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GEOGRAPHY.

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*President of Section E.*

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Section E.

## GEOGRAPHY.

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ADDRESS BY THE PRESIDENT,

BARON VON MUELLER, K.C.M.G., M. & Ph. D.,  
LL.D., F.R.S.

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### THE COMMERCE OF AUSTRALIA WITH NEIGHBOURING COUNTRIES IN RELATION TO GEOGRAPHY.

In the first instance the duty devolves on me to express the sense of deep gratitude for the honour shown me by the Queensland Council of the Australasian Association in calling on me to open the proceedings in the Geographic Section of the Brisbane meeting, and I am all the more impressed with the significance of the position accorded me, as your venerable President counts among the leading geographers of our time. It is becoming, therefore, that I should first of all pay homage to my revered leader, under whom I had the honour to serve in an extensive geographic enterprise well nigh forty years ago, when he, as the first, penetrated, and with horses only, into Central Australia from the north, and disclosed the northern termination of the desert gold country, of which Coolgardie is the southern limitation, and when, for the first time, the Australian continent was crossed from north-west to south-east. But Mr. Gregory, of whose presidency the meeting must be very proud, has many other claims on your recognition. Expeditions of his reach back into the first half of this century, when he began independent territorial exploration in West Australia, under such privations and scantiness of resources, at that early colonisation period, as cannot readily be realised by the thoughts of the present generation. With Eyre, the hero of 1840 and 1841 on Australian geographic fields, who, from a recent letter to myself, continues to maintain a most lively interest in explorations, and with Sir George Grey, who won his spurs still somewhat earlier, our President is one in the Nestor-Trio of Australian exploring leaders, while Dr. J. H. Browne, the only officer accompanying Captain Sturt in the first advance into Central Australia from the south as far as Eyre's Creek, can still enjoy in the South Australian metropolis the triumph of that achievement. Of Leichhardt's ever memorable first expedition of 1844-1845, a prominent member, my friend Mr. Koper, is, by the mercy of Divine Providence, yet, as a geographic worthy, among the living at our time. Mr. Gregory, however, can furthermore be proud of having held, irrespective of legislative duties, the prominent position of Surveyor-General through those three decades, during

which the exploration of the greater part of Queensland was finished, and most of that vast area became mapped and claimed from the wilderness for settlements, many of the latter having risen already to villages, towns, and some even to cities, so that his honoured name will remain for ever identified with the whole wide colonial territory there. What this means within a single lifetime, is not readily grasped by our imagination.

From the first half of our century, Australian coast explorations have been made by officers of the Royal Navy. Among these veterans, Captain Pasco remains among us as one of the oldest, the President of the Australian Committee for Antarctic Researches, and a Vice-President of the R. G. S. A., being a son of Nelson's flag lieutenant in the "Victory," who hoisted the memorable signal, "England expects every man to do his duty." He served in Captain Owen Stanley's expedition for the founding of the settlement at Port Essington in 1838, and afterwards shared in the famous survey voyage of the "Beagle" till 1843, in the discovery of the Victoria River, which watercourse our President sixteen years later explored and mapped to its sources. Captain Pasco was among those who first rendered known and surveyed the Adelaide River, Port Darwin, Port Bynoe, the Albert River; subsequently as lieutenant he served in Bass's Straits, where, as well as in the Gulf of Carpentaria, geographic monuments exist in his honour, his later naval career having been on the Borneo and China coasts. This brings vividly to our recollection the brilliant services of Admiral P. P. King, the son of one of the earliest governors of Australia, his explorations rivalling in importance those of Flinders, who in turn might be termed a second Captain Cook on the coast of the vast Queensland territory, the distinguished President of the oldest branch of the Royal Geographical Society of Australasia, the Honourable Ess. King,<sup>9</sup> as a naval lieutenant, accompanying him in some of his survey voyages. Another geographic Nestor claims our admiration, Admiral Sir George Richards, who surveyed about half a century ago on the New Zealand coast, prior to his filling the grand position, through many years, of Hydrographer to the Admiralty. Perhaps only one more remains living for our homage from among the gallant men who became historically immortalised by sharing in the early discoveries effected for geography during the present secular space of time—it is the last surviving officer of Sir James Ross's Antarctic expedition, the illustrious phytographer, Sir Joseph Hooker, President of the British Antarctic Committee, who was one of the surgeons and naturalists of the "Erebus." These thoughts of great achievements of the past can best, perhaps, be brought to a close by one more word on Flinders, who remains so prominently identified with Port Phillip, where Mr. J. Shillinglaw, the son of one of the earliest secretaries of the Royal Geographical Society of England, is now writing from extensive authentic sources a full biographic account of the splendid services of the earliest successor of Dampier and Cook in Australian naval fame.

