victorian branch-range starts, and the other was the Manero Range, from which the easternmost rootlets which cross to Tasmania depend. This was less than truth, for Manero Range serves also as the

¹ *Ante*, p. 28.

² *Ante*, p. 39.

west side of a second V-shaped valley, whose east side is the starting-point of the trunk which ends in New Guinea. Manero Range connects Victoria, as well as Tasmania, with eastern Australia. It unites but does not divide States, for the border between New South Wales and Victoria is a purely arbitrary line drawn from Cape Howe to the source of the Murray. Early settlers on Manero Plains, which are enclosed between the lines of the second V, used Twofold Bay as their port; and as there is no natural frontier which would include both Manero Plains and Twofold Bay in one State it was decided to fix the frontier by compass. The district south of the Plains is poor judged by New South Wales' standards; its chief towns are Bega (1,898), Bombala (986), Eden (370), or Twofold Bay, and when the new Australian capital is built, Dalgetty; but interest begins at the base of the trunk.

If, changing our metaphor, we could imagine the range travelling from its base by Manero Range to its goal in the far north, its journey through New South Wales would fall into four stages: the first leads beyond Lake George to near Goulburn (120 miles), and the second to Liverpool Range (210 miles), the third is Liverpool Range (90 miles), the fourth includes New England Range and ends in Darling Downs (210 miles). *and its course is described*

During the earlier stages the range moves due north; and the beginning of the first and end of the second stage are almost on the same meridian. The coast meanwhile has been moving eastward, and was once 30 miles, then, near Goulburn, 60 miles, and is now 160 miles away. Shortly after the start, part of the range—loath, as it were, to lose sight of the sea—secedes from the great range, tries to run parallel with the coast, and for a time succeeds.¹ Where it secedes, the Shoalhaven rises, then runs by its western side for 80 miles, then turns sharp to the east, rends it in twain, *through N.S.W. to Goulburn,*

¹ Currockbilly and Cambewarra Range.

and seeks the sea near Nowra (2,813) and Berry (1,990). The best-known town in the Shoalhaven district is Braidwood (1,551), whose ports are Ulladulla (1,765) and Moruya (1,099), as well as those at the mouth of the Shoalhaven. The rebel range, after being cut in pieces by its liquid companion, puts itself together again—not without help from the west, and begins a new life, north of the Shoalhaven—as the Illawarra Range; between which and the sea are Central Illawarra (4,675), Geringong (1,051), Kiama (1,769), Shellharbor (1,944), Wollongong (3,545), and Illawarra North (3,190); for here towns are many and large, and we are already in ‘the garden of Sydney’. Some 30 miles south of Sydney the Illawarra Range gets too near the sea, which destroys it as the river destroyed its predecessor.

While the rebel range has been curving eastward, the legitimate range has been keeping steadily to the north, flanked on the west by the Murrumbidgee, which having risen in the second V runs north to Yass (2,221) and then turns westward by Gundagai (1,488)—the head of its navigation—to Wagga Wagga (5,108). Cooma (1,938) is the chief town of Manero Plains, and a railway runs thence by Queanbeyan (1,219) to Goulburn (10,613), which is east of the range, abreast of Yass, and within the immediate influence of Sydney.

*to Liver-
pool Range,*

Near Goulburn the main range wavers in its purpose and turns a little seaward. As it turns, its original direction is prolonged by a runner which divides the Lachlan from the Macquarie.¹ The Macquarie, rising as it does in the acute angle formed by runner and range, is compelled to travel north. After a while the main range changes its mind and holds on its former course in spite of its increasing distance from the sea. Again it repents and strays seaward (here the Cudgegong rises): again it stiffens itself and returns to its old ways, detaching Hunter Range, which continues seaward,

¹ Macquarie Range.

and at last its penitent pilgrimage—of 90 miles—straight towards the sea begins. This humiliating stage is called Liverpool Range. As the mountain mass solemnly wheels round towards the east, two impenitents break off from it at a tangent towards the north,¹ flanked on their east by the Conadilly and Peel, which run north for the same reason that the Macquarie ran north. Because the independent mountains are true to their goal, the rivers are false to theirs; and when the mountains pay the inevitable price of their independence and lose themselves in the plains, the rivers regain their lost direction, merge in one another, and with mutually augmented force sweep round to the west, and become the river Darling.

When the main range finds itself almost as near the sea as it was at Goulburn, it makes two half-turns to the north, and at each half-turn two scions, Royal Mount and Hastings Range, desert it and continue seaward—Manning and Hastings rivers running by their sides—but faint and fail half-way. At the second half-turn an overzealous follower turns too far and wanders off north-west into space.² Between it and its leader the Gwydir springs into life, runs north-west, and it, like its fellows, is transformed into the Darling. Hunter River—the only long straight river of the east coast of Australia³—waters the oblong valley shut in by the Hunter, 'main', Liverpool, and Royal Mount ranges. Liverpool Plains lie about the Conadilly, but Liverpool Plains District includes the Peel and other affluents of the Namoi. The New England District begins with the Gwydir and overlaps the east side of the main range, which now resumes its northward course, assumes a new name, and is christened New England; but repeats its old error, starting 70 miles, and after 200 miles' journey ending 100 miles from

¹ Warrumbungle and Peel ranges.

² Nandewar Range.

³ I include its principal western affluent, the Goulburn.

the sea. Conscience-stricken it makes two half-turns to the east, and on each occasion an unconscientious disciple refuses to follow his master, and hurries northward to his doom. When 70 miles or so from the sea it makes a whole turn to the north, whereat one over-conscientious disciple defies it, and for the first time in all this journey of 600 miles runs boldly and with head erect to the very coast.¹ Where the conscientious master and unconscientious disciples parted company the Dumaresq and Condamine rise, and they too start north under aliases when they mean some day to throw off their disguise and proclaim themselves the Darling. The over-conscientious defiant disciple is the Macpherson Range, which meets the sea at Point Danger and is part of the frontier between Queensland and New South Wales, and would form an ideal frontier if New South Wales and Queensland were merely coastal states; but in Australia the coastal range has always been regarded as a bridge, not as a partition wall, between east and west. The upland valley of the Condamine is the original Darling Downs; but the upland valley of the Dumaresq is included in the expression Darling Downs District. New England District belongs to New South Wales; Darling Downs District to Queensland.

*and
through Q.
to Warrego
Range,*

After passing Macpherson Range the main range does what it has never done before, and steers west of north; while the coast does what it has never done before, moving due north to Sandy Cape and then, as we have seen, north-westward. Opposite Sandy Cape the main range is already 300 miles away, and it is the coast which tries to correct the interval. Formerly the mountains conformed to the coast as it wandered east; now the coast conforms to the mountains as they wander west, but with indifferent success. When the mountains are 450 miles as the crow flies north-west of Macpherson Range, the sea is still 330 miles away. Meanwhile dissident after dissident leaves the mountain's right side

¹ Macpherson Range.

and struggles due north; first there is Cooyar Range, which is the north and west fence, even as Macpherson Range is the south fence of the Brisbane and Mary river systems. Next comes Dawes's Range, between which and Cooyar Range is the Burnett river system. These river systems are not wholly distinct from one another, for the Mary is a mere appendix to the Brisbane, and the Lower Burnett is co-ordinate with the Mary. Similarly the two ports Maryborough and Bundaberg are subordinate to Brisbane (119,428), which is the paramount port of these three districts. After Dawes's Range comes Drummond Range, and these two ranges enclose the Fitzroy, of which Rockhampton is the only port. The Fitzroy is fed from south, west, and north-west, by the Dawson, Comet, Nogoia, and Isaacs; which are partitioned off from one another by Expedition Range, Bucklands tableland, and Peak Downs in their upper reaches, and of which all, except the Dawson, are in their lower reaches fused in the Mackenzie. Gladstone is to Rockhampton as Maryborough is to Brisbane. Between Macpherson Range and the point 450 miles to the north-west to which we have come, the mountains never stretch one single semblance of an arm to the west. Briareus used to be ambidexter but is now right-armed. At the 450th mile something more like a tumour than an arm bulges out to the west and forms with the main range not a V but an inverted V. Warrego Range, as this excrescence is called, might plead as an apology for its originality that it is an accidental prolongation of Drummond Range, which at this point seems to pass through the main range. Whether this is so or not Warrego Range is the north boundary of the Darling river system, but not, as Mitchell thought, the southern boundary of the Carpentaria river system, and is the end of the first stage of our imaginary journey along the great dividing range of Queensland.

The second stage of the journey ends 300 miles further north. The mountain ridge is lower—about 1,500 feet *to Selwyn Kirby Range,*

s. m.—and more level. At the commencement of this stage the Belyando rises in a sequestered nook between the Drummond and main range, and joins the Burdekin in the north. If we add to these 300 miles, 200 miles borrowed from the third stage we have here the west wall of the Burdekin river system, of which Townsville is one of three possible ports. At the end of the second stage a second inverted V occurs on the west—as abruptly and inexcusably as Manero Range. It is the parting of the ways. Here a branch called Selwyn Range, Kirby Range, Barklay tableland, and the like—1,500 to 1,000 feet *s. m.*—diverges to the west, crosses Northern Territory (S.A.) about 200 miles from the sea, forms Denison Plains south of Kimberley District (W.A.), links these districts to northern Queensland, and then dies a natural but unknown death. North of it is a network of rivers, which flow into the Gulf of Carpentaria and the Indian Ocean. Between the Carpentarian Pacific and Warrego watersheds the Barcoo, Thomson, Diamantina, and Georgina rise and flow south-westward towards a goal which they are not destined to attain. The nearest Pacific port to the north wall of the Barcoo river system is Townsville; the nearest Pacific port to its south wall is Rockhampton; the ports on the Gulf of Carpentaria may be disregarded for reasons which have already been discussed; therefore Townsville and Rockhampton are its only possible ports.

Meanwhile the character of the country west of the great range has changed. Between Manero Range and Darling Downs successive tablelands are wedged in between the successive V-shaped ranges which have been described and slowly slope to the west as the dissenting range sinks and is absorbed. These tablelands are of the same stuff as the main range—are as old as Wales—and teem with mineral wealth. From Darling Downs to the point we have now reached there are no V's, no old rocks, nor metals on the west of the

range ; but all the country undulates. The best country is open and grassy, with soil of shale and sandstone ; and the worst country is scrubby or stony, and the stone is desert sandstone. Both formations are coeval with our chalk, and constitute the Queensland Downs ; and layers of the same material—thin as paper—are spread over the dead levels further south and constitute the western plain of New South Wales. Occasionally limestone varies the eternal monotony of sandstone.

The third stage, which takes us almost to Port Douglas—just north of Cairns—is 300 miles long, and for the first 80 miles *to Port Douglas,* it goes north instead of north-west ; then there is a fork, the western prong of which points north and is called Gregory Range ; but the eastern prong, which travels east of north—like the main range of New South Wales—represents the real range. After this split the west flank is once more divided into tableland and plain—the former when at its best is gold country, and the latter when at its worst is mangrove swamp. At the end of this stage the range is close to the east coast and not far from the west coast, for we have now arrived at Cape York Peninsula.

In the fourth or final stage, the eastern and western coasts *and Cape York.* opposite Cooktown are the skirts of the range which holds its way midway between coast and coast. Soon the coast-lines converge towards the true north ; then the mountain bows its head, its sides shrink and shrivel, desert sandstone chills and chokes it first on its left side, then on its brow, then on both its sides ; its lamp of life grows dim, flickers, and goes out. The life-history of the range might be written thus : it tried to serve two masters, its own northing instinct and the example of its attendant coast ; when these opposite inclinations were at last reconciled, the coasts were already two, they and the mountains became one, and both dwindled and died.

South of the Barrier Reef, the only capitals are first-rate

*Sydney
was chosen
for its
port,*

harbours, and the only first-rate harbours are capitals. The capitals also proved first-rate points from which to assail the interior; but the selectors knew nothing of this, looked only out to sea, and turned a blind eye inland. Port Jackson, in which Sydney (487,932) lies, was discovered by Captain Phillip almost without search. On his arrival in Botany Bay with his odd freight he disliked the place, went for two or three days' cruise to find a better, and hit on Sydney and Port Jackson. Had they been a few miles further off they would never have been discovered until too late. When he saw the deep winding entrance sheltered by sandstone rocks and the calm, many-dented inland sea within, and the site of Sydney nestling in one of the deepest and smoothest nooks—like some Holy of Holies—he thought he saw the finest harbour in the world, and his instinct was prophetic. That was why he settled in Sydney. Yet Sydney has other unique natural advantages of which no naval captain dreamed.

*but its
value is
also due to
local in-
dustries,
e.g. coal,
and rivers,*

The main range is of the usual slaty type, diversified with granitic outbursts, basaltic overflows, and all sorts of primary rocks. Its left and right arms belong to the same class, but on the coastal side early secondary stones clothe the bare slate; and the 'Hawkesbury sandstone', which monopolizes the coastal district between the Shoalhaven and Hunter, forms clothing of this kind. The early colonists bemoaned this invariable sandstone until they found that it concealed a rich store of coal. At present coal is worked underneath a suburb of Sydney at a depth of 3,000 feet, on the south of Sydney at Illawarra, in the west on the mountain crest at Katoomba (2,270), Lithgow (5,268), and Wallerawang (500), and above all in the north in Hunter Valley at Newcastle (54,992). As in our Black Country, iron sometimes accompanies coal. Newcastle exports not only its coal but its agricultural products, like an independent port. Sandstone is not propitious for agriculture, but basalt has fertilized Illawarra; and Hawkesbury floods have made Penrith (3,543),

Richmond (1,202), and Windsor (2,039); and its affluents have made Campbelltown (2,152), Camden (1,719), Mossvale (1,385), and Picton (1,053); the Hunter and its affluents have made Maitland (10,073), Singleton (2,872), Muswellbrook (1,710), Scone (1,145), and Morpeth (1,288); and lesser rivers have made Paramatta (12,561), and Liverpool (3,901) agricultural centres. Richmond and the last three towns are the heads of navigation of their respective rivers. Sydney has proved the centre of a charmed semicircle, destitute of gold but rich in coal and every form of rural wealth, although it was chosen for a totally different reason; and Sydney is much more than that.

