

CHAPTER X

THE REPUBLICS OF THE ANDES—CHILE

The republic of Chile is somewhat smaller territorially than its neighbours of Peru and Bolivia, but it is far more progressive as a nation; its people are more energetic and enterprising, and they have advanced for themselves the claim of being the "British" or the "Americans" of South America. It might be a matter for surprise that a country of so remarkable a form as is the republic—nearly 3,000 miles long, with an average width of about 180 miles; a ribbon-strip of territory compassing the tropics at one end and the Antarctic at the other; from the torrid Capricorn to the frozen Horn; washed by the sea on the one hand and shut off from the rest of the continent by the Andean barrier on the other—could retain any homogeneity as a nation. But notwithstanding its curious physical configuration, Chile is more united perhaps than any other Latin American country, none of which are pervaded by a more binding patriotic sentiment. The national sentiment regarding the natural boundaries within which the country lives and strives to progress is embodied in the national anthem of Chile: "That God-given bulwark, the snowy Cordillera; that tranquil sea, the highway of thy future splendour!" This sentiment, however, cannot banish the difficulties which confront the Chilean republic in its development, due to the disposition of the national territory, and grave problems of its economy and governance still await solution.

The area of Chile is variously computed between 293,000 and 307,700 square miles; and the population numbers (1922) about 4,000,000 people. From Arica—the province disputed with Peru—to the southern extremity of Tierra del

Fuego, or Cape Horn, the country is 2,700 miles long, with a greatest width of 228 miles and a least of sixty miles. To the north is Peru, to the east Bolivia, and across the snowy summits, Argentina and its territory of Patagonia.

In respect of climate and products, Chile may be described in four longitudinal regions. The northernmost of these extends from the Peruvian boundary to Coquimbo; an arid belt of territory intersected by some cultivable valleys, and containing the Sahara-like deserts of Tarapacá, Atacama, and Antofagasta. These, although desert as regards vegetation, contain the well-known nitrate or saltpetre deposits, or "Salitreras"; and the "Oficinas"—or establishments which produce and export the nitrate—familiar at least by name to the British shareholder. The chief ports forming the outlet to the region, such as Iquique, Antofagasta, and others, are generally more or less open roadsteads on a surf-beat shore, rather than sheltered havens. The difference between the climate of the western and eastern coasts of South America is nowhere more strikingly shewn than in the fact that the arid, lifeless region contained between Iquique upon the tropic of Capricorn and Antofagasta; a region approximately 250 miles long; corresponds with the rich coffee-producing state of São Paulo on the Brazilian side, and Rio de Janeiro. The second division is that which embodies the principal industrial, commercial, and habitable region of Chile, which includes the beautiful and fertile vale of Chile, and the fine cities of Santiago, the capital of the republic, and Valparaiso, the principal seaport. The pastoral and agricultural portion, the Central region, follows, and south of this lies the forest section, extending almost as far as the straits of Magellan: a stretch of territory 900 miles long. Lastly, is the cold zone of the far southerly region, including Tierra del Fuego and the Chilean portion of Patagonia; terminating in the Beagle channel and Cape Horn. This last named region is by no means unproductive, being in part an excellent field for stock-raising, and containing numerous gold placer mines; both of which sources of industry account for the

comparative prosperity enjoyed by the town of Punta Arenas, the most southerly port in the world.

The desert interior of northern Chile is arid, appalling in its aridity, yet vast, spacious, grand with a certain lifeless beauty such as deserts possess. Access is gained to the high pampas upon which lie the great nitrate beds by the short railway lines, which with difficulty climb the cliffs and ravines of the coast from the narrow littoral, served by the nitrate seaports; and thence desert trails enter upon the barren expanses leading to the mining valleys of the Andes, rising grey and serrated on the horizon. From sunrise to sunset the wearied traveller and his mule follow these trails, parched by the blazing sun, in some cases unrelieved by any oasis, in others entering dry river valleys where an occasional well is the only water supply, and a cluster of adobe huts and stunted trees offers the only refreshment to the eyes. In times of flood, however, these parched canyons are converted into roaring torrents which sweep all before them, floods hundreds of feet wide, which flow down for miles and are lost in the deserts below. Still higher the rocky base of the Andes is ascended, leading to bleak plateaux and mighty precipices, where the condor and the vicuña are the only inhabitants. Nature in the mineral world has staged strange scenes, and inserted treasures in strange places in this region. Great beds of gravel conglomerate, and other formations impregnated with the salts of copper, sometimes in beautiful crystals, are exposed, and great lodes of copper and silver ores, intersecting hills worn smooth by glaciers long since retreated, bleak altitudes where the incautious traveller suffers the agonies of the *soroche*, and the puny dwelling of the miner on the hill slopes is nightly shaken by the *temblor*, or earthquake. Singular rock-basins, holding lakes of water covered by wiry mountain mosses mark the heads of valleys, carved out by glaciers—"glacier meadows" forming the drinking places of the vicuña and the deer, and far beyond and above rise the glorious snowy cones of Andean volcanoes, majestic against the blue of the sky, which mark the frontiers of Bolivia. Over all reigns the

glamour of the solitude, the inscrutable voice of the desert, the untranslatable music of the mountains.

The central region of Chile is of a very different character. It is a land of a temperate climate and rainfall, with soft pleasing valleys, of pasture and cattle, vineyards and fields, and the lower mountain slopes display a smiling landscape, where the rocks are clothed with verdure and flowers, and hedgerows are gay with white and red roses; the land watered by the plentiful streams proceeding from the cascades of the Andes. Still further to the south are the fiords and forests of the lower part of the continent, a topography similar in part to that of British Columbia, in the north of the sister continent, where the geological changes and subsidences of the termini of the great coast ranges have had like effects. This region is subject to rigorous climate.