We live in an island-continent of almost European expansion, surrounded by the free waves of three oceans, giving to the whole the same advantage of insular position which so largely contributed to the grand development of the British homelands on peaceful territory. We have not to encounter racial complications, because the transit of

the most primitive of autochthones to the high phases of civilisation at the present age is too sudden to allow the plainest of all nomads, though under present conditions born as British subjects, to embrace without detriment the forms of social life dictated by the needs of the present age. We are as early settlers not exposed to combats with ferocious animals, and ophidian dangers are conquered by a physician of our own country and time. The marsupial lion, terrific as his namesake of Africa, which here also preyed on the gigantic creatures of Australian pastures, perished with them for ever at a past geologic period, and no process of evolution will ever restore them. We are exempt from seismic disturbances, those terrors which even in the latest days befell Venezuela and some other regions, inasmuch as the active volcanoes, through geologic curves from Japan and the Sunda Islands to Mount Erebus, seem to act as safety-valves for our continent, a boon which we are apt to forget to be grateful for. We enjoy almost over the whole Australian expanse a salubrious clime, too dry for generating miasmatic exhalations, spacioously or continuously, and thus the comparative dryness of our atmosphere diminishes also the dangers of local contagious and infectious influences; and though this scantiness of humidity brings with it certain disadvantages, these are far outweighed by gains. Even where seemingly forbidding deserts prevail, the glittering of the noblest of metals gives a footing to enterprise, and, as a sequence, gives far-reaching resuscitating prosperity to rural effort, through the opening up of water-riches, hidden since the creation days of the present epoch. We furthermore, though widely deprived of navigable rivers, can seize on the facilities, which the levelness of most tracts of Australia affords, for the easiest communication across the whole continent in most directions. We live in winterless climes with a double spring, best appreciated by those enfeebled by sufferings who had to dread the severities of the frosty season in the lands of their ancestors, and thus in this division of the terrestrial world, unlike to Europe, we can rear all products of the intratropic zones, with a rural scope considered as a whole simply unlimited.

We live under the British sceptre, under the sway of that throne which reigns over the greatest territorial possessions on our planet. Strengthened by such a power, we are blessed by the high religious sentiment which in British communities prevails; and we have the additional boon that on soil the free gift to these colonies, we can build up our institutions unhindered by traditions, usages, and privileges of the past, in a youthful country where the discoveries, toil-somely gained through centuries in ancient countries, can be applied with the widest scope and ceaseless influences. Such then is the felicitous position of Australia, auguring for a great future. It devolves largely upon us as Geographers to take our part in conducting Australia to its greatest destinies.

The fields are immense for our action; they are not encircled by the outer boundaries of these colonies. We are expected also to take our share in carrying the torch of our science into the dark or unknown recesses of neighbour lands.

We are aiding to build up the happiness and rich wealth of our fellowmen in adjoining islands, and to derive mutual benefit also from new lines of commerce for our own communities, all the more urgent

at a time when the means for Australian productiveness, and our facilities for conveyance, have overreached the demands on our supplies, a disproportion which has brought about extensive cheerlessness and even misery.

Your own great colony of Queensland—six times larger than Italy, larger than Persia, and nearly half the size of China proper—has during the semi-century of its existence set a glorious example of what can be accomplished by high-minded and valorous activeness. Six and a-half millions of cattle and twenty-one and a-half millions of sheep browse on your pastures, and your annual output of sugar has reached already 60,000 tons. All honour to Queensland. Indeed, Australia as a whole seems to be the most productive of lands in proportion to its comparatively limited population, but few millions dwelling as yet in this continent. As for prospective celerity of communication, Lord Brassey has pointed out that future railway extension of ours, by bringing us within the nearest reach of the Indian line, will render communication from the south coast of Australia to London possible within sixteen days, electric railway speed being left out of consideration for this estimate. By practical tendencies a hold is obtained on the public mind, and substantial support is won.

Australia comprises territorially about one-third of the British Empire, and is readily occupiable throughout. Deserts and what, at first glance, may appear forbidden ground will vanish by further artesian borings, by more storage of surface water, by providing a closer tegument of vegetation against the effects of the heating sunrays, and by preventing, through strenuous measures, extensive ignitions and conflagrations of forests, of scrub, and grass, whereby the clime will become more ameliorated. The rest of the blanks on the Australian map will likely be all filled up before the century closes. Mining explorers are the most active at present, more especially in the interior of Western Australia. A born Queensland-lander, Mr. Carr Boyd, has taken there a prominent share in this work, more especially from the south towards Termination Lake. Lindsay has at his command vast means for crossing deserts, through whole herds of dromedaries, the first small caravan of these marvellous desert animals having, for Australia, been secured by Victoria not without some co-operation of the writer, and they thus were first proved as highly adapted to our dry inland regions. An ordinary camel team from South Australia to Coolgardie travelled lately 800 miles without any mishap. Ernest Giles, who was the first in this part of the world to use camels as draught animals, has taken the field once more for a two years' traversing and sojourning in the western auriferous wildernesses. Brave men are now pushing forward to Central Australia from the east. All this is foreboding enormously increased commerce, discoveries following discoveries of gold, and other natural resources becoming simultaneously unfolded.