Three railroads radiate from Sydney: one to the south-west by Goulburn and Yass to Murrumburrah (1,448), near Young (2,755), and thence by Cootamundra (2,424), and Junee (2,190), to Wagga Wagga on the Murrumbidgee, and to Albury (5,821) and Corowa (2,000), which are heads of navigation of the Murray; a second leads west by Wallerawang to Bathurst (9,223), Blayney (1,529) Orange (6,331), and Wellington (2,980); of which Orange is on the Lachlan and leads to Forbes (4,314), Parkes (3,180), and Condobolin (1,091), which are also on the Lachlan; and Wellington is on the Macquarie, and leads forward to Dubbo (3,412) and Warren (1,175) on the same river, and to Nyngan (1,155) on the Bogan, or backward to Gulgong (1,579), Mudgee (2,789), and Cudgegong (2,985) on an affluent of the Macquarie. But we must not attend to these backward ways at present. A third railroad leads by Newcastle to Murrurundi (1,235) and Quirindi (1,676) on Liverpool Plains, whence the traveller may descend the Namoi to Gunnedah (1,911), and Narrabri (2,286)—60 miles from Moree (2,339) on the Gwydir, and 80 miles from Walgett (750), which, though only a pastoral town, is in flood-time the head of navigation of the Darling; or he may cross to Tamworth (5,802) on the Peel, and the New England towns of Armidale (4,249), near Hillgrove

and to its being the starting point of three natural ways across the range to centres of wealth on or beyond the range,

(2,274), of Glen Innes (2,918), near Inverell (3,293), and Tingha (1,200), of Tenterfield (2,604), and Emmaville (1,000). The last five towns are tin towns, and the rest, or almost all the rest of the towns upon the summit or upon the western slope of the great range which have been named, are or have been gold towns. Outside the first semicircle there is a second semicircle which reaches to Tenterfield, Walgett, Nyngan, Condobolin, Wagga Wagga, Albury, and Cooma, and between the two semicircles the tableland is, or has been, strewn with gold, although gold was not first in time, and is not first in rank, among the riches of the tableland. Let us pause now for a few moments at the seven towns which dot the outer rim of the second semicircle.

In most countries railroads are artificial roads which cut knots instead of untying them. That is not the case in New South Wales. These three railway lines were the very three lines by which Hume went to Lake George, Wentworth and Oxley to Bathurst, and Bell to Newcastle, in the last days of the first epoch. The routes became roads, and in the next epoch, from Lake George Currie went to Cooma, and Hume and Mitchell to Wagga Wagga and Albury; from Bathurst Oxley went to Condobolin, and Sturt and Mitchell to Nyngan and Walgett, and from Newcastle Cunningham went to Tamworth and Tenterfield, and Mitchell to Narrabri, as though they were the ghosts of the mainroads and railroads that were to be. Speaking broadly, there are only three ways of escape for foot, horse or train from the valleys of Hawkesbury sandstone, and Sydney is the junction where these three ways unite.

*which are
far apart
and beyond
which are*

And there are no natural and only ways from any port in Australia which lead so inevitably and so simply to points so far apart. The postal distances from Sydney to the seven towns on the circumference of which Sydney is the hub vary from 260 to 480 miles. If a bird flew from Sydney round this ring and back again its aerial flight would accomplish

1,300 miles. Nor are any of these seven towns termini except Cooma; Albury is the two-thirds'-way house to Melbourne; Wagga Wagga, Condobolin, Nyngan, and Walgett, are on the verge of the illimitable Western Plain, and Tenterfield is the gateway to Queensland. The long lines from Sydney to these extreme points are only avenues through which more distant vistas are discerned.

We will pursue the last thread first. At Glen Innes we enter tin country, south of which metals, other than gold, are rarely found upon the tableland. On going north along the coast from the Hunter, we pass the Manning, the Hastings, with Port Macquarie (1,171), the Macleay, with Kempsey (2,399), and Gladstone (1,171), the Nambucca, and the Bellingen, with Fernmount (1,220), all of which rivers flow from west to east and are short and hard to cross. We are now abreast of tin land and find for the first time a river which is antler-shaped. Every big coastal river-valley between this point and Cardwell, some 900 miles north, has the same shape. The river-mouth is where the deer's mouth would be, and the antlers, spread far and wide, are many branched, and sometimes a secondary river-valley takes shelter beneath one of the outstretched antlers. In this case the primary river is the Clarence, with Grafton (5,148), Ulmarra (1,722), and Maclean (1,350), and the secondary river, which is overshadowed by the northern antler of its primary, is the Richmond, with Lismore (4,397), Casino (1,949), and Ballina (1,819). The Clarence District ushers in a new kind of tree—the Moreton Bay Pine—as Dr. Lang noted long ago,¹ a new industry—sugar—and a new kind of coal drawn from strata a little later than those which bear coal near Sydney. The 'Dorrigo' Valley on the southern antler is volcanic, and began to attract agriculturists in 1905. By nature the whole district is far from road or rail, and is semi-detached; but Lismore is now and Grafton will soon

(1) north-
ern dis-
tricts more
or less
detached
from
N.S.W.,
e.g. the
Clarence
district,

¹ *Ante*, part i. p. 179.

be, in defiance of nature, connected by rail with Tweed River and Tweed River with Brisbane.

and the Q. districts of Darling Downs and Brisbane ; When we pass further north we are in a country which seems wholly detached from Sydney, but the semi-detached and wholly-detached districts are strangely alike. The table-land is still tin land ; the coast grows sugar, and has Clarence, or, as it is now called, Burrum, and Ipswich coal. Indeed, Ipswich coal overlaps the range and encroaches on the Darling Downs. On the coast the Mary is to the Brisbane as the Richmond is to the Clarence. Here too we find the first easy route over the range since leaving Newcastle, and the best natural port since leaving Sydney. Accordingly it is here that a new capital is fixed.

Brisbane (119,428) is situated 25 miles up-stream on the deep tortuous river Brisbane, which debouches into a large land-locked bay called Moreton Bay ; and 24 miles further up the same river¹ is Ipswich (15,246), the coal town, which is to Brisbane what Newcastle is to Sydney. In Brisbane two railways meet, the first leading by one of several possible ways past Gympie (14,431), the gold town, Maryborough, Bundaberg, and Gladstone to Rockhampton, and the other by Ipswich over one of two possible passes to Toowoomba (14,600) and Drayton (1,000) on Darling Downs. There it meets the railway from New England, which has in the meantime touched at Stanthorpe (735), the tin town, Warwick (4,225), and Allora (1,086), and now continues along the west crest of the watershed to Dalby (1,416), Roma (2,371), Mitchell (376) on the Maranoa, Charleville (1,419) on the Upper and Cunnamulla (991) on the Lower Warrego. The Maranoa and Warrego lead into the Darling from the north ; and on the Darling, 150 miles from Cunnamulla, the western railways of New South Wales end. Charleville and Cunnamulla are not only in touch with New South Wales, but with the only western tributaries of the Darling, the Paroo—on

¹ But called here the Bremer.

which are Wanaaring (120) (N.S.W.), Hungerford (107), and Eulo (191)—and the Bulloo, with Adavale (293) and Thargomindah (316), an opal town, as its capitals. The Paroo and Bulloo are called tributaries of the Darling, but their tribute has never yet reached their liege lord. It is always spilt on the way.

Looked at from the point of view of Sydney, Brisbane fulfils two functions. First, it is a side door through which the down lands on the northern affluents of the Darling send part of their goods to market. The Darling as a whole is the sphere of New South Wales, and Sydney is its only key. Brisbane supplements Sydney in some of these remoter down lands by providing an alternative by-port. Secondly, as sole indisputable sovereign of the coastal districts through which the Brisbane, Mary, and Burnett flow, Brisbane intervenes between the sphere with which Sydney has everything to do, and that with which Sydney has nothing to do.

The northern sphere to which the influence of Sydney does not extend begins at Rockhampton. Its coastal sphere is cut off from New South Wales by the exclusive sphere of Brisbane, and its western railway penetrates a new river system. On the west of Rockhampton is Mount Morgan (8,486), rich in gold and copper, and a T-shaped railroad to Emerald (1,015) in the middle, to Springsure (443) on the south, and to Clermont (1,955) on Peak Downs on the north. Hitherto the railroad is in its own river-valley, of whose antlers the T is a rude drawing. It now leaves the Fitzroy for the Belyando, which belongs to the Burdekin, and between the Fitzroy and Burdekin there is this affinity. There are coal-seams on Peak Downs, and on the Dawson and Mackenzie close by the railroad, which are the same as those on the Burdekin, and correspond not to the Clarence, Burrum and Ipswich but to the Sydney coal-seams. When the railroad leaves the Belyando it crosses the great range 300 miles due west of its starting-point to Alice and

*which lead
to wholly
detached
districts,
e. g. Rock-
hampton,*

and Townsville, which are joint capitals of the Barcoo district,

Barcaldine (1,476) near the sources of the Barcoo, and Longreach (1,690) on the Thomson, 150 miles below its source. Townsville, too, is the starting-point of a railway which strikes west—passes two gold towns, Charters Towers (20,976) and Ravenswood (2,508 *circa*)—hits the main range at the critical spot where Landsborough hit it, and where it splits in two. Near this spot is Hughenden (1,659), the railway junction for Richmond on the Flinders, and Winton (1,030) on the Diamantina. Hughenden is 80 miles from Richmond, which is 120 miles from Winton, which is 100 miles from Longreach, which is 80 miles from Barcaldine; and in this district space is plentiful and men are scarce, so that 100 miles count for as little as 10 miles, and ten men for as many as 100 men elsewhere. The railroads of Townsville and Rockhampton almost meet where the Barcoo, Thomson, and Diamantina start south-westward, the Flinders northward, and the affluents of the Burdekin eastward. The triple watershed is flattened out, and the inverted V to which we have referred appeals more to the eye of reason than to the eye of sense. Imagination is required to appreciate its crucial importance.

West and south-west of Richmond, Winton, Longreach, and Barcaldine, 'runs' are sometimes 3,000 square miles, distances are telescopic and towns microscopic. Descending the Barcoo for 500 odd miles we pass Isisford (350), Windorah (99), leaving Blackall (750), Tambo (500), and the immeasurable parvitudes of Eromanga and other opal towns on our left. Ascending the Thomson 300 odd miles from Cooper's Creek, where it joins the Barcoo, we pass Jundah (123), Arrilalah (135), Ilfracombe (249), Scarburry—where there is a store and inn—Muttaborra (353), and Aramac (361). Scarburry is marked on maps whose scale is 200 miles to the inch, without displacing larger towns. The 400-mile course of the Diamantina is still more lonely; and 400 miles west of Hughenden, Camooweal (120) stands in

solitary state at the head of the Georgina, Boulia (101) in its middle, and Birdsville (52) near its foot, where it ineffectually tries to join the Diamantina. There, four rivers—Barcoo, Thomson, Diamantina, and Georgina—converge ironically towards the illimitable inane: the further they go the weaker they grow; and when at its weakest each divides its force by multiplying its channels, so that when the channels meet, it is sometimes impossible to say which belongs to which river. These rivers are mostly dry but occasionally form an indistinguishable flood.

On the Carpentaria side the rivers gain volume as they approach the sea; and there are two inferior ports—Burketown (310) on the Albert, and Normanton (838) on the Norman—some 30 or 50 miles up their respective rivers; two gold towns, Cloncurry (239), 200 miles or so from Burketown or Hughenden, and Croydon (2,984) near Normanton; and there are many large cattle runs where the blacks are still a danger. This district is still only half attached to the Townsville-Rockhampton district. Herberton (2,806), the tin town, Chillagoe (723), the copper town, and the gold towns of Maytown (698), Palmer (741), and Coen (199), are wholly attached to a separate district dominated by Cooktown and Cairns. Georgetown (422), and some minor towns on the Gilbert and Etheridge gold-fields owe divided allegiance to Townsville, Normanton, and Cairns.

In following the northern clue we have insensibly wandered throughout the length and breadth of Queensland, and must now retrace our steps to New South Wales, on whose outer verge we left other clues dangling in mid-air at Corowa, Wagga Wagga, Condobolin, Nyngan, and Walgett. Queensland is twice the size of New South Wales, which is only as large as three Great Britains, one Ireland, and a bit. Yet small though New South Wales is we have hitherto only described its lesser or eastern half; its western half comprises the Western Plain. On the eastern half, which is

and of the Carpentarian district of which Cairns and Cooktown are also joint capitals;

(2) West New South Wales,

151,000 square miles, 1,265,000 people dwell. On the western half, which is 160,000 square miles, 90,000 people—or one-fifteenth of the people—dwell. The western half is large, lonely, level, dry, and bare.

*beyond the
slopes of
the table-
land,*

In a sense we have a foretaste of the Western Plain east of Walgett, where the Gwydir and Namoi tear themselves into ribbands when about to join the Darling—after the fashion of the Barcoo; for there there are five counties in which each person has two square miles to himself. Again there is this essential distinction between tableland and plain. The former is a raised causeway or gallery along which men, beasts, and things must travel if they go from Manero Range to Cooktown—descending if they wish on the closed coastal compartments on the right, or on the indivisible down lands and plains upon their left. On the plains there is no one roadway, for everything is arid and even, and roads lie everywhere or nowhere. But this essential distinction is blurred upon some of the slopes between tableland and plain. One instance will illustrate what is meant. Cootamundra is a junction from which a railroad starts arbitrarily to the watershed between the Murrumbidgee and Lachlan at Temora (1,603), and Wyalong (5,250 *circa*) on the western slope. In 1893 Wyalong was mallee scrub, but gold was found underneath the earth, and water more precious than gold; so the railway went there as straight as any West Plain railway, and men took the place of underwood. But the route to Wyalong is a mere by-route, and there are other by-routes on the mountain slopes which are quite as accidental and capricious as the route to Wyalong; and these by-routes are of no importance at all, except when they are turned into cross routes, and supersede the natural cross routes of early history—such as the Cookbundoon and Pandora Passes. We have neither space nor inclination to discuss cross routes; it is enough for us that all the natural main routes upon the tableland maintain their

supreme significance, and that on the plain—and only on the plain—all routes, both great and small are alike. Even this rule is not quite true unless we define the plain more narrowly than we have hitherto defined it. The Murray and the Murrumbidgee which flows into the Murray, flow all the year round, form natural highways, and introduce a different type of country. With them convention associates the Lachlan, which, like the Darling and all its tributaries, is apt to run dry, and when approaching its principal fitters away its feeble resources with the same fatal indecision as that which afflicts the Gwydir, Namoi, Macquarie, and the rest. The country between the Murray, Murrumbidgee, and their weak-kneed companion the Lachlan is called Riverina; is as big as Tasmania; has agriculture and in its southern part vines and timber; and is usually excepted, as we shall henceforth except it, from inclusion in the Western Plain. On the Western Plain, in the narrower and more usual sense, there are no perpetual rivers, no timber-trade nor agriculture, as in Riverina. It can be entered and crossed anywhere, but if it is entered by rail it is entered at Nyngan.