After the lethargy of ages, while savage hordes roved over our continent, the young generation of the aborigines awakens to civilisation. Tattooing and other disfigurements will soon be only historic relics of the past. Even the Australian native ought to realise the value of rural estates as distinct properties of healthful families, as objects worth living for, and even he, in this part of the world, should

be an active contributor to trade and commerce. Where the autochthone roamed he will see towns spring quickly even from the desert, where he encountered precariousness of mere existence.

Do we realise that the territorial extent of Western Australia actually comprises a ninth of the British Empire? and yet the whole population of European descent at present scattered over it equals as yet only that of York, of Southampton, or Greenock in the home countries, or Quebec in Canada, while the number of the aboriginal inhabitants is also proportionately insignificant. Not to speak of Australia, it has been shown also elsewhere how cities of first rank can arise with marvellous quickness. Such events, the present generation here is destined to witness at our own time, and nothing can speed this so much as the discovery of goldfields, because that most precious of all metals, whenever gained, is at once almost quite as much available in business transactions as coin, without appreciable deductions of the middleman, without the loss through protracted business transactions, and without other mediators of trade.

No wonder, therefore, when a Coolgardie almost suddenly emerges from an unknown solitude. May we not hope that soon still more will be done to facilitate the finding and also the working of auriferous deposits in Western Australia, where the gold-yielding area seems to stretch through considerably over 1,000 miles from south to north, with a width as yet not even approximately calculable, because blank stretches still exist on our geographic map comparable to the extent of some prominent European kingdoms.

Passing now from our own lands on to countries in other parts of the globe, more especially with respect to mercantile relations, we must find that commercial contact with eastern tropical African lands, now gradually and widely becoming disclosed to trade, is to us of paramount significance.

In our earliest explorations the difficulties of penetrating new regions seem sometimes almost insurmountable, but, after the first track is cut and the earliest road opened, the forbiddingness vanishes, and the change in the aspect of the landscape becomes both striking and rapid. Thus, when Stanley's seemingly infinite primeval forest, which separates the Congo sources from the Lake Tanganyika region, probably teeming with novel products, shall have become dissected by paths of communication to bring the produce of even the western tracts of Central Africa within reach of eastern traffic, a trade should there also spring up with the Australian colonies. The millions and millions of negroes, when settling into better homes, must assuredly soon become more extensive consumers of our commodities. Wheat-flour, incomparably above all other substances for vegetable aliments, must come largely into requisition; so potatoes from our fields. Beef and mutton, especially in preserved forms, can doubtless be supplied from our coastal regions much more readily than from mountains on existing roads in Eastern Africa. Bricks, hewn building stones, flooring stones, sawn timber of kinds resisting the inroads of termites would also be needed; so our wine, and along with all this an endless multitude of other articles, such as soap, saddlery, many kinds of implements, strong furniture of Australian manufacture to be supplied from here, kitchen vegetables,

and orchard fruits of all kinds pertaining to temperate or cool climes. Even the simpler musical instruments would afford means for elevating and refining the native races, who are generally susceptible to the influence of musical art. I may be permitted to give to this address at once a practical turn by specifying and summing up what goods would be likely to figure prominently in our exports to the British colonies in eastern tropical Africa, omitting what are not productions of our own, but only transit goods. The articles which we could display are more varied and multitudinous than might be thought at first sight.\* Respecting raw produce, tariffs and wages rates of course must largely influence the choice in these trading operations, though it may be expected that these will get gradually more equalised all over the world.

The imports from Eastern Africa could be only limited, as factories for working up raw materials available from thence are as yet but few in our colonies, and as the generality of tropical products are to us still closer at hand. But merchant vessels taking Australian freight to the eastern harbours of Africa could reckon on securing from there loading for London, and return with English merchandise to our ports.

With what gigantic strides any particular trade can advance could be exemplified by manifold instances. Thus, Mr. George S. Mackenzie some few years ago emphasised this by a striking fact. In 1875 the first box of dates was shipped from Busrah in Mesopotamia, but in recent years the export from that harbour has been 20,000 tons annually. What for tea and cinchona culture has been done in British India during the last two decades might be quoted as similar instances. The gentleman who effected the first shipment of rice from Burmah is still a living witness of noticing the export to have been in one of the latter years about 1,250,000 tons, at a value of more than £2,500,000 sterling. Sir John Kirk, the companion of Livingstone's first Zambesi expedition, brought under commercial cognisance the Landolphia climber for African indiarubber. Now, this substance of almost endless applicability has arisen, as Mr. Mackenzie remarks, to about £200,000 in value annually as shipped from Zanzibar. All such successes have been brought about in the first instance by geographic explorations, whether by naval surveys or by land expeditions, in which among all nations, considering the work of the world in this respect as a whole, Britain constantly takes the lead. The political outcome of all these achievements, through pioneers of our favourite science, has been to raise the British Empire above every other in territorial expansion and solid wealth, and to carry its language, as the prevailing one, over the greater part of the globe. But such considerations should give an additional impetus to further explorations, especially at a period when universal depression

\* Some live stock, including horses, select breeds of fowl, flour, potatoes, dried fruits, timber fitted for various structures, including material for wood-paving of qualities resisting termites, railway sleepers, piles, compressed hay, chaff, stable corn, rural seeds, coals, honestones, strong shoes and boots, saddlery, blankets, mattresses, stockings and other coarse wool fabrics, ropes and cordage, soap, candles, preserved meat, whale oil, butter, cheese, wines, biscuits, vegetables, dried fruits, starches, vinegar, rough paper, furniture, agricultural implements, mining machinery, carts, carriages, boats, musical instruments, fire-bricks, gold ornaments and other jewellery; last, and not least, current coins of our own mints, perhaps for land purchased.

has paralysed in most parts of the world trading operations and business transactions, and new scope should be won by geographic efforts, both for rural and mercantile industries.