At Nyngan two railroads start north-west and west; straight as a die, for there are no obstacles in their way, the one to Bourke, with a branch to Brewarrina, and the other to a cul-de-sac in Cobar. If the reader will run his eye down the Darling from Walgett he will only detect six towns of importance: Brewarrina (683), Bourke (2,669), Wilcannia (935) towards which the railroad to Cobar points, Menindie (200 *ca.*), Pooncarie (70), and Wentworth (642). These towns do for west New South Wales what Winton, Longreach, Richmond, and Hughenden do for the western district of central Queensland. They are almost as populous, and some of them are almost on the same meridian as their northern antitypes. Further, Bourke is only 150 miles from Cunnamulla where the Brisbane-Charleville railway stops; so that from Wentworth to Hughenden there is a connected

*and north
of River-
ina,*

*e. g. the
towns on
the western
Darling,*

chain of small and scattered inland emporia 1,000 miles in length.

and Cobar, The other line goes direct to Cobar (3,371), which resembles Wyalong in its situation and industry, but its mines are chiefly copper, not gold. Next to Mount Lyell (T.), Cobar contains the richest Australasian copper-mines. The copper is concealed beneath low, almost imperceptible, slaty ridges, which run north and south from Cobar and Mount Boppy, through Gilgunnia and Nymagee (1,500 *ca.*) to Mount Hope (600 *ca.*) and Euabalong, 120 miles away. All these towns seem to climb down one and the same line of longitude. The nearest river to Cobar is the Bogan, eighty miles away; and as the slates are too near the surface of the soil to admit of artesian water, the people live on stored rain-water and the like.

and Broken Hill, On the other side of the Darling, which is about 140 miles west of Cobar, the plain slowly rises; and about 140 miles west of the Darling other slate rocks—a few hundred feet above the plain—climb up and enwreath another line of longitude; the southernmost belonging to the Barrier Range and the northernmost to the Grey Range. These ranges bound the basin of the Darling on the west and South Australia on the east. The Grey Range is continued north and joins the Warrego Range; to the south the Barrier Range sinks into the plain or the plain rises into the range, for high ground can easily be traced from the Barrier Range to Mount Lofty Range, and forms the source of affluents which make for the Lower Murray. The Grey Range contains decadent gold mines in Milparinka district (700 *ca.*) at Mount Browne and at Tibooburra (300 *ca.*). The Barrier Range contains the greatest of all Australasian silver-lead mines at Broken Hill (27,502), and Silverton (290). The Barrier Range District, though situated in New South Wales, deals almost exclusively with Adelaide, to which it is three times as near as it is to Sydney, and with which it is connected by rail.

Omitting mining districts—as well as Riverina—from the Western Plain, the latter contains 25,000 persons, or one person to every $5\frac{1}{2}$ square miles. In the Queensland districts watered by the Barcoo and its partners there are 15,000 persons to 195,000 square miles, or 13 square miles per person. These figures give some faint conception of the solitudes which may be felt in the vast sheep lands of Queensland and New South Wales. They are the necessary complement to the crowded hives at Sydney and at its assistant capitals; for here most of the wool is grown, which makes those ports big and busy. Not that men might not grow here too. Broken Hill is the largest non-capital town after Newcastle which we have hitherto encountered; and its inhabitants exceed in number all the pastoral inhabitants of the whole of the Western Plain. *and places where men are scarce,*

The Western Plain has three kinds of soil, light sandy red soil; black clay; and an alternation of sand hill and claypan. *the soil shallow,* The first arises from the decay of sandstone charged with iron, and mixed with shale: the second is silt, often basaltic silt, borne by water from the tableland and spread far and wide by flood; for even the Darling from time to time emulates the Nile. 'In 1864', wrote Mr. Parsons, 'the valley of the Darling for over 500 miles in length was an inland freshwater lake varying from ten to twenty miles in breadth.'¹ In normal times salt-bush—and sometimes after rain, grass—clothes both these kinds of soil; but in the worst times, to use Sturt's expression, the vegetable kingdom seems annihilated and the earth is hard, naked, and cracked. The third kind of soil exists in the north-west of New South Wales—is due to wind—and is almost worthless; yet even here 'the fall of an inch of rain will convert a desert into a flower garden.'²

Besides being occasional spendthrifts, the western rivers

¹ E. E. Morris, *Picturesque Australasia* (1889), iii, 508.

² J. D. Jacquet, *Broken Hill Lode*, p. 34.

*and the
rivers not
to be relied
on;*

are chronic misers, and hoard their riches in what seem underground cellars of sandstone. But the seeming cellars are really tunnels half full of rain-water which has poured in upon the pervious sandstones crowning the west crest of the great range and now underlying its lower slopes. A stored wealth of water is already there when the rivers contribute their quota: and it is not only there but it is already moving westward on a bottom of slate and granite, or dashing against invisible breakwaters of slate and granite like those which peer above the plain at Wyalong, Cobar, and the Barrier and Grey ranges. Where current meets current or some other obstacle there is friction, heat, and a desire to rise, to which the Artesian bore ministers. Subterranean geography is not an exact science, and we can only note that hidden rivers are running hard between Winton on the Diamantina and somewhere near Balranald on the Murrumbidgee; between Dolgelly near Moree and the Grey and Barrier ranges. But their courses are mysterious. At Dolgelly and Winton they are over 4,000 feet deep and they are nearly always below sea-level; sometimes they gather in caves fifty feet high, and sometimes they are diffused throughout the pores of porous stones. It is always certain that the miserly river loses what it secretes; but it is never certain that human art will bring back the buried treasure into general circulation.

*(3) and
Riverina
which is
half at-
tached to
Melbourne,*

We have now arrived at Riverina, the Australasian Mesopotamia, or land of the three rivers. West of Condobolin, towns are on the same scale as pastoral towns on the Western Plain, for, as we said, the Lachlan belongs by convention rather than by nature to Riverina. On the Murrumbidgee, the train from Cootamundra leads to Narrandera (2,255) and Hay (3,014); and Hay is a centre from which coaches go west to Balranald (741) on the Murrumbidgee, north to the Lachlan, and south to the Murray over plains of salt-bush where made roads are superfluous.

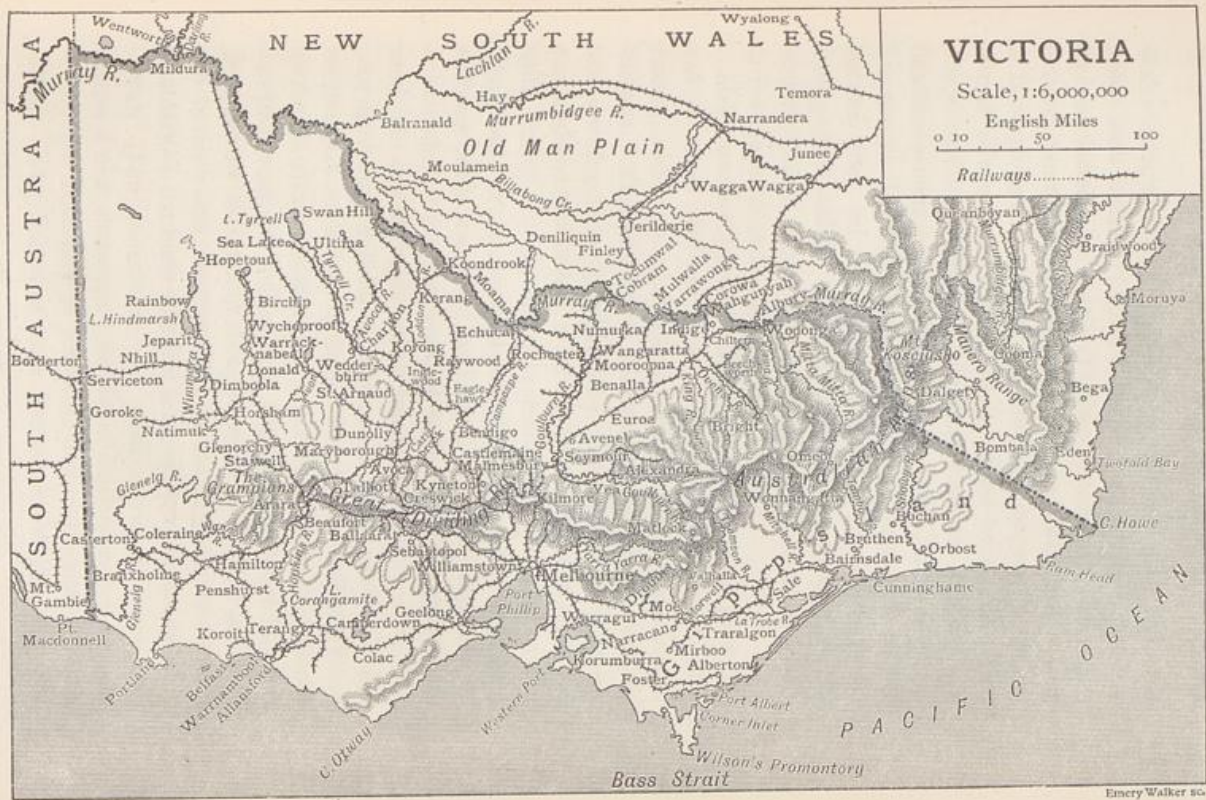
A resident at Hay writes that he had lived there five years and never seen grass. At a place called Tocumval, part of the Murray loses its way and joins the only northern tributary of the Murray; and this tributary joins the Murray 160 miles further west. The strayed follower, and the servant which leads it home again, boasts of four towns—Jerilderie (744), Finley (750), Deniliquin (2,645), and Moulamein (131). Deniliquin deals entirely, and the others deal partly, with Melbourne, which is twice as near as Sydney. The Murray towns are twin towns, one of the twins being Victorian and the other belonging to New South Wales. As we drift down stream we pass Corowa (2,000) (N.S.W.), and Wahgunyah (400) (V.); then Mulwalla (500) (N.S.W.), and Yarrawonga (1,500) (V.); then Tocumval (400) (N.S.W.) and Cobram (2,000) (V.); then Moama (928) (N.S.W.) and Echuca (3,970) (V.) As we go west Victorian ascendancy grows stronger; and the last towns, Koondrook (750) (V.) and Swan Hill (950) (V.), have no New South Wales equivalents. West of Riverina proper is Mildura (3,300) (V.) the irrigation colony on the Murray near Wentworth. Each of these seven Victorian towns is connected with Melbourne by railway; none of these four New South Wales towns are connected with Sydney by railway; consequently Melbourne is the predominant partner in the sphere subject to dual economic control. The reasons for some of these railroads are apparent. Melbourne is the first great natural port which exists south of Sydney, and does for the remote southern districts of New South Wales what Brisbane does for its remote northern districts. It plays the part of by-port and assistant capital. Its first task was to connect itself with its principal by road and rail. The great road and railway from Melbourne follows the track discovered by Hume (1824) and perfected by Bonney (1837); and crosses the Murray and its southern affluents—the Goulburn, Ovens, and Kiewa, and their affluents—at Hume's or Bonney's crossings. The

but Melbourne is much more than the port of Riverina or by-capital of N.S.W.

route to Albury is simply and solely the shortest cut to Sydney and cuts against the grain. From this great route—now a railroad—one small branch, to Wahgunyah, follows a deep lead of gold; another, to Yarrawonga, is a natural highway; and a third, to Cobram, follows the Goulburn so long as the Goulburn goes straight. Thus far the problem is simple. But the next three railways hail from Bendigo, following the valleys of the Campaspe and Loddon more or less, and the Mildura branch is one of many branches from Ballaarat; as though Ballaarat and Bendigo were centres. Granted that filial necessities created the line to Albury, and economic demands developed its three small branches, it is clear that we have in Bendigo and Ballaarat proofs that equally powerful forces were pulling Victorians away from Sydney towards other points of the compass. Riverina was not the only attraction; and no explanation is possible unless we regard Melbourne not as a sub-centre but as the centre of an independent State, which had its own work to do and its own way to go; and Ballaarat and Bendigo as signs and partners of its peculiar destiny.

Melbourne is the next first-class port south of Sydney,

Victoria (87,884 sq. miles) is a shade smaller than Great Britain. Melbourne, in the narrowest sense of the word, is situated a few miles up the Yarra Yarra, a river which is to the Brisbane as the Seine is to the London Thames. Vessels drawing 22 feet can now steam up to Melbourne. Formerly this was only possible for vessels drawing 9 feet. The ports for larger vessels are on the sea at Williamstown on the west and Port Melbourne on the east of the mouth of the Yarra Yarra. Williamstown is 9, Port Melbourne $2\frac{1}{2}$ miles from their acropolis, for at the present day both these ports are as much a part of Melbourne, in its wider sense, as Blackwall and Deptford are of London. Greater Melbourne (493,956) consists of three ports blended into one and the two seaports lie in the northernmost fold of Port Phillip, which is called Hobson's Bay. Between Cape Howe, where New South



Emery Walker sc.