The paths of communication from the coast to Lake Victoria Nyanza lead, as is well known, over very elevated country up to heights of 8,000 feet, it being about half that altitude at the lake. As might be imagined, the climate in the upper regions is delightful, and the soil extensively fertile. Captain W. H. Williams (in the volume 1893-1894 of the Royal Colonial Institute) remarks that wherever a military station is formed the aborigines flock round it for protection and settlement. Grassy pastures abound towards the lake, in which herds of native cattle and also donkeys browse. Similar is the testimony of Mr. G. Mackenzie and other great authorities on tropical African geography.

Lakes Victoria Nyanza and Tanganyika are only 160 miles apart, and this shows how commanding the mercantile communication line would be even to as far as the Congo source. Game should also be plentiful, affording skins as a merchandise not unwelcome even here in our colonies. As timber trees occur only scantily at and near the lake, new extensive homes for our quick-growing and hardwooded Eucalypts would widely be found, especially for the Queensland species, the seed trade in this way being sure to represent a good sum annually for a long time to come. Superior breeds of horses, cattle, and sheep will doubtless soon also be introduced from here to these equatorial highlands as an additional outlet of Australian pastoral industries. The traveller above quoted regards, with others, Uganda as destined for the centre of a vast population of colonists; and Britain, largely through the East African Company, and therefore through commercial efforts, has there a permanent footing. Uganda is the upper key to the Nile waterways, and will eventually represent a river line of 3,000 miles, and it may influence also the traffic of Lake Tanganyika and others of the vast lacustrine basins. The road length surveyed from Mombasa—that being the most commanding port—to Lake Victoria Nyanza extends to 660 miles, rising to 8,500 feet. Settlers who hail from Australia should soon bring us into ready contact with these new fields for industrial activity of high promise. Railways are sure to open up within the next decennia easy access to many of these wide tracts of country. It seems that to Dr. Baumann the enviable credit is due of having penetrated recently to the remotest sources of the Nile, by tracing upwards the whole of the Kagera River as the principal feeder of Lake Victoria Nyanza. So far as the country at Lake Nyassa is concerned, the access is facilitated through the Shiré River, as emanating from the lake. There, also, many more new emporiums must necessarily soon spring up, to which Australian attention has not yet been practically directed, although steamers are plying already in these waters also. Coalfields exist on the Upper Shiré and in other regions of tropical Eastern Africa. On these tracts of country Merensky is one of the best and latest authorities. The most direct intercourse with the coast at a distance of 350 to 400 miles in a straight line would not be through British territory; but it can be foreseen that trade connections will arise southward, placing the Nyassa regions in payable communication with the northern terminus of the South

African railways through wheeled vehicles or animals of burden. This would bring as a result an augmented trade between Her Majesty's South African and Australian dominions; and we would, speaking figuratively, draw nearer then also to Mashonaland and Matabeleland, whence we hear such glowing accounts as regards salubrity, fertility, and golden riches through accurate recent works, such as that of Sir A. R. Sawyer, with numerous maps, issued in 1894. In view of business calculations it may be noted that the distance from Swan River to Zanzibar is not greater than from the Thames to the West Indies, about 4,500 nautical miles; while it is not quite so far as from Port Phillip to Java, but with an open passage across the ocean all the way, whereas the distance between London and Zanzibar by the Suez Canal is about 6,600 miles, involving besides costly dues. Only some few months ago the discovery of diamonds was announced from Mashonaland. We must wonder how so many of the East African treasures could have remained hidden up to the latest time—when Solomon sent for gold to Ophir; when Ptolemæus had a correct idea of the position of the Alpine Moon Mountains; when Barboza, a cousin of Maghellan, mentioned gold as still obtained at the ruins of Zimbabwe in Mashonaland, revisited lately again by E. A. Maund, and within 1894 by J. T. Bent, the latter unearthing there Roman coins. Africa had, however, already been crossed from Angola to Mozambique, though more for trading objects than geographic researches—in travels of Pombeiros from 1802-1811. A distinguished indigenous Central African, Dr. M. L. Desai, remarked before the Royal Colonial Institute, some few years ago, that from the valiant native tribes accustomed to tropical heat could, in the modern sense, be created agriculturists, traders, mechanics, engineers, and soldiers, as loyal and grateful subjects of the British Empire. Indeed, scattered dwellings must soon rise to villages, and towns also, in tropical Africa. Enlightened government is necessary for the protection of life and property; roads for business progress; schools to provide liberal education for subsequent fitness in life; chapels and churches to speed spiritual welfare. Indeed, in these lands, new for higher civilising exertions in all directions, thousands of things are wanted if once we think of details; moreover, there is a special charm in settling on primeval lands glorying in natural freshness and rejoicing in rewardful toil.

Turning now to the east, we can get a fair idea of Australian prospects, in its mercantile contact with the South Sea Islands, when we reflect on what already has been accomplished for Fiji. According to Gordon and Gotch's "Handbook"—a work which for its practical excellence has but few rivals extant anywhere—the Fijian Group, with its 7,500 square miles, and with a population of only about 2,000 whites in a total of about 120,000, imported in 1892 goods to the value of fully £250,000 sterling, and had an export of nearly double that amount, comprising sugar to the value of about £300,000, copra £50,000, fruit (mostly bananas) over £60,000. More than 90 per cent. of this trade—remarkable for the comparative briefness of time in which it rose—is with the Australian colonies, including New Zealand. In British New Guinea, one of the most recent of colonised territories, the proportion of export to import is as a reverse to that of Fiji, but it has been created with surprising quickness,

thanks to administration most admirable. Taking into account the largeness of the territory there, the magnitude of the resources, and a working power represented by 350,000 autochthones, we must be conscious that New Guinea will have a great future before it. I have not dwelt on this topic on this occasion to any great extent, because from your city emanated the momentous reports of the Hon. John Douglas and Sir William Macgregor, unfolding the splendid achievements, though only three of the Australian colonies gave substantial support to the Administration of British New Guinea. I felt all the more constrained to discuss the glorious prospects of the wondrous land of the birds of paradise because it is in the Queensland metropolis, where the fullest and most recent information only can be gained, and this indeed exists in a compact form, irrespective of the literary volumes of the bravest of missionaries, in the special work written some few years ago by the accomplished President of the Queensland branch of the Royal Geographical Society of Australia.

Let us remember also that part of South-eastern Papua, through interjacent islets, almost touches Cape York, suggesting the possibility of laying at inconsiderable cost an electric cable across. What a help that would be to bring New Guinea more under notice.

But one additional wish we might be tempted to express: the finding of a readily traversable pass from one of the southern harbours to the northern, so that a communication may be possible across the broad part of the peninsula without the necessity of a circuitous and intricate passage around the eastern point of the possession. For these reasons further highland explorations are still recommendable, inasmuch as from culminating points, irrespective of more geographic triangulations, the direction of the various watersheds would come into view with their comparative facilities for determining overland roadways. Then, also, a much further insight into the geology and the natural production—some, doubtless, of novel interest—of this part of the Papuan Island would then also be gained. The non-occurrence of volcanic eruptions and cyclones since the British occupation there seems singular, and would carry some exceptional advantages.

It must be a subject of rejoicing to all concerned that the administration of that possession will devolve for another term of four years on Sir William Macgregor, who, after the laborious and high-minded preliminary efforts of renowned missionaries—some martyrs to their cause—and after the toils and wisdom of distinguished predecessors, has throughout that new colony fully established peace and safety there with increasingly hopeful prospects for expansive rural and mining industries. This will have increased shipping and mercantile intercourse in its sequence, and would help to relieve overglutted productiveness of any Australian ports. The Governments of the three eastern colonies continue, in enlightened statesmanship, to afford even at a period of financial depression a most liberal subsidy to the Administration Fund; while the Royal Navy continues, by the prowess of the British flag and the splendour of its maritime surveys, to sustain and enlarge reigning supremacy also there.

The lengthened lines of river access will readily speed the development of New Guinean traffic. Rural introductions, fostered also from this colony, will wondrously augment the New Guinean

resources and therewith its exports. Could we hope that, for the benefit of later times, even the Angora and Cashmere goat and the most eligible of deer may be transferred to the Papuan Alps? Could there, perhaps, the gazelles of Africa find a last refuge on almost inaccessible declivities, free also from ferocious pursuers, to preserve these poor innocent creatures of grace and utility from impending extinction? Even boats of British pattern in the near future are likely to supersede soon the native canoes, so that a ready sale ought to arise for the use of the aborigines. Frail pile-dwellings, no longer required for safety, and abandoned thousands of years ago as no longer needed in the lakes of Europe, will give way to buildings of commodious access and some approach to comfort. Imagine only the saving of time thus effected to the by no means unassiduous dweller.