VI(2)

To face p. 50



Wales ends, and Port Phillip there are only three harbours which look inviting. First, there is a chain of freshwater lagoons formed by rivers—Tambo, Mitchell and Latrobe; but the channel between lagoons and sea was until a year or two ago narrow, choked with sand, and impracticable. A second refuge for mariners was provided by Corner Inlet, which cuts into Wilson's Promontory where most of the mountains mass together before they cross Bass's Strait to Tasmania. Until a year or two ago these ports were useless because they led nowhither. Western Port, which is the third port, is shallow, sandy, and treacherous, a mere parody of Port Phillip, which, now that it is buoyed, is second only to Port Jackson as a *statio tulissima nautis*.

Melbourne is the nearest seaside place to Riverina (N.S.W.) and is about half-way between Cape Howe which is the eastern, and long. 141° which is the western, boundary of Victoria. The meridian of Melbourne also divides Victoria into a wilder and a gentler half. The wilder half is on the east and the gentler half is on the west. Rugged mountain limbs, hirsute with gigantic trees and riven by steep clefts, make Gippsland—as the country south of the Victorian main range and east of the sources of the Latrobe is called—inaccessible. A watershed barely 500 feet high leads from this region westward into the lowlands which surround Western Port with poor sandstone, forbidding swamp, and some scrub. These lowlands are on their north divided from the upper Yarra Yarra by the Dandenong Ridge, which carries a whiff of Gippsland to within sight of Melbourne. West of Melbourne a complete change occurs and there are open undulating plains of rich basalt which continue south of the range to the western boundary of the State with few interruptions, except at Cape Otway. The mountains and their northern rivers also assume a new character. At Mount Kosciusko, just beyond the eastern boundary of Victoria, they have attained their climax. The Victorian coda begins fortissimo. On the

*and also
divides Vic-
toria into
two equal
halves,*

north of the range the Mitta Mitta and Kiewa retain the nature of mountain torrents almost until they join the Murray at Albury. Further west the Ovens is turbid and flanked by mountains on the east. Still further west the King is clearer and its valleys larger. The Kiewa, Ovens, King, and Goulburn rise close to one another; but, except near its sources, the Goulburn threads wide plains on its way to Echuca, which is due north of Melbourne. The mountains display a similar diminuendo, and after the sources of the Goulburn are past their summits rarely exceed 3,000 feet; spurs and gorges are absent; and the Campaspe, which flows to Echuca, the Loddon, which flows to Swan Hill, and the Avoca and Wimmera, which flow into nowhere, rise amid tame surroundings, and meander over valleys which become more and more indistinguishable from plains the further west and north they go. Indeed in one place west of the Loddon a thing called Avon-Richardson—like some fluid Melchisedek—flows from nowhere into nowhere. A hundred miles from the western border of the State the mountains are once more nearly 4,000 feet, are abrupt, and are called 'the Grampians'. From the Grampians affluents of the Wimmera trickle north—the Glenelg starts west and turns south, and the Wannon goes straight south. The long career of the great range has suddenly stopped. The end of the Victorian finale has been reached. The Grampians are its last loud emphatic note.

*and is the
starting-
point of five
great ways,*

Melbourne concentrates and commands Victoria by means of five great main roads which are also railroads. Put Port Phillip in the hollow of your left hand! The five roads are like five fingers, all of which, except the little finger, touch the extremities of the State. Subsequent addition and multiplication has complicated but not obscured this essential fact.

*of the east-
ern way,*

The first road leads east by Drouin (700) and Warragul (1,634), which are in Gippsland, to Moe (500) and Morwell (800), which is north of and near the coal towns of Narra-

can (200) and Mirboo (700); to Traralgon (1,485), which is south of and near the gold town of Walhalla (2,804), and to Sale (3,462) and Bairnsdale (3,000) on the lagoons. Along this route Strzelecki struggled at the rate of two or three miles a day for twenty-six days in 1840. Shortly afterwards Scotchmen settled on the lagoons, and Strzelecki's route was a matter of vital interest to them. It was their link with life, and was also a natural way, lying as it does on a low strip of land beneath which the mountains dip on their way to Wilson's Promontory. So it became first a road, then a railway. Neither road nor rail were made for the sake of gold, nor were they made for the sake of coal, which is not so good here as it is further south.

During the earlier part of its course another more recent railway supplements the first railway, and acts like shadow towards substance, but turns south by Kooweerup swamp, which is now drained, passes a few small villages by Western Port, reaches Korumburra (4,000), Jumbunna (1,000), and Outtrim (3,000), which is the only good coal district in Victoria, and goes by Foster (450), where there has been gold, to Alberton (500) and Port Albert (230), on Corner Inlet. This new railway may be described as carboniferous in its origin as well as effect, Victorian coal having begun to be important shortly after its completion (1893-4).

But to return to the first railway—with which the new upstart must not be confused—east of Bairnsdale, where it ends, Cunninghame (700), where there is an artificial navigable exit from the lagoons, Bruthen (400), Buchan (250), and Orbost (500) count as large towns. Here and in Wonnangatta county, which sits astride of the great range, we are in lonely forests and ravines, and each man has a square mile to himself. On or just north of the watershed Omeo (900), at the head of the Mitta Mitta, where Macmillan and Strzelecki crossed, and Matlock (450), which stands 4,561 feet *s. m.* at the head of the Goulburn, possess romantic rather than

practical interest. The great natural eastern way stops 200 miles from Melbourne, at the lagoons; beyond and above it there is some gold and much beauty; below there is much coal of the Ipswich variety, and some beauty; all along it are cattle and crops; but these are effects only: its one cause was the yearning of Melbourne towards her absent child.

*Of the way
to Albury,
NNE.,*

The second way is the great way to Albury and so to Sydney. Its Victorian section points north-north-east; is 187 miles long; and its *raison d'être* is the yearning of the child towards its mother. In order to respond to the promptings of human nature it runs counter to nature in another sense, and crosses instead of following streams. It passes Kilmore (1,922), Seymour (2,440), Avenel (450), Euroa (1,250), Benalla (3,000), Wangaratta (2,621), Chiltern (1,700), and Wodonga (862), carefully avoiding mines and minerals except at Chiltern. There are four small branch ways: one up the Goulburn to Yea (600) and Alexandra (600)—old second-rate gold towns; a second down the Goulburn by Mooropna (1,246), Numurka (1,011), to Shepparton (3,200), and so to Cobram (2,000) on the Murray—all of them non-mineral towns; a third along a natural highway to Yarrawonga on the Murray, where there are vines not mines; and a fourth up the Ovens to Bright (900), Yackandandah (800), and Beechworth (3,000), and northward near Chiltern and Indigo (1,500) to Rutherglen (1,748), and Wahgunyah (400), on the Murray. Here at last we have genuine gold country. Mines account for one branch and part of another, but have nothing to do with the trunk road-and-railway from Melbourne to Albury.

*Of the way
to Riverina
via Bendigo,
N.,*

Thirdly, a main road-and-railway goes north by Woodend (1,000) to Kyneton (3,371) on the Campaspe. There the road forks, and either follows the Campaspe to Rochester (1,150) and Echuca (3,970)—the principal port on the Murray—or else crosses by Malmesbury (1,221) to the Loddon, which it follows to its mouth at Swan Hill (915);

Echuca and Swan Hill being 167 miles and 214 miles respectively from Melbourne. Not so the railway, which goes on from Malmesbury to Forest Creek (1,229), Castlemaine (5,703), and Maldon (2,800), and then to Bendigo (30,774) and Eaglehawk (8,367). It avoids the valleys and pursues the ridge, because ever since Kyneton it has been on the trail of gold and has followed the line, not of least resistance, but of most attraction. Kyneton, Malmesbury, Forest Creek, Castlemaine, and Maldon are of the usual size of purely mineral towns, for instance, in New Zealand and Tasmania. Eaglehawk equals Mount Morgan, and Bendigo exceeds Broken Hill in size and far exceeds it in civic dignity. Broken Hill is merely mineral; but Bendigo is the first great inland town which we have encountered in Australasia; and these towns—once a mere string of miners' camps 54 miles long—exhibit the varied life and influence of old towns. The string pointed due north, and due north the railroad goes, then it splits into three yarns. One descends the Campaspe and joins the road and goes to Echuca; gold lures a second to Raywood (461), whence it continues through Kerang on the Loddon, either to Koondrook on the Murray, or by the side of the old road to Swan Hill on the Murray; and a third is drawn towards gold-fields at Inglewood (1,320), Korong (300), and Wedderburn (1,400), and wanders vaguely on to Charlton (1,195) on the Avoca, to Wycheproof (600), Sealake (150), and Ultima. The Lower Loddon and Avoca are already in the plain; and the citizens of the plain are busily engaged in bringing water from afar and transforming mallee into wheat-fields. It is slow work, and the continuations of railroads which assist in it are always continued in our next.

The fourth road had two starting-points. In the remote past—that is to say fifty or sixty years ago—a road went from Geelong (23,338), an excellent port in the south-west

*Of the way
to Mildura
and Ser-
viceton via*

*Ballaarat,
NW.
and
NNW.,*

of Port Phillip, to what is now Ballaarat (43,823) and its satellites Sebastopol (2,969) and Buninyong (1,292). It was then a branch road, for the chief road, half as long again, went thither from Melbourne direct. From Ballaarat this one road with two beginnings went along the north edge of the main range, then along the Wimmera to Glenorchy (219) and Horsham (2,724), and the Wimmera at these latitudes is as arid as the Loddon at the latitudes which we have just left. Then gold was found at Ballaarat, Creswick-and-Allendale (4,660), Clunes (2,426), Talbot-and-Amherst (1,405), Maryborough (5,622), Carisbrook (1,236), Majorca (719), Dunolly (1,384), and still further north. Immediately, railroads sprang into existence, not from Melbourne direct, but from Melbourne to Geelong, and Geelong to Ballaarat. Thenceforth the madding crowd used Geelong as the only starting-point for the way to the north-west. Beyond Ballaarat the magnetism of gold drew the iron way to the right of the old roadway through the long series of gold towns which have been named; and this line has also been growing year by year, and now passes through St. Arnaud (3,656), last of the mineral towns, to Donald (1,000), Birchip (600), and Mildura (3,300) on the Murray, 370 miles away. Next, west-north-west of Ballaarat the gold of Beaufort (1,100), Ararat (3,580), and Stawell (5,318) conjured a second branch railway into being, which goes from Ballaarat along the left of the old road and of the range, and rejoins the old road when the mineral sphere has ended at Glenorchy and Horsham. This railway has now been prolonged by Dimboola (600), Murtoa (720), and Nhill (1,300), to Serviceton (156) on the border 286 miles away, and so to Adelaide, and sends out branches to Warracknabeal (2,500) and Hopetoun (400), to Natimuk (400) and Goroke (250), and to Jeparit (248) and Rainbow on salt-lake Hindmarsh. In these parts of the country very few miles intervene between the mountains and the plains where miners are

not, but only Fausts who plough sands, and missionaries of this world who baptize the soil with dammed water and convert scrubdom. But to return to the ganglion from which these fibres branch, Ballaarat is secondary starting-point for the west-north-west, as Bendigo is for the north-north-west. But Ballaarat is greater than Bendigo; it is larger in its numbers, fuller in its life, and has left its *jeunesse dorée* further behind it. It is the most conspicuous example in Australasia of an inland semi-capital like Birmingham, Johannesburg, and Leipzig. Some fifteen years ago a railroad was built direct to Ballaarat from Melbourne, and thenceforth Geelong ceased to be its chief port, and Melbourne once more became the key to the west-north-west.

Geelong had always been the place from or through which lay the way to the west, although even here accident once introduced a rival route and then restored the old route. The western way is unlike the three northern ways. Those ways led to three or more fields of the cloth of gold. The cloth has long since been removed and the cream skimmed; but reefs are still worked at Bendigo—some 3,900 feet below the earth—at Ballaarat, Beechworth, Stawell, and Ararat; and deep leads at Rutherglen, Raywood, Creswick, and Maryborough. There are not and never were any golden apples to be picked up by those who raced westward. A homing instinct created the north-eastern way; gold was the loadstone of the other northern ways; but the way to the west, like the way to the east, was built in order to keep the detached ports, Portland (2,185), Belfast (1,990), and Warrnambool (6,404), in touch with the capital. It will be remembered that the north-western roads from Melbourne and Geelong—after Ballaarat—avoided the south side of the range. The country south of the range is watered by the Hopkins and its affluents, which rise near Ballaarat and Ararat and flow into the sea at Warrnambool, and by the Glenelg and the affluents of the Glenelg, to whose mouth

and of the way to Portland and Hamilton, W.

Portland is the nearest port. Between Warrnambool and Port Phillip there are no ports, and on land the district round Cape Otway is woody and hilly and of little use. The district north of Cape Otway District is open, undulating, and diversified with dead, isolated craters, filled with wood or water. Its largest sheet of water is called Lake Corangamite, is salt, and is probably of volcanic origin. Except for the closed crater-cones—which like those around Auckland are usually 500–600 feet above the surrounding land—its plains slope gradually from Ballarat, Beaufort, and Ararat, which are respectively 1,437, 1,272, and 1,028 feet above sea-level—to the south and to the west. The old roadway went either to the south or to the north of Lake Corangamite, the former by Colac (2,817), Camperdown (2,000), Terang (1,800), to the three ports and their satellites, Allansford (900) and Koroit (1,684); and the latter by Penshurst (750) and other forgotten villages to Hamilton (4,024), the inland metropolis of the pastoral and agricultural districts out west. The former road is now a railway. The latter road has for long been overshadowed by the west-north-western railway, which, unlike the west-north-western roadway, encroached upon this district, and sent out a branch line from Ararat to Hamilton, Branxholme (450), and Portland, with branch-branches to Coleraine (1,050) and Casterton (1,250). But here we are 215 miles from Melbourne, close by the border of Victoria, and the country is fertile unto this last. Fifty miles north at Goroke, the country is still agricultural. Forty miles further north is Serviceton, where the country is barren, and through which the railroad between Adelaide and Melbourne passes. A little further north we come to a seventy-mile stretch of bad west-plain country, where each man has eleven square miles to himself—which is almost as bad as in the Barcoo district of Queensland—and then a ten-mile stretch of better west-plain country where each

man has three miles to himself, which is almost as bad as on the Western Plain of New South Wales.