To single out an instance of commercial or cultural possibilities either actually already, or prospective, let the gutta-percha trees be merely mentioned, and especially the best of them—*Palauquium Gutta*; it has for present practical purposes ceased to exist in its limited native area, and the few allied species will likely soon share its fate. Yet, of all the trees of the world, it is the most indispensable, so far as our present knowledge teaches us; by their product of gutta-percha for isolation of electricity they are the most wanted at the present time, and yet the least provided for. Unlike the very varied trees yielding caoutchouc in different intratropic regions, the gutta-percha trees are naturally restricted to the Sunda Islands and Malacca; moreover, they are slow of growth; hence the urgency of further searches after these precious and very select constituents of the empire of plants; and inasmuch as the vegetation of New Guinea and Polynesia is rich in Malayan forms, such searches by experts, particularly from Singapore—as first urged by myself—on those islands for new sapotaceous trees of the gutta-percha type would be exceedingly promising, and at once prove an expansive source for mercantile enterprise, more lucrative than ever, as by a new French process the incomparably useful substance could also be extracted from the foliage hitherto sacrificed. The English import of gutta-percha in 1892 was fully 4,000 tons, representing a value not far from a million sterling. As cellulose from pinewood has latterly greatly superseded other paper-material, and much changed the channels of supply, so also may in the progress of scientific research and applied technology other substances be detected which readily act as isolators; but the fact remains incontestable, if a comparison be allowed, that, even for so simple a substance of daily requirement as cork, no substitute either natural or artificial has been found. Hence the wisdom of planting cork oaks by the million in our Australian colonies as a lasting patrimony.

There must be indeed much in store for gains through extended commercial efforts as new regions near to us are opened up for civilisation. If we cast our views still further to the east, the "thousand islands," of which Marco Polo already spoke, spread gradually out before us. Britain secured, besides its Fijian and other insular possessions, the southern islands of the large Solomon Group. Here we are on primeval soils, though within so easy reach. Highly accomplished naval officers have also there almost completed the coast surveys. Heroic efforts of missionaries have paved the way to

ingress of trade and culture, irrespective of the higher objects of these votaries of religion. The London Missionary Society, in its unceasing philanthropic efforts, sent out its new steamer "John Williams," built almost solely from savings of the school children of Britain, also on to these new shores, while the Royal Navy powerfully protects the settlements arising. All this augurs well. Sanitary measures are more carefully adopted in the choice of new abodes, and the savages without deprivation of their soil are vanquished now not so much by arms as by the awe inspired by the prowess of a great nation and the confidence inspired by their rules of justice. We are even told recently of the most precious of all metals as occurring there, and even of diamonds. The area may be counted for the British portion at 8,000 square miles with about ten inhabitants to each. Mountains of romantic aspect rise to 8,000 feet, rendering those islands well watered, and the already insular climate one of generally moderate temperature.

As is well known, several spacious and safe harbours exist. Intertribal warfare, decimating hitherto the local labour strength, is ceasing also there under the benign influence of civilisation. As for distance, we are not apt to realise that the majority of the Solomon Islands are about as far from the ports of Queensland as Moreton Bay is from Port Phillip, or St. Vincent's Gulf from King George's Sound. What products and what other merchandise can Australia send? The aspirations of the natives after trading contact with us will soon rise from the worthless brittle beads to substantial jewellery ornaments. The original hoop-iron will soon have lost its barter value and be superseded by implements of our own of European pattern, the crudest even no longer acceptable. Steel hand-mills, with which our early settlers in Australia used to grind grain raised on our own holdings, will be wanted everywhere by the Polynesians to crush their maize and sorghum. Fragile pottery will soon be extensively replaced by ironware; also at aboriginal homes iron pans will be in continued requisition for evaporating sea water to obtain crude kitchen salt. The primitive people of the soil will no longer be content with log dwelling and the shelter of palm-leaf roofs. Possession of brick buildings, with adequate furniture, European wearing apparel, boats and sails, structures such as we have, carts and draught animals, besides herds and flocks, will be their ambition, and that means ever-increasing exports from the neighbouring parts of Australia; and geography will also constantly be gaining from this in all its bearings. Comparisons of territorial extents cannot alone lead to any correct estimation of the prospects in any new colonisation; still it may give some idea of the final scope for merely rural operations there, when we consider that Mauritius contains only one-tenth of the area as compared to that of the British territory in the Solomon Group, or of the Fijian Islands, though its annual exports represent £3,000,000 sterling. Jamaica is only about half as large as the British Solomon Islands, yet its trade interchange is £750,000 sterling a year, although, in four centuries since its discovery by Columbus, the land became only in part cultivated. Barbadoes, with only 170 square miles in extent, maintains an annual export and import of over £1,000,000 each. According to remarks by Mr. C. W. Maxwell, at the Royal Colonial Institute, in the State of Perak, of only 8,000

square miles, but with a population of 213,000, the revenue of £55,000 in 1877 had risen already to £500,000 sterling in 1890, leaving a credit balance of £100,000. The State of Selangor, with only 3,000 square miles, but a population of 140,000, showed a revenue of £450,000 in 1890, leaving a surplus of £140,000. These splendid results are principally due to tin mines worked by Chinese; but among other products gambir is also much obtained.

We stand at the eve of great politic changes in Eastern Asia. The seclusiveness of China, which prevailed since grov antiquity, became broken in our very days, and must give way to significant reforms, affecting favourably the commerce and industries also in our Australian dominions. Japan, in an enlightened spirit, was in the van of these East Asiatic transformations, the results becoming strikingly manifest in events of the latest days; and the irresistible waves of human progress will sweep away more and more the antiquated prejudices, narrow-minded obstructions, and fanatic intolerance. It is as yet quite impossible to foresee how far and how soon these unavoidable transmutations will in all the recesses of Eastern Asia be triumphant; but the initiation is sure to be early, and the effect quick. It will be speeded by Russia's present gigantic efforts of reudering its vast territories in Northeru Asia accessible through railway communication. These efforts are to some extent the sequence of a great geographic achievement—the renowned voyage of the "Vega." China, with its incalculably rich natural resources, especially also in coal, will be forced to follow these systems of expansiveness for transport through the world, linking the universal interests of mankind together for peace, prosperity, and worldly blessing. Even Japan, with all its progressive tendencies, will make still greater strides to attain an equilibrium with the status of the great nations. No longer will the movable mat dwellings, with their small carbon fires, remain of wide adoption. No longer will mechanic handieraft even there continue the main motor in its industrious life! Imagine merely the requirements of China for facilitating its internal traffic by means of ordinary wheeled conveyances of modern type. What an outlet opens thus alone for Australian factories from our many harbours! Our detail knowledge of geography will also profit from the pending alterations of national usages based on inveterate traditions in the far East of Asia.

The young Czar Nicholas II., with the most philanthropic viows, inaugurates his reign doubtless in carrying out the thoughts or intentions of his imperial father, by entering on or continuing the construction of the above alluded to railway from the Ural to the northern boundary of Corea, a distance of about 5,000 miles, possibly involving an expenditure of £20,000,000 sterling. This contemplated steam communication by land will be three times as extensive as the one since some time in progress from Adelaide to Port Darwin, and may initiate new trade relations with our colonies, and, by its fitting in with the recently started Russian steam navigation line from Vladivostock to western North America, will bring about in those latitudes a direct encircling of the world. The line across Siberia will of course traverse many districts sufficiently populous, and therefore largely productive through working power, but will have to cope with an

inelement winter clime. Thus South Australia may take courage at such a grand example by continuing its transcontinental railway, whereby the steam engine, never tired when fed, will bring our great southern land into still closer contact with Asia and Europe. We are all well aware that the construction of railways saves largely the formation and maintenance of ordinary road, though that palpable fact is often lost sight of. Western Australia will doubtless come across, at a time not very distant, by an extension of its railway system to the eastern colonies. In either case the impetus is given by continued gold discoveries in the direction of these two lines. The distance from Moreton Bay to various parts of Japan, if we revert once more to these islands, unique in every respect, is somewhat less than 5,000 miles, traversable in two or three weeks, and not much further than from Swan River to New Zealand. It would seem that the extensive import requirements of the crowded population there could yet be far more met from our colonies than has hitherto been the case. The subject is so large that it cannot even cursorily be dealt with on this occasion.

Let us go on now to British India, which comprises an area fully half as large as that of Australia, with about 260,000,000 inhabitants. As the well-being of the vast native multitude gradually increases under the wise British rule, the people's requirements increase commensurably, and so Australia will doubtless be able to share in providing the Indian wants.

Proceeding still further east, the resources of western South America become unfolded to us. Though situated within the same degrees of latitude as our colonies, so that we cannot effect an interchange of the products of season such as with countries in the Northern Hemisphere, yet Chili and Peru interest us much also in a commercial aspect. Scenically the contrast is great, especially through the snowy elevations of the Andes chain. There, in high lands, is the home of the llama, the alpaca, and the vicuña, which, though doubtless destined to be superseded as burden animals by the dromedary and Bactrian camel, and possibly even in tropical jungles the elephant, will afford during indefinite periods, also to come, their unique fleeces for fabrics, rivalling in lightness cotton apparel, but much exceeding the latter in warmth. In the same way we may from the vegetation there instance the nut *Araucaria*, allied to the famous Bunya Bunya of Queensland, which, as permanent food trees, are wanted by the million for cool humid tracts of any countries of the mild temperate zone. But from the mineral empire in nature a far more striking example may be adduced, the Chili saltpetre, an agrarian fertiliser not foreign to us here, but far too insufficiently utilised in Australia, as yet, for aiding in the resuscitation of exhausted tillage lands, always more readily defertilized in winterless zones, where cultures variedly proceed through the whole year.