Victoria is extraordinarily compact and centralized. In the far south-east and the far north-west it has vacant spaces, but elsewhere life is crowded. From end to end all ways converge on Melbourne. Port Phillip is the handle of the fan. The five 'brins' had their separate histories: different accidents directed them hither and thither; yet east balances west, the three northern balance one another in importance and interest, and all five maintain the vivid distinctness which they possessed, for instance, in the 'Digger's Map of 1853'. The curious part played by Geelong, at one time supplanting and at another time supplanted; the growth of cross-routes—for instance, through the gold towns of Avoca (1,100), Daylesford (3,384), Heathcote (1,090), and Tarnagulla (729); and the existence of doubled routes and by-routes, cannot blind even a superficial observer to the beautiful symmetry and unity of which Victoria and Melbourne are examples. Indeed, he is much more likely to ignore the one obvious blot upon the perfect harmony of the picture.

It, too, is unfinished on the west. What is the meaning of these volcanic cones? Of these plains of basalt contracting to the west and expanding to the east? Where does the desolate north-west lead to? Is the Murray, which has now received its last important tributary, going to end, as it lived, gloriously? In the case of Victoria, as in the cases of New South Wales and Queensland, there are unsolved problems on the west; and South Australia contains the missing secret. It is the mission of South Australia to complete the serial and round off the imperfections of the preceding numbers.

'The garden of South Australia', as the Gambier district is called, adjoins the south-west corner of Victoria. It is as large as Lancashire, half as populous as Rutlandshire, and has one capital—Mount Gambier (3,162), and two ports—

Victoria is compact,

but is unfinished on the west,

where the volcanic Gambier District, S.A.,

Macdonnell (278) and Beachport (228). Its mountains, Gambier, Schank, Burr, and Leake, are extinct volcanoes; and the people of the capital draw their water from what is either a crater or a miniature Taupo; and it is here that we have the apex of the volcanic lines which spread out westwards like a fan until their power is spent somewhere near the meridian of Melbourne. This is the spot from which virtue went out over western Victoria. The beginning of the volcanic area is also the end of an area of limestone and lagoons.

*and
Murray
Limestone
district,*

The country rock around Mount Gambier is limestone, and the soil rings hollow, for beneath it there are caves with aisles like cathedral aisles and entrances like wombats' burrows, and there are deep leads—not of gold but of water. Between Mount Gambier and Beachport there is a large lagoon of fresh water called Lake Bonney, which is fringed seawards by sand-spits, on which Pacific Islanders would have loved to dwell, and landwards by limestone ridges and boggy furrows which are parallel with the coast. The coast is scythe-shaped right up to the Murray mouth, 180 miles to the north; on the east there is the succession of sand-spit, of lagoon—usually fresh, of limestone ridge, and of boggy furrow—usually drained. Of this district Beachport Robe (394) and Kingston (700) are western ports; Penola (590), Narracoorte (821), and Frances (200)¹ are eastern outposts; and Tantanoola (250), Millicent (733), Furner (400), Rendlesham (150), and Lucindale (99), which intervene between ports and outposts, occupy reclaimed marsh-lands. The old road from Adelaide to Melbourne lay through Penola and these wet lands.

*and other
types of
country
south of the
Murray
round it
off;*

Again, Frances half belongs to a third kind of district, where rich, red soil overlies limestone, and which is represented by Borderton (500) and Wolseley (300)—the termini, so far as South Australia is concerned, of the Adelaide-

¹ Includes district; figures from *Australasian Handbook* (1906).

Melbourne railway. Lastly, this railway passes through a fourth kind of district, called 'Ninety Mile Desert', as it crosses from the Murray to the frontier along the very track once frequented by the gold-hunters of Adelaide on their way to Bendigo. 'Ninety Mile Desert' extends right away to the Murray on the north, and is only a continuation of north-west Victoria, covered as it is with a light sandy loam and dense mallee. Including the volcanic sub-region there is one person to the square mile; excluding the volcanic sub-region there is one person to two square miles in the South Australian region betwixt the Murray, Victoria, and the sea. All this region is affected by the Lower Murray, which is the second of the lapsed legacies left by its Eastern neighbours, and of which South Australia is residuary legatee.

The Murray, as it descends from Mildura (V.) and Wentworth (N.S.W.), passes Renmark (905), a co-operative irrigation colony, and Pyap (74) on its lonely way to the great bend at Morgan (401). Here life revives on its right bank only, as the river flows past Blanchetown (38), Mannum (479), Murray Bridge (650), and Wellington (160) to its doom. After absorbing the choicest gifts of the great range, from the Grampians to Kosciusko, and from Kosciusko to the Warrego Range, and after a navigable course comparable to that of the Mississippi, it broadens out into an inane drivelling lagoon, called Lake Alexandrina, from which most of its water is slobbered out into the long chain of mere and lagoon which has been described; and the rest is spit out into the sea through a small crooked slit half choked with shifting sand. Milang (400) is the port of Lake Alexandrina; Goolwa (586) is the port of this apology for a mouth. Outside this pitiful anti-climax to a great career, Ports Elliott (334) and Victor (250) gather up such crumbs of commerce as may filter through from the Murray. The bulk of that commerce has been unshipped at Morgan or the river ports south of Morgan—as though this part of the

*then comes
the
Murray,*

Murray were part of an inland sea—and has gone to Adelaide.

*and then
Adelaide,*

The Murray, south of Morgan, is more barrier than link, and isolates the country on the west as though it were a peninsula. East and south of the Murray the country, though nearer to Adelaide in miles, seems like an appendix to Melbourne. West of the Murray, after the great bend, Adelaide sheds its exclusive influence; nor does it seem as though it were concluding what has gone before, for the Murray comes to no conclusion, but it seems like the beginning of something new.

*which is
not a port,*

Adelaide (162,094),¹ which is the new starting-point, is situated on the River Torrens, which is mouthless, and used to be crossed on stepping stones, $7\frac{1}{2}$ miles south of Port Adelaide, or about the distance that Christchurch is from Lyttelton. Port Adelaide is situated on a narrow salt creek, 9 miles south of its mouth, and can now accommodate ships drawing 21 to 22 feet of water.

*and which
is the
starting-
point of
five ways,*

Like Sydney, Adelaide has a range in its rear, 2,000 to 3,000 feet high, running north and south, and fairly rich in minerals; but the great range of Sydney is 100 miles, that of Adelaide or Lofty Range is 20 miles from home. Like Melbourne, Adelaide is the nucleus of five diverging roads; but each Melbourne road takes us from 150 to 300 miles without a check; almost all Adelaide roads pull up short at the sea or the Murray, which is as bad as the sea, after 50 or 100 miles.

S., The south road goes by Glenelg (3,949) Noarlunga (170), and Willunga (422), to Yankalilla (700) on the west, or to Ports Victor and Elliott. In either case it ends.

SE., The south-east road has four branches which top the heights at Echunga (152), Hahndorf (496), Nairne (290), and Mount Barker (1,436), and descend the eastern slopes by Bull's Creek (142), Strathalbyn (868), Woodchester (370),

¹ Includes Port Adelaide, Glenelg, and suburbs.

and Callington (120), to Goolwa and Milang, where there are full stops, and to Wellington and Murray Bridge, where there are colons. For at Wellington the old roadway, and at Murray Bridge the new railway from Adelaide, begins a new life as it enters on the neutral province over which Melbourne and Adelaide cast their mingled shadows.

A third road goes east up the Torrens by Gumeracha *E.*, (255), Blumberg (219), Tungkillo (695),¹ and Palmer (500),¹ to Mannum on the Murray, and there it ends.

Fourthly, road and rail go due north to Gawler (7,000), *N.*, and then send out three branches. The first is a road which goes by Tanunda (724), Nuriootpa (330), and Truro (218), to Blanchetown (38), where the Murray once more bars the way, numbers dwindling as it nears its goal. A second branch for rail and road goes by Kapunda (1,805), once a great copper town, and Eudunda (481), to Morgan (401) on the Murray; and Morgan is the railway terminus. Both rail and road go along a third branch due north to Stockport (300), whence the great north road proceeds to Auburn (142), and Clare (788); and ten miles or so east of it the railway proceeds along the crest of the range to Kooringa (2,600), the site of what was once the famous copper-mine of Burra Burra. The Clare road and Kooringa railroad lead further. Here and here only there is no natural stop.

A fifth road follows the coast to Port Wakefield (561), *and N.W.*, at the head of St. Vincent's Gulf; and here branch roads and rails point westward. West of Gulf St. Vincent is Yorke's Peninsula, which does not own a single river; in the east of which are Clinton (223), Ardrossan (170), Stansbury (400),¹ and Edithburgh (409); inland are Maitland (295), Minlaton (250), Oaklands (250),¹ and Yorketown (376); and in the north the great copper towns of Wallaroo (3,500), Kadina (1,728), and Moonta (1,607). Wallaroo on Spencer's

¹ Includes district; figures from *Australasian Handbook* (1906).

Gulf is the port of this district. The Port Wakefield and Yorke's Peninsula roads converge in Wallaroo.

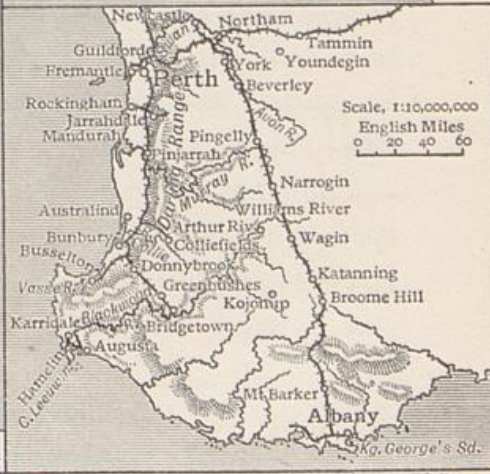
*of which
four are
very short
and one is
unending;*

A line drawn from Wallaroo to Clare, Kooringa, and Morgan, then down the Murray, round Kangaroo Island and Yorke's Peninsula to Wallaroo, encloses the two peninsulas and one island which Adelaide more immediately dominates. There is a littleness and finality about this country quite unlike anything elsewhere in Australia. Port Wakefield in the north, Yorke's Peninsula on the west, and the hills near Yankalilla are visible from Mount Lofty a few miles from Adelaide; and all the invisible cispontine towns which have been named can be reached by an Adelaide bicyclist on a summer's day. When Dutton wrote (1846), 'You may in your gig drive from north to south through the *province* without meeting with unsurmountable obstructions', he unconsciously identified South Australia with this snug, cosy tract. It is small and fertile throughout. Its villages are more numerous than populous. It is a 'fair field full of folk' fenced in by definite boundaries but for that fluted aperture on the north—ten miles wide—where the road does not stop at Clare nor the rail at Kooringa. Through this aperture the diminutive occupants of the neighbourhood of Adelaide soar aloft, and Dutton's province turns out to be the germ only of a province more than seventy times its size. A fanciful reader may recall the old child's story of the 'Fisherman and the Jin'—in the Arabian, not the Australian sense of that word. A fisherman caught 'a cucumber-shaped jar of yellow copper evidently full of something'—our jar is also of copper but double—opened it, and out came a shapeless figure, 'huge of bulk, whose crest touched the clouds while his feet were on the ground. His head was as a dome, his legs long as masts and his teeth were like large stones.' Then the fisherman asked; 'How didst thou fit into this bottle which would not hold thy hand, no, nor even thy feet? And how

WESTERN & SOUTH AUSTRALIA

Scale, 1:28,000,000
English Miles
0 50 100 200 300 400

Railways..... Telegraph lines.....



Emery Walker sc

STUDIOS METEOR
ALBERTUS

[Faint, illegible text, possibly bleed-through from the reverse side of the page]

came it to be large enough to contain the whole of thee?’

The Adelaide and Yorke's Peninsulas which began by being South Australia are now not even its feet; for South Australia has emerged from its confinement and stretched itself out across stony wastes to a dome-shaped peninsula 2,000 miles away without budging from where it was.

On Spencer's Gulf—north of Wallaroo—there are four ports: Ports Broughton (350), Pirie (7,983), Germein (367), and Augusta (2,340). Discontinuous ranges—at first called Hummock then Flinders Range—run northward along the coast, where they are a bar to roadways and agriculture. The principal way to the north is the railway, which continues along the crest of the real or continuous range from Kooringa to Petersburg (2,157), Orroroo (372), and Carrieton (236), whence it strikes west to Quorn (677) on the Flinders mock range and Port Augusta. East of the real range the northernmost thing that can be called river or brook is Burra Creek, which runs, or pretends to run, from Kooringa to Morgan. After that there are many starters but no runners. At Petersburg the range spilts into two. One branch, which can scarcely be called a range, goes 145 miles east to the Barrier Range, and forms the nominal watershed of the rivulets which start towards the Murray on the south or the salt-lakes on the north. Salt-bush pasturages—the deserted gold-fields of Teetulpa (50?) and Waukaringa (148)—and the branch railways from Petersburg to Cockburn (197) and Broken Hill (N.S.W.), are the most conspicuous features of this region. The other branch is a real range, which after passing Carrieton and after being reinforced by the Flinders mock range, divides salt lake from salt lake—Torrens from Frome, Frome from Blanche, and Blanche from Eyre—and while doing so it is called Flinders Range. Then it disappears.

Meanwhile, the great north road has left Clare for Glad- *or to Port*

*and the
latter leads
to Broken
Hill,
NNE.,*

*Augusta,
N.,*

stone (692), where it meets a branch railway from Petersburg via Crystal Brook (516) to Port Pirie—for Laura (1,200)¹—between which and Crystal Brook is the Beetaloo reservoir whence Port Pirie and Wallaroo derive their water—for Melrose (298), Beautiful Valley, and Port Augusta. From Clare to Laura the road is by the upper waters of the Broughton, which joins the sea at Port Broughton; at Melrose it is on Willochra Creek, which never joins any sea but when it flows flows into Lake Torrens—a salt lake 140 miles long and 25 miles broad—lying 40 to 180 miles north of Port Augusta. For Port Augusta is the threshold of the country where the rainfall is less than ten inches in the year, where mountains are rocky and barren, where agriculture ceases, and salt lakes prevail.