A brisk direct traffic might be kept up for this mercantile commodity alone. Merely to the harbour of Hamburg this nitrate of sodium is annually shipped at a value of about £2,500,000 sterling, equal to 40 per cent. of the whole Chilian export, though not entirely for rural purposes. Bolivia and Peru likewise furnish this nitrate to a considerable extent. What can we offer in return? Chili imports timber largely, so that for our surplus of hard and

decay-resisting eucalyptus wood there should be an additional outlet, wood bricks above all being now in universal demand. Probably the import of sugar and coal there could be still much more extensively served, and, therefore, also from our eastern shores; Mr. E. W. Knox estimating the sugar output of Eastern Australia this season to exceed by 25,000 tons our local consumption, now principally supplied on the far wider way from western Europe. These are mere examples of prospective international traffic carried into new or extended directions. Details can only be worked out after start and progress, as much will suggest itself after actual trading intercourses. Though various supplies might be drawn for western South America from the interior of Argentina, yet this can only be done at considerable freight expenditure, as the railway requires us to ascend, at the Uspallata Pass, to 13,000 feet. But the competition in these trans-Pacific interchanges, when the Isthmus of Panama shall have been penetrated, may become very much modified by the altered distances of voyages then. Will this century pass—the greatest in the world's progress—without the celebration of this achievement, which was initiated already by the crowned mighty grandson of Queen Isabella, who sent Columbus out on his glorious path, and of what has engaged the thoughts of bright spirits ever since? Imagine the grandeur of the enterprise, designed to effect for the Western world what the forcing of a waterway through the Suez isthmus has done for the Eastern; he who realised this project of ancient times now also having passed away. The resumption of the Panama scheme—just now announced, and as regards finances seemingly secured—must be hailed by all civilisation with delight. When the 300 feet elevation of the Culebra are once overcome, the main difficulty seems to have vanished, as through adequate hygienic measures the insalubrity of the clime can be lessened, and the inhabitants, when more settlements are thoroughly formed, can secure comparative safety. And what an influx of population with ever-increasing requirements, such as can partly be met from our colonies, will these works of world-renowned magnitude bring about merely for the immediate vicinity! All honour to the promoters in France who so perseveringly and so enthusiastically enter on a new effort, so brilliant, so promising, but which at one time appeared to be a forlorn hope. The United States, not to any surprise, wish to connect the Atlantic and Pacific Oceans by a passage of their own. Unforeseen complications, physical disturbances, especially in regions of earthquakes, tariff difficulties, would render a double line of transit at the junction of the two Americas not unwelcome, if even the contemplated Nicaragua Canal was on a lesser scale of capacity than that of Panama, and trade and commerce by both efforts would be still further augmented. From Greytown, where some harbour has been formed, to Brito, the length of the canal would be about 170 miles. A great length, to be sure, but about 140 follow existing water lines, naturally more or less navigable, the highest elevation to be pierced in both cases being nearly the same. It is anticipated that the waters of the San Juan, through the dam of Ochoa, will provide for forty miles a depth of not less than 38 feet. From the Toro to, and partly through, Lake Nicaragua, deepenings have to be effected. What requires to be done for the completion of

the Panama line, so undauntedly commenced, is more generally known. To estimate these gigantic efforts of engineering skill for peaceful conquest in our own age, as the gift to nations and as historic triumphs, we might compare the construction of the stupendous Manchester Canal, of thirty-five miles length, at a cost of £15,000,000 sterling; the canal also for large ships connecting through Holstein the Baltic with the North Sea, of fifty-six miles length. The Suez Canal in its length of seventy miles had to overcome but slight elevations. The substantial gain from these colossal undertakings can approximately be estimated; the indirect advantages will ever be incalculable.

It is within remembrance of many still living that millions of their contemporaries never saw an ocean; and lived, as far as means for igniting was concerned, in the flint age.

Telephonic conversation, uninterruptedly and instantaneously, with clearness, is possible already at distances as far as Berlin from Vienna. In a still more powerful manner the ever-increasing extent of rapid locomotion is exercising its influence on commerce and industries, and renders new regions amenable to productiveness, formerly shut to exertions of civilised man. It is a transit period to some extent through which we live at present, and the means for industrial developments become so expanding, and the influence of the sciences and arts so powerful everywhere, that soon the torch of enlightenment will be carried into the all-remaining dark recesses of the world. The cessation of intertribal warfares in countries still of savagedom will set a vast amount of valiant labour free, formerly largely spent in futile, aimless, or even destructive combat.

Now, finally, a word to our young compatriots. The rising generation of Australian natives of European descent challenges in display of valour the entire world. The young Australians, as a whole, rival in loyalty the best of their British countrymen at home and abroad. Socialism, and the still greater horrors of modern times, as the outcome of misguided leaders of perverted mind, have not taken root on Australian soil. The good sense of our communities is sure to keep us free also from such evils in future. Young Australia bids fair to hold its own in all that is bright, whether in sciences or arts. It is endowed with talents second to that of no other country, and through prosperity here these natural gifts are in proportion to population more extensively developed than is possible in many other regions. Under our serene sky physical beauty becomes extensively created so as to contest anywhere for the palm. A sense of the æsthetic pervades the young population. A spirit of enterprise is generated and fostered by the ampleness of territory and openness of scope. Recognition of Australian destinies within legitimate bounds is evident. The youth of these colonies, following in the pious walk of most of their ancestors, is as extensively religious as even the rising generation in those parts of the globe where the most genuine Christian devotion prevails. Churches and charitable institutions in all directions bear witness to this. Our gracious Sovereign watches solicitously over the Australian dominion, and the strong arm of the great British nation guards us. Under such bestowals, Australia should advance to be one of the grandest and happiest among the great countries under the sway of the British throne!