*then to salt
lakes,*

Central seas or lakes are the very life-blood of every other continent. The Australian salt lake is neither central sea nor lake, but a substitute for both, and it brings death, not life. Some salt lakes, like lakes Hindmarsh and Tyrrell (V.), are isolated accidents; others, like those on Yorke's Peninsula are small freaks; others, like lakes Torrens, Gairdner, and Amadeus, and other similar blots upon the map between Southern Australia and the seaboard of Western Australia, are salt Serbonian bogs—above sea-level but below the level of the surrounding plain—into which rivulets created without design, except to confute believers in design, discharge their filth, and above all the salt with which all running streams are charged. 'Non ragionam di lor.' But there is nothing trivial, mean, nor despicable about lakes Eyre, Hope, Gregory, Blanche, and Frome; for they are the grave of lost rivers which form a river system second only to that of the Murray. There, what is left of the Barcoo, Thomson, Diamantina and Georgina ends. Siccus River—aply so called—joins them from the south; when they are wet the Finke, Todd, Marshall, and Hay join them from the

¹ Includes district; figures from *Australasian Handbook* (1906).

northern tropics; and the Alberga joins them from the north-west after travelling from latitude 26, which is the frontier of Northern Territory. These rivers are so parched that they rarely run, much less end; and these sloughs of despond can neither be mended nor ended, for Lake Eyre, the chief offender, lies ninety feet or so below sea-level. It has been called the 'dead heart of Australia'.

After leaving Port Augusta, which is 259 miles by rail and about 200 miles by road from Adelaide, the railway starts on its northern pilgrimage, east of Lake Torrens and those salt lakes which are the result of imperfect creation, and west of those miscreated salt lakes which bring to nought the huge river system of Western Queensland and Central Australia.

It is in the midst of the mountains until it bends west towards the dry land between lakes Torrens and Eyre; and where there are mountains there are minerals. There is a little agriculture at Hawker (358) and Beltana (150); there are copper-mines east of the railway at Blinman (201) and Yudanamutana (25), and coaches run across 300 miles of those very sands, stones, and claypans which baffled Sturt, to Innamincka (Cooper's Creek), Haddon Downs (Diamantina), and Pandie Pandie (Georgina), on the Queensland border, from Farina (133) and Hergott Springs (200). It is the same distance from Adelaide to Port Augusta, from Port Augusta to Hergott Springs, and from Hergott Springs to Oodnadatta (95)—the railway terminus—which is 688 miles from Adelaide and on the north-west of Lake Eyre. At Oodnadatta the railway has accomplished one-third of its intended course. The telegraph wire, which has accompanied it thus far, continues for another 1,350 miles north to Port Darwin, where it joins the English cable; and there are stations by its side, for instance at Alice Springs (322 miles from Oodnadatta), Stirling (489 miles), Barrow (511 miles), Tennant's Creek (671 miles), Powell's Creek (791 miles), Newcastle Waters (854 miles), Elsey Creek (1,041 miles), and

to Hergott Springs,

and to Oodnadatta and Northern Territory.

Pine Creek (1,204 miles), whence the railway and telegraph run once more together to Port Darwin (1,350 miles). At or near each station there is usually a cattle or horse farm.

The country north of Oodnadatta falls into three sections,

(a) a rising section with dry rivers, 350 miles,

(b) a falling and rising section without rivers, 700 miles,

Geographically the country north of Oodnadatta falls into three sections. From Oodnadatta to a little beyond Alice Springs (80)—which is on the tropic of Capricorn and is half-way house between Adelaide and Port Darwin—the ground rises to a height of 2,600 feet *s. m.* The rivers of this district profess to flow into Lake Eyre but rarely if ever act up to their professions. During the last part of the rise, parallel lines of mountains cross it from east to west, tier behind tier, each tier being higher than the last. The longest mountains are 400–500 miles from end to end and the highest are 5,000 feet *s. m.* They are called the Macdonnells, and are mostly of Archaean granite. At Arltunga (70), 60 miles east of Alice Springs, they bear gold; often, too, they serve as stores of water, which lurks in their cavities, and drips down and soaks the sand at their feet; otherwise they fulfil no function in the geographical economy of Australia, for rivers flow not from but through them from the sandy tableland in their rear. The oddity of their structure may be illustrated by a proposal which has been made to dam up a gorge 100–200 yards wide, and a valley above the gorge which lies between two tiers and is 100 miles from east to west and two miles across, in order that the water which passes through the gorge may be collected in the valley as in a reservoir.

In the second section the tableland drops from 2,600 ft. *s. m.* near Alice Springs to 700 feet *s. m.* at Newcastle Waters, at a rate of two to three feet a mile, and then rises to about 1,000 feet *s. m.* at the watershed near Elsey Creek. During these 700 miles there are mountains, but no mountains with a meaning; nor are there rivers nor any river system, but only the shades and semblances of rivers which seem to run south. West of the telegraph line this confusion is worse confounded. A line drawn westward for 1,000 miles

from Central Mount Stuart—the supposed centre of the continent (lat. 22°)—meets many mountains, not one of which has symmetry or significance; some grass, salt-bush or scrub, much sand and many salt lakes, but no rivers; and then when the frontier is crossed passes through what maps call the Great Sandy Desert, which is covered with sand-waves parallel more or less with the north coast, and is haunted from end to end by blacks and rats; and after the desert it reaches a part of Western Australia which is just inhabited. Formless chaos reigns upon the west, and upon the east things are equally incoherent and forbidding until Tennant's Creek is reached (lat. $19\frac{1}{2}^{\circ}$). A line drawn from Tennant's Creek due east to Camooweal (Q.) and due north to Borraloola and the mouth of the McArthur encloses what is a mere continuation of the down lands lining the south side, and of the deep river valleys intersecting the north side of the Carpentarian watershed of Queensland. The down lands, though riverless, are, according to a skilled observer, 'the cream of the pastoral land of the Territory,' and on the sea side horses and cattle abound.¹

The third section passes through the dome-shaped peninsula which used to be called sometimes Van Diemen's Land, and sometimes Arnhem Land. From near Elsey Creek the Roper starts east, and opposite the Roper's mouth and on the same degree of latitude is the mouth of the Victoria in the west. A little north of Elsey Creek affluents of the Daly start west, of the Adelaide north, and of the Alligators north-east. All these rivers flow through broken country and are navigable, the Victoria for 100, the Roper for 90, the Adelaide for 80, the Daly for 60, and the Alligators for 30 or 40 miles by coasting steamers. Indeed, the Victoria is navigable for 50 miles by the largest steamers, and is preferred by Captain Carrington to Thames, Hugli, or

(c) and a section with wet rivers, 300 miles,

¹ John Costello, in *South Australian Parl. Papers*, Report on N. T. (1895), p. 182.

Mersey.¹ Port Darwin, upon which Palmerston (1,106), the capital of Northern Territory, stands, compares as a natural harbour with the best Australian harbours. Along, or near, the railway between Palmerston and Pine Creek gold is worked chiefly by Chinamen; and more than half of the 4,096 inhabitants of Northern Territory are yellow. Except for its port, its mines, and a few scattered squattages, Northern Territory is left fallow. Every one will have 163 square miles to himself when the millennium arrives and social democracy triumphs and this land is equally divided among its people.

Port Augusta also leads to Eyre's Peninsula, the Great Bight, and W.A.,

Port Augusta is a starting-point for the far west as well as for the far north. Immediately west of Port Augusta, is Eyre's Peninsula, a triangle of sand, scrub, and salt lake, with the gaunt Gawler Range forming its base, and furnishing granite, grass, and water. There are three ways to the west. A coach goes to Streaky Bay (150) by Gawler Range; for here, as well as elsewhere, ranges are the fathers and mothers of roads; and this road was followed by Sir J. Forrest on his first traverse from Western to South Australia and is followed by the Western Australian wire. A second way leads down the coast by Franklin Harbour (910),² Tumby Bay (200), to Port Lincoln (470), a better harbour than Port Darwin, and a far better harbour than Port Adelaide, and up again by Elliston (113), Bramfield (50), and Colton (200), to Streaky Bay (150). The distance from Port Lincoln to Streaky Bay is 205 miles, and these towns and the towns between them lie on limestone. There is hardly a river on the east, and there is not one on the west coast. At Port Lincoln, wrote Sturt (1849), 'the inhabitants procure their water from a spring on the sea shore which is covered at every tide.' 'In the neighbourhood of Streaky Bay', writes Mr. G. W. Cox, 'an

¹ *Royal Geogr. Soc. of Australasia*, Adelaide, 1886, p. 75.
Includes district; figures from *Australasian Handbook* (1906).

enormous volume of fresh water is seen to rush out at low tide from beneath the cliffs, preserving its freshness for some distance out to sea.¹ The limestone is honeycombed with water which oozes through the sands on the foreshore. Another riverless stretch of 205 miles separates Streaky Bay from Fowler's Bay; and another riverless stretch of 90 miles separates Fowler's Bay from the 'Head of the great Bight', between which and Eucla (W.A.), 130 miles away, there are not only no rivers, but there are neither sands, foreshores, nor harbours, for the whole coast is one long limestone precipice 300 feet or more in height. The inland country slopes downward instead of upward, as in Niue, and for 150 miles inland there is a grassy cavernous limestone plain upon which dew is the only water. This plain, so far as it lies inside South Australia, is aptly called Nullarbor Plain. Its eastern edge is behind Fowler's Bay, 220 miles east of the frontier, and its northern edge is what maps call a sandy desert, a replica of the Great Sandy Desert in the north, and so dry and untrodden that Maurice saw Giles's tracks upon it twenty-five years after they were made. Beyond the frontier of South Australia this sandy desert, now called Victoria Desert, extends 280 miles; Nullarbor Plains, now called Hampton tableland or Premier Downs, extend 280 miles, and the harbourless, riverless, cliff-armoured bight extends 350 miles into Western Australia. True, a margin of scrub is usually behind, and for two-thirds of the way a margin of sand a-soak with fresh water is in front of the cliffs; but the coast from Fowler's Bay (S.A.) to Israelite Bay (W.A.), where the cliffs end, and the country behind the coast, is essentially the same whether it lies in South or Western Australia, and the first 200-300 miles of Western Australia, and the last 200-300 miles of South Australia, mirror one another, and are indissoluble parts of one useless whole. In the coastal 'counties' between Port Augusta and Fowler's

¹ *Royal Geogr. Soc. of Australasia*, Brisbane, 1896, p. 115.

Bay there are four square miles, or including Port Lincoln six square miles, for every white person; and in inland districts, to which we must now turn, the desolation resembles the desolation of Northern Territory.

or north-west over the inland track into W.A.

A third way leads either to the north-west from Port Augusta, or to the west-south-west from a point between salt-lakes Torrens and Eyre. Experts trace the barren sand-waves of the Victorian desert to a thin strip of less barren sand-waves which start westward from this point between the salt lakes. North of this sand-strip there are older formations, granite, slate, and what-not, dotted down at random upon the map; and sheep-runs exist, or have existed, here or hereabouts, as far north as the tropics. The Warburton Range, which is 150 miles west of Lake Eyre, is one of these random dots upon the western wilds, and was in 1902 the scene of considerable gold reef-mining.¹ A few hundred miles north-west of Warburton Range similar broken ridges serve as broken bridges parallel with the Great Sandy Desert on the north and the Victoria Desert on the south, and guided Gosse, Giles, Sir J. Forrest, and all the first explorers from Western Australia into South Australia. All this intermediate country presents a scene of disorderly variety, and is without any intelligible scheme. It has hitherto proved destitute of mineral wealth, except at Warburton Range, and here, as in the so-called deserts, the earth is without form and void.

W.A. consists of five coastal strips,

Behind the vast shadowy figure of South Australia looms the vaster and more shadowy figure of Western Australia ready to receive the residue of that residue of East Australian prosperity which has fallen to the lot of South Australia. But the further west we go the more jejune and indigestible are the fragments that remain. Most of Australia lies in that rainless region of the earth to which Egypt and

¹ Tarcoola and Wilgena Goldfields, *Records of the mines of S.A., Tarcoola and the North Western District* (1902), H. Y. Brown.

the Sahara belong. True! the long main range redeems Eastern Australia where it brings moisture in the form of rain and inland rivers; but considering its length it is the lowest range in the world; and Australia is as broad as its eastern range is long; therefore its power for good is weak, many feeders of the Murray are uncertain and unreal, all the feeders of Lake Eyre are delusive mockeries; and west of these feeders Tantalus himself would not be duped by anything resembling an inland river, except perhaps by Sturt's Creek. The influence of the eastern range on Australia dwindles and dies—as the influence of the Urals on Europe, if the Urals were the only river-bearing mountains in Europe, would dwindle and die—as we move westward with the sun; and the powers which make for death assert an increasing ascendancy in the districts which form the inheritance of Western Australia. Unless, that is to say, new principles of life come into play, and some new principles do come into play. But the new principles are few and weak, and are with one exception infused into Western Australia from over seas, so that the new life only animates the outermost skin, and civilization hovers round the coast like a sea breeze. Moreover, the coast is split up into five strips of different quality.

In the north the Kimberley and Roebourne districts—of ⁽¹⁾*Kimberley*, which Dutchmen used to write as 'De Witt's Land'—lie wholly within the tropics and are merely repetitions with a difference of the other tropical peninsulas of Australia. Their tides—as in almost all tropical Australia—are often 30 or 40 feet high; they suffer from hurricanes, especially Roebourne; and their summer rains are heavy.

Kimberley may be described as almost an island, for it is surrounded by one sea on two sides, and on one side by two rivers, the River Fitzroy—including its affluent the Margaret—and the River Ord. The isthmus, so to speak, between the heads of the Margaret and Ord is

really a spur from the low ill-marked watershed which we have traced from near Hughenden, Camooweal, and Elsey Creek. A little to the east of this isthmus into Kimberley the watershed brings forth Sturt's Creek, of which Western Australians are very proud, because it is their only natural inland river,¹ and it actually runs its whole length—once in every four years or so—into an inland salt lake. A little west of the isthmus the watershed sinks into the barren sand-strewn plain, which becomes as it approaches the coast 'Eighty Mile Beach', and under that designation separates Kimberley from Roebourne.

The peculiarity of Kimberley itself is that north of its river girdle rugged irregular mountains rise to a height of 2,500 feet—which far exceeds that of the watershed; consequently we have no broad straight-flowing rivers like those in Carpentaria, and no navigable rivers like those in Arnhem Land. Civilization chiefly takes the form of cattle, and barely exists beyond the Ord and Fitzroy and their affluents, or beyond Sturt's Creek and a little westerly annexe to Kimberley between the Fitzroy and Roebuck Bay. Its chief ports are Wyndham on the Ord (40), Derby on the Fitzroy (90), and Broome on Roebuck Bay (600).² Hall's Creek (150?), its gold town, is situated between the Margaret and Ord, 200–300 miles both from Wyndham and from Derby.

(2) Roebourne,

Roebourne District includes the country watered by the De Grey, Yule, Fortescue, and Ashburton, which converge near their sources, and which rise amid barren, rocky mountains some 3,500 feet high, at a distance which in the case of the Ashburton exceeds 350 miles in a direct line from its mouth. These rivers are neither perennial nor navigable; the ports are Cossack (200)—close to Roebourne (300), Condon (20), and Port Hedland, and a road connects these ports with one another and with Onslow (200)² on the

¹ 'Earlstein river' is scarcely a river.

² Includes district; figures from *Australasian Handbook* (1906).

Ashburton. Condon and Port Hedland are the outlets for the gold-mines on the affluents of the De Grey at Marble Bar (2,000), Nullagine (250), and Warrawoona (150); Cossack for the gold-mines on the Yule at Mallina (10) and Pilbarra (50); and Onslow for still smaller gold-mines on the Upper Ashburton.

Next we come to what the Dutch sometimes called ^{(3) the} 'Eendragt Land', or the region watered by the Ashburton, ^{Ashburton-} Gascoyne, and Murchison, all of which are long rivers and ^{Gascoyne} converge at their sources amid mountains 3,000-4,000 feet ^{district,} in height. Almost all this region lies south of the tropics, but it is even more lonely and inhospitable than Kimberley and Roebourne. Maude's Landing, Carnarvon (290), Shark's Bay (150), and Geraldine (100) are its chief towns on or near the coast. Some 300 miles in a direct line from the mouth either of the Gascoyne or the Murchison, and between the sources of those rivers are the gold-mines of Peak Hill (526). But here we are already at the entrance gate of another sphere.

Travellers from Perth to points beyond the Murchison ^{after which} go by sea, and travellers from Perth to Geraldine or Peak ^{the country} Hill go by land. From Houtman's Abrolhos, near the ^{and climate} mouth of the Murchison, to the mouth of the Ord—a dis- ^{change as} tance of over 1,700 sea miles—pearl and guano industries ^{we come to} prevail. From Geraldine to Perth inclusive—a distance of over 300 land miles—these industries cease, and agriculture, which scarcely exists north of the Murchison, thrives. Again, in Kimberley, Roebourne, and everywhere north of the Murchison gold is the gift of existing rivers; south of it the cloth of gold is spread in the riverless wilderness. Again from the Ord to the Murchison all rivers are long and radiate afar from a single neighbourhood; south of the Murchison all rivers are short and—except in the southwest where the coast wheels round—their sources are as far apart as their mouths. Again, we have now left the tropics

where tides are high, where hurricanes wreck towns and fleets, and where summer is the wet season. In the south-west corner of Australia tides are low, the prevailing wind is the west wind—as in Tasmania and Middle Island (N.Z.), and winter is the wet season. Between tropics and south-west the climate is a compromise between these contradictions; and the so-called Darling Range—which runs parallel with the shore at a distance of about 20 miles and a height of about 1,500 ft. *s. m.* from a point south of the Murchison to the south-west corner, and then with changed name and nature shadows the south coast at the back of Albany—often secures the best of both climates. It is in no sense a range. The westward-flowing rivers, though feeble and intermittent, flow through it, not from it; and the edge of the tableland in its rear is their source—a peculiarity which recalls the Macdonnells (S.A.). No rivers flow eastward, but the tableland continues at an altitude of 1,000–2,000 feet far away into South Australia. The mountains are of Archaean granite, clothed on their western bases with slate, schist and later formations. Consequently they bear timber, which takes the shape of jarrah and karri between Perth and Albany. Mountains and trees woo the west wind which comes with healing in its wings; and Perth often enjoys moderate rain from year's end to year's end. North of the Murchison the climate is not tempered by coastal ranges or coastal trees, and from the Murchison to the verge of the tropics, and in some years still further north, there is immoderate drought throughout the year, but here nothing is certain but uncertainty. Again, when we travel south across the Murchison we travel from a country of miniature towns and colossal distances to a compact and comparatively civilized area. This area is nothing like so compact as Victoria or the country round Adelaide; and although the capital is in its middle the natural roads and railways which lead from it do not radiate

from it—like those from Sydney, Melbourne, and Adelaide—but hug the shore or the edge of that tableland which is never far from the shore. Perth is more junction than centre; and but for historical accidents its civilization would owe its inspiration to the Cape of Good Hope as much as it does to Eastern Australia. Perth and Albany belong to the Indian Ocean, not to the Pacific; and Western Australia is illumined from the west as well as from the east. There is a change of scene, climate, and to some extent of political relations; and after leaving the Ashburton we turn a corner metaphorically as well as literally; although the import of the change is not apparent until the Murchison is reached, and its full import is visible for the first time on the banks of the Greenough, a few miles south of the Murchison.

The new district at which we have arrived is knit by rail and road to the capital, which is Perth (36,274)¹, and Perth has two equidistant assistant capitals, Albany (3,680) in the south, and in the north Geraldton (2,476), which is 60 or 70 miles south of Geraldine and 33 miles south of Northampton (200), where the railway ends. Lead and copper have been worked off and on at Geraldine and Northampton for the last fifty years. Geraldton is therefore a mineral port. And it is also the port of the flats of Greenough (524), which extend southward to Dongara (300) on the Irwin, and which grow the best wheat in the colony and the only or almost the only wheat on its coast; for here the coast is of limestone and elsewhere it is usually smothered up by sand. On the Irwin coal also is found. More than 100 miles south, and on either side of the railway and of the valley of the Moore are the rich pastoral districts of Yatheroo (200)² and Victoria Plains (300)². After the Moore the next important river is the Swan, as it is called when it runs west, or the Avon as its upper

(4) the
Perth-
Geraldton
Albany
district,

¹ Now over 50,000.

² Includes district; figures from *Australasian Handbook* (1906).

northward-flowing reaches are called. Fremantle (24,000), an excellent made port at the Swan's mouth, has ousted Albany, which is excellent by nature, from its sometime supremacy. Perth is 12 miles up-stream; and Guildford (1,698) and Helena Vale (1,867) $9\frac{1}{2}$ miles further up-stream; and the district near where the Swan undergoes metamorphosis into the Avon, extends from Goomallyn (600), which is about 85 miles north-east of Perth, by Newcastle (560), Northam (2,096), and York (1,385), to Beverley (2,500)¹, which is about 85 miles south-east of Perth, and comprises agricultural land which vies with that of Greenough. These five towns are on the edge of the tableland behind the rocky screen formed by the Darling Mountains, and until a few years ago represented the eastern limit of agricultural settlement; but of late years wheat has been grown with some success at Youndegin, Tammin, and Kellerberrin, which are further east of Northam than Northam is of Perth.

Perth is not only the capital, but it is also in the middle of that settled coastal strip which faces west. From Perth to Geraldton is 306 miles; from Perth to Albany is 338 miles by rail, and 254 miles by road. Between Perth and Geraldton there are no ports, and there is only a single through road or railway. Between Perth and Albany—which, as a port, is comparable to Ports Darwin and Lincoln—there are indifferent ports at the mouths of the Little Murray, Collie, Vasse, and Blackwood, and there is a double or treble line of road or railway. Mandurah (160), near Pinjarrah (180) on the Little Murray; Australind (40) and Bunbury (2,587) on the Collie; Busselton (734) on the Vasse, and Augusta (50) on the Blackwood, are the best-known ports of this district. The immense superiority of Bunbury, which a superficial glance at the figures of its reputed inhabitants will attest, is due to the neighbourhood of excellent coal-mines at Colliefields (1,458), excellent tin-mines at Greenbushes (2,000), and a little gold

at Donnybrook (587). Karridale (230) ships karri timber from Hamelin (70) instead of Augusta, which is almost as near; and Jarrahdale (1,209), although only 30 miles from Perth, ships its jarrah timber from Rockingham instead of from Fremantle. A southern railway as well as road goes by Pinjarrah and Bunbury to Busselton, with branches to Jarrahdale, Colliefields, and Bridgetown (520) near Greenbushes, and the road continues from Busselton to Augusta and Hamelin, and from Bridgetown to Albany. But this south railway is not *the* south railway, nor is this south road *the* south road. The great south road goes straight to Albany by Williams River (500) on an affluent of the Little Murray, and Arthur River (124) and Kojonup (200) on an affluent of the Blackwood. After passing Northam, York, and Beverley, the great south railway clings to the skirts of the tableland just beyond the sources of all rivers, passes Pingelly (80), rich in agriculture, Narrogin (110), which is on the ganglion of high land, 1,114 feet high, whence the Avon, Murray, Collie, and Blackwood diverge; Wagin (600), Katanning (250), and Broomehill (400)—at all of which agriculture is progressing—and Mount Barker (320), near which are karri forests. The great south railway, the other south railway, and the great south road form an N, along the lines of which every important town lies, and almost all the agricultural and manufacturing industries of this district are carried on. The interstices of the N are devoted mainly to timber and to pastoral pursuits. Although the coastal strip between Perth and Albany is by far the thickest and most thickly peopled coastal strip in Western Australia, the out-sides strokes of the N are never 100 miles apart, so that the civilized tract which they contain is unnaturally thin, and on one side of it there is the deep sea, and on the other something to which we shall return hereafter.

Between Albany and Cape Arid civilization gradually (5) and the pales its ineffectual fires, rivers are shorter and scantier, *district of*

the Great Bight.

railways are not, and there is only one fair port—Esperance Bay (341).

After Cape Arid—whose nature may be inferred from its name—we enter the ‘Great Bight’, a district which has already been glanced at from its opposite side, and in which Israelite Bay (30) and Eucla (50) are the only ports. Eucla is 750 miles away from Albany, and gives its name to that division of Western Australia which includes the Great Bight. The Dutch also had a special name for the coasts of the Great Bight, which they called ‘Nuyt’s Land’; the Albany district being called ‘Leeuwinland’, and the Perth district ‘Edelland’. But their names were very vague, for they only knew Australia from the outside. From their frontier beyond Eucla, Western Australians have constructed a telegraph wire round their coasts to Derby, and thence to Wyndham. This wire is the only permanent material bond between their scattered provinces. The climate after leaving Albany has been gradually deteriorating, and the climate of the Great Bight resembles that of the interior, to which we must now return.

W.A. also includes the eastern mining district,

Hitherto it would seem as though Western Australia lacked solidity and natural unity, and consisted of a series of thin disconnected coastal strips, stretched around a semicircle of sea 3,000 miles in length, and hemmed in by amorphous waste lands upon which only a few wandering miners have encroached. But for the squatters—who are too few and too ubiquitous to figure in books of geography, which are fain to lean, however diffidently, on statistics and on maps, this description would have been true down to a few years ago. Only the border of the skirt was hemmed, with a few coarse stitches on north-east, north-north-west, and south-east, and with fine close stitches on the west; the rest of the garment was unsewn and as nature made it. Then a miracle happened. The most profuse and dazzling riches welled forth from the barrenest land in all Australia; crowds of busy men peopled

a region where one would have thought that the scapegoat of Scripture could only starve. Palaces as brilliant and dazzling as those of Aladdin and Klingsor sprang up in a few days in the uttermost deserts, cities and streams which had only been seen in a mirage by doomed explorers suddenly took shape and substance; out of darkness came light, and new rays of hope and new prospects of unity shone on Western Australia from the abodes of desolation and despair.

Maps of that part of Western Australia, which is surrounded by the five coastal strips which have been described, are splashed with salt lakes, speckled with sand heaps, and shaded with granite hills, all of which are jumbled together in an inextricable tangle which defies description. The clue to this maze is geological, and its geology is as simple as its physical geography is confused.

Geologically Western Australia consists of six parallel straight lines or belts of granite, schist, or slate—or all three combined—which run more or less from south to north.¹ The westernmost belt hides and burrows underground, but just emerges from its hiding-place in order to enrich Cape Leeuwin on the south, and Northampton and Geraldine on the north. The second belt loves the light, and thrusts itself upon people's attention under the name and style of the Darling Range, which is not a range, and enriches Greenbushes and Donnybrook. The compact civilized area which we have hitherto described as the fourth coastal strip is the country which covers, or is covered by, these two narrow belts. The third belt, which is about 100 miles from the western coast and about 100 miles broad, is neither retiring nor ostentatious, is sometimes in evidence and sometimes clothed with white sandstone, and may be ignored, for it enriches nothing and nobody. It represents the interval

which has a geological clue.

There are six longitudinal geological strips, two of which are coastal,

¹ A. Gibb Maitland, 'Mineral Wealth of Western Australia' (1900), p. 9, citing Woodward.

between the coastal strip which has been described and the mining interior which remains to be described.

*and the
fourth
contains
Southern
Cross and
Nannine,*

A fourth belt starts from Phillips's River, 100 miles east of Albany, and goes a little west of north by Parker's Range (40), Southern Cross (1,275), Hope's Hill (30), Golden Valley (20), Jackson (60), and Mount Magnet (632) to Day Dawn (552), Cue (1,327), Austin (130), and Nannine (120), a distance of 500 miles. The line is straight, single, and narrow, like a volcanic line until the last 100 miles, where it is flanked on the west at an interval of 50 miles or so by Rothesay (100), Field's Find (130), Gullewa (100), Yalgoo (200), and Melville. Between Cue and Nannine it wavers in its direction, and 100 miles north of Nannine it probably reappears in those mines of Peak Hill and the Upper Ashburton which have been referred to. The whole course is more strewn with gold than the fabled racecourse of Atalanta. The fifth belt is as wide, poor, barren, and unprofitable as the second belt.

*and the
sixth
contains
Coolgardie
and
Kalgoorlie.*

The sixth is the most wonderful of these spangled belts. Starting from Esperance Bay, which is 100 miles east of Phillips's River, it goes by Dundas (15) and Norseman (263) to Widgemooltha (100), after which it forms double rank, the ranks being 50 miles apart. On the west are Burbanks (627), Londonderry, Bulla Bulling (15), Coolgardie (4,920), Paddington (1,300)¹, Broad Arrow (3,000)¹, Black Flag (100), Bardoc (60), Goongarrie (150), Murrin Murrin (250), Menzies (2,042), Yerilla, Niagara (400), Mount Malcolm (450), Leonora (2,500)¹, Diorite King (60), Woodarra (200), Lawlers (542), and Sir Samuel (360); on the east are Bulong (750), Boulder (14 585), Kalgoorlie (9,643), Kanowna (12,500)¹, Hayes's Find (150), Kurnalpi (150), Mounts Margaret and Morgans (1,500)¹, and Laverton (200). The northernmost point of this belt is 450 miles or so from its starting-point in Esperance Bay; and 400 miles or so further north,

¹ Includes district; figures from *Australasian Handbook* (1906).

what is probably a continuation of the same belt reappears at Nullagine and those gold towns on the De Grey and Yule which have been referred to.

All the towns which line the fourth and sixth belts are gold towns, and the numbers of their reputed inhabitants are only meant as the very roughest indications of their relative value. Often towns almost adjoin one another; and perhaps it would be more logical to include Burbanks in Coolgardie, Boulder in Kalgoorlie, Leonora in Mount Malcolm, and Bardoc, Black Flag, Broad Arrow, and Paddington in one another. Often, too, the town limits arbitrarily or unequally exclude dwellers in the surrounding districts, who, especially in the case of nomadic industries, form the large majority. Though rough and crude as gauges of comparative prosperity, these numbers illustrate the extraordinary abundance of gold towns which have been scattered throughout these wastes during the last fifteen or sixteen years, and the amazing preponderance of Kalgoorlie, Kanowna, Coolgardie, Menzies, and Leonora. A few towns like Yerilla, Londonderry, and Golden Valley are deserted or almost deserted, and a very few towns have other resources besides gold or copper, which is so often associated with gold; thus there is sandal-wood at Yalgoo, Bardoc, Kurnalpi, and Bulla Bulling, as there is at Shark's Bay, and on the Great Bight, and in most parts of Western Australia, and Goongarrie deals in bricks. Where the gold is alluvial it usually lies in deep leads, as in Kanowna, Bulong, and Kurnalpi, and requires almost as much and as expensive machinery as the lodes which must be quarried, crushed, or chemically treated. In the Western Australian wilderness gold seeking is not an adventure, but an industry. As an industry it has already attained the stability which characterizes Thames (N.Z.), Bendigo, and Ballaarat. But the conditions are dissimilar to what they are elsewhere in Australia. Thames, Bendigo and Ballaarat will survive, it

These two mineral strips are unlike other gold districts,

seems scarcely possible that these cities of the wilderness will survive the industry which brought them into being. Elsewhere, as a rule, gold took men out into the highways. True, in Gippsland and West Tasmania, metallic wealth took men out into the by-ways, but the by-ways were just off the highways and had only remained by-ways for so long owing to the excessive luxuriance of their primaeval forests. In Western Australia, Southern Cross is 140, Kalgoorlie 280 miles from the nearest tract which the maddest visionary would associate with highways.

(except perhaps Cobar and Broken Hill)

In New South Wales the copper belt between the Bogan and the Lachlan, and the gold-and-silver belt along the Grey and Barrier Ranges, present more analogy with the two gold-belts of Western Australia; but Grey gold is on the down grade, and Barrier silver accounts for only one town which is a little larger than Kalgoorlie-cum-Boulder, and those belts clasped together people who were already in touch with one another. The multitudinous gold towns of Western Australia have vacancy on their east, all but vacancy on their north and south, and their parent towns are at vast distances on their west.

and suggest questions.

How, it will be asked, can these cities subsist under such unique conditions? Are they likely to be evanescent phantoms or permanent realities? And if permanence is in store for them, what purpose do they fulfil? How far do they or are they likely to promote the general welfare?

Water-schemes and railways imply that these parts are permanently occupied;

In the early days miners on the eastern tableland squeezed water out of moist sand as out of a sponge; or scratched dry salt lakes for the salt water which was usually underneath the surface and was then condensed, or they relied for their water supply on some natural cellar of granite rock or limestone cave. In 1903—when there were said to be 50,000 persons within 30 miles of Kalgoorlie alone—these casual expedients were no longer of use; dams and reservoirs were constructed; and Sir J. Forrest opened one of the biggest water

schemes in existence—a scheme of which he had been political godfather. The scheme may be described as the creation of an artificial perennial river which runs 1,300 feet uphill from Helena River—20 miles from Perth—to Kalgoorlie, a distance of 350 miles. The dwellers in the wilderness derive their food, as well as their water, from the far west, and every populous gold town is connected with the source of its food by railway. One railway goes from Geraldton to Yalgoo, Mount Magnet, Cue, and Nannine, and it is 310 miles long. A more important railway goes east from Perth to Southern Cross, Coolgardie, Kalgoorlie, Kanowna, Bardoc, and Menzies, to Leonora and Laverton, which is 630 miles by rail from Perth, 350 miles through the air due east of Geraldton, and 350 miles through the air due north of Esperance Bay. The railway from Coolgardie to Norseman—half way between Coolgardie and Esperance Bay—is still an unfulfilled desire.

These water schemes and railways are pledges that the cities of the wilderness will not vanish suddenly into the nothingness out of which they suddenly emerged, and that dust will not return to dust. Though exclusively mineral in their nature and origin, these cities are universally regarded as permanent in their destiny. The railways are something more than huge iron feeding tubes or elephantine trunks. Sir J. Forrest regards them as the first stage of a future railway to Port Augusta which will consummate the real federation of the eastern and western sides of Australia. But these prospects are scarcely within the horizon of practical politics. The gap between Coolgardie and the frontier is 400 miles, and its connection with the nearest point of the Oodnadatta railway would mean another 450 miles or so. Moreover, South Australia has still some 1,100 odd miles of unbuilt railway to the northern sea to occupy her energies or day-dreams. Still all things are possible in Australia; and increased success in working gold at Warburton range (S.A.) and in finding

water underneath Nullarbor Plains, or the discovery of rich gold mines at or near Petermann range, might change these unsubstantial hopes into accomplished facts. Even if mines were to fail after a time, they have already acted like strong tonic throughout the non-mineral districts, whose cattle they have multiplied by three, and whose population they have multiplied by two and a half in ten years (1891-1901). The population of Western Australia in 1891 was 49,182, and in 1901 was 184,124, or nearly four times as much, and the population of the non-mineral districts in 1901 was 124,669, or two and a half times as much as it was in 1891. But before utilizing official figures a few words of explanation are necessary.

*and census
figures.*

The census authorities of 1901 class Peak Hill, Phillips's River, and Esperance Bay, which possess in the aggregate about 1,000 inhabitants, with the mining interior; they class Perth, Fremantle, and some 5,000 other neighbouring inhabitants as 'metropolitan', and deduct the metropolis from what we have called 'compact and civilized Western Australia', or what they call 'the south-west'; and they class all the area between the Murchison and Ashburton, and all the Kimberley and Roebourne districts as the north and north-west. Their results are as follows:—

Population of Mining Interior	59,455
„ „ Metropolitan District	67,431
„ „ South-west do.	51,711
„ „ North and north-west do.	5,527

184,124

In 1901 nearly one-third dwelt in the wilderness, more than one-third in or about the capital, less than a third in the residue of 'compact civilized Western Australia', which residue in 1901 exceeded in population the whole population of Western Australia ten years previously; and of the other four coastal strips—two of which are the barrenest in all

Australia, and the other two lie within the tropics—we can only say, as we said of Arnhem Land and Carpentaria, that they are not yet a success. Indeed, the north and north-west region hardly seems to move; its women are scarce, and 2,103 of its 5,527 inhabitants are 'Asiatics'. Only thirteen 'Asiatics' infest the mining interior. Western Australians have made a big thing of their mining interior—although its future suggests anxiety as well as hope—their capitals are growing and they are extending, improving, and consolidating their compact civilized district while these pages are passing through the press; but elsewhere their country is a thing of strips and shreds and patches and their tropical provinces still languish.

No complete picture of facts or events belonging to the period succeeding 1901 is as yet possible, and none has been attempted either for Western Australia or for any other part of Australia. They belong to the present—'This narrow isthmus 'twixt two boundless seas, The past, the future, two eternities'—descriptions of which inevitably lapse either into imperatives or into interrogatives—and the historical geography of our Australian colonies resembles 'the biographical sketch of a living man' which 'does not close with a stroke, but with three stars. They glow still, those stars. Under their influence much may happen—much struggle, much peace'.

* *
*

The chief other authorities on Australia are Gordon and Gotch, *Australasian Handbook* (annual); Anthony Trollope, *Australia and New Zealand* (1873); the annual Statistical Registers and Year Books for the different colonies; Census Reports (1901) for the different colonies; E. F. Pitman, *Mineral Resources of New South Wales* (1901); *Letters from Victorian Pioneers* (1898); C. H. Barton, *Outlines of Australian Physiography* (1895); Professor Gregory, *Dead Heart of Australia* (1906); and the *Transactions of the Royal Geographical Society of Australasia*, published at Sydney, Melbourne, Adelaide, and Brisbane respectively.

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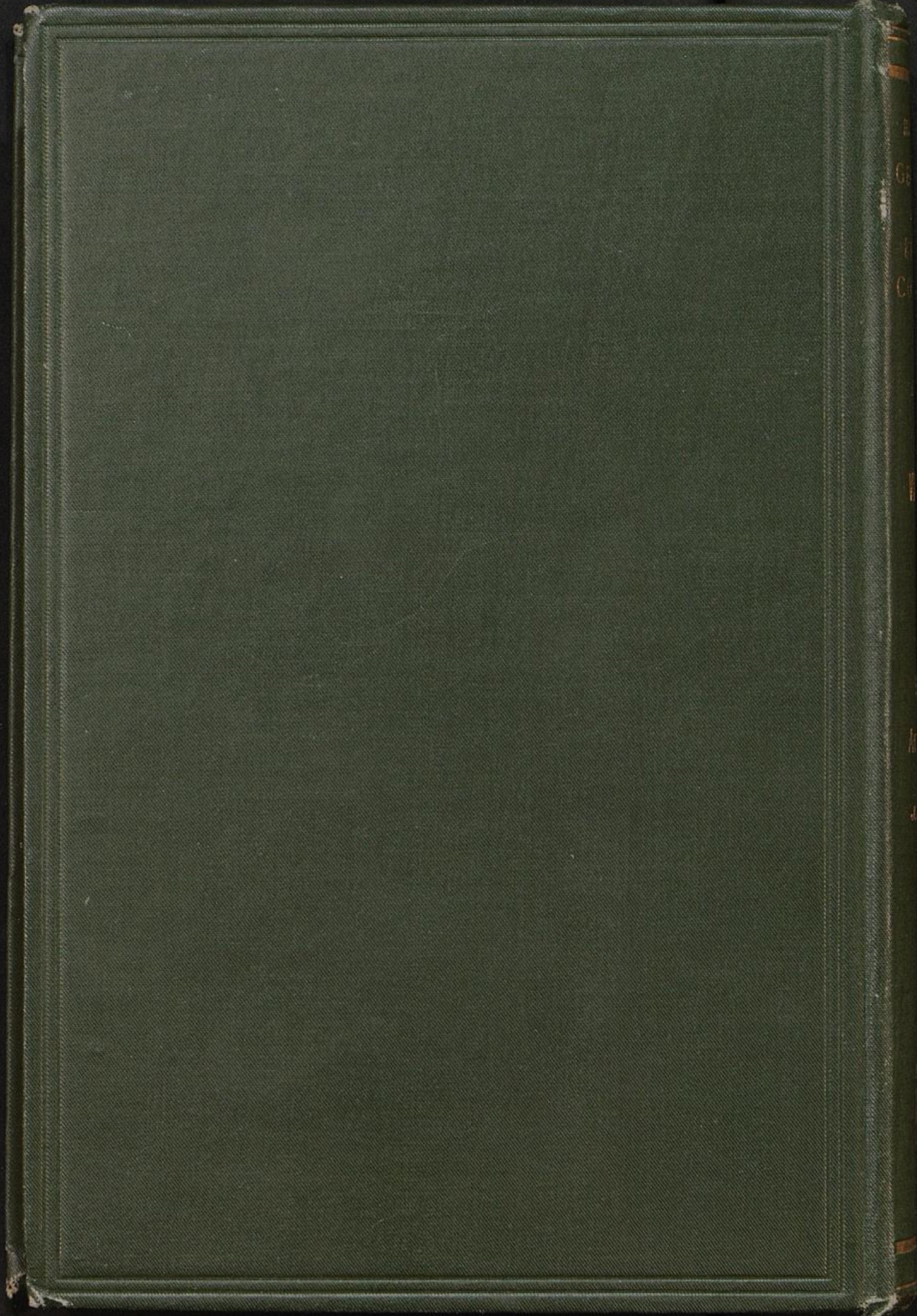
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