The hydrographic system of Chile is relatively simple: the rivers all flowing to the sea from the Cordillera, except in the broken extremity of the continent, where lakes and channels of intricate character exist. Only a few of the rivers are navigable, their aggregate navigable length being about 700 miles. The rivers in the desert regions are swallowed up in the sands in most cases, and do not reach the coast, but their waterless channels are of interest as shewing that different hydrographic conditions formerly existed in that vast region. One of the main Chilean rivers of the north is the Loa, which receives a large volume of water from the Cordillera and from its upper courses, where, untainted by mineral salts, it supplies water which is taken across the desert in iron pipes to some of the coast towns. The Copiapo river is practically exhausted for purposes of irrigation before reaching the sea. The waters of the Coquimbo, the Limari, the Aconcagua and others are also used for irrigation, over a considerable area. The rivers of the central agricultural province are much more valuable, and have been of great service in developing the agricultural regions of Central Chile, having served as means of transport where there was neither railway nor highway. The most important is the Bio-Bio, elsewhere mentioned; but ten or more are navigable. The rivers of the unsettled southern regions

are not all explored. In the far south the peculiar network of fiords and connecting channels covers an extensive area. A peculiar feature of the extremity of Chile is the large number of glaciers on the western and southern slopes of the Cordillera, which discharge into the deep estuaries of these singular waterways; and the formation of these icy streams at comparatively low levels, with a discharge into tide water is a marked phenomenon. Here the glaciers terminate in the sea.

The climate and temperature of Chile varies greatly, from tropical dry heat in the north, to the coldness and humidity of the extreme south: and there are also vertical zones of temperature, as in Peru: but extremes are less marked than under similar latitudes in the northern hemisphere, due to the greater juxtaposition of the sea; and the Humbolt current, as in Peru, modifies the heat of the arid areas. At Copiapo, in lat. 27°, the mean annual temperature is 60°, and the rainfall one inch; at Santiago, in lat. 33°, it is 54°, with 16½ inches of rainfall. Palms grow naturally as far south as 37°, and the vegetation even south of Talca has a sub-tropical aspect; and irrigation is necessary, due to the long dry season. The climate is healthy and agreeable, and if the death rate is high, it is due to the mode of life of the working classes. At Valdivia, lat. 40°, the mean annual temperature is 53° and the annual rainfall 108 inches—an equable climate which extends to Ancud. In the south the conditions become extreme.

The republic of Chile is divided into twenty-three provinces and one territory, whose capital towns, areas, and approximate populations in 1922 are:

PROVINCES	Sq. MILES	POP	CAPITAL	POP.
Tacna ..	9,251	32,000	Tacna	12,000
Tarapacá ..	10,131	126,000	Iquique	50,000
Antofagasta	46,611	128,000	Antofagasta	37,000
Atacama ..	30,729	86,000	Copiapo	14,000
Coquimbo ..	13,461	229,000	La Serena	28,000
Aconcagua	5,487	154,000	San Felipe	12,000
Valparaiso ..	1,953	331,000	Valparaiso	206,000
Santiago ..	5,665	562,000	Santiago	400,000
O'Higgins ..	2,342	106,000	Rancagua	6,000
Colchagua ..	3,856	218,000	San Fernando	11,000
Curico ..	2,978	146,000	Curico	20,000

PROVINCES	SQ. MILES	POP.	CAPITAL	POP.
Talca ..	3,840	170,000	Talca	43,000
Lináres ..	3,942	142,000	Lináres	12,000
Maule ..	2,475	167,000	Cauquenes	11,000
Nuble ..	3,407	215,000	Chillan	48,000
Concepcion ..	3,252	248,000	Concepcion	63,000
Arauco ..	2,458	83,000	Lebú	3,000
Bio-Bio ..	5,246	136,000	Los Angeles	22,000
Malleco ..	2,973	125,000	Angol	9,000
Cautín ..	5,832	159,000	Temuco	19,000
Valdivia ..	8,649	125,000	Valdivia	19,000
Llanquihue ..	45,515	120,000	Puerto Montt	6,000
Chiloé ..	8,593	112,000	Ancud	5,000
Magallanes ..	71,127	20,000	Punta Arenas	12,000

For purposes of industrial enumeration in the Chilean census the country has been divided into six sections: the nitrate with 320,000 population, mining with 300,000, the central with 1,169,000, the agricultural with 1,349,000, the Araucanian with 602,000, and the Antarctic with 241,000. Otherwise the population is distributed in a form conducive to a fair circulation of national life. Tacna, in the extreme north, has more than 12,000 people, and Punta Arenas, in the extreme south, about 12,000. In the nitrate region Iquique has 50,000 inhabitants, and Antofagasta 37,000, which is almost the population of their respective provinces, due to the desert character and the consequent concentration of people in the cities. Valparaiso, the chief seaport and the commercial capital of the republic, has 206,000 inhabitants, and there are nine other towns in the country with more than 20,000 inhabitants each. Concepcion lies equidistant from the northern and southern extremities of the country, forming its geographical centre.

The government of Chile is wisely preserved as a centralised republic or "unitary" system, in which the system of federation has been avoided. In a country of such vast longitudinal extent, wherein political conditions would perforce have to be made to co-ordinate with climatic zones, the federal system as enjoyed by Mexico or Brazil could scarcely be conducive to national solidarity. The powers of governing are vested in the three distinct branches of Legislative, Executive, and Judicial; as in the other Latin

American republics. The executive consists in the president, who is chosen by electors who themselves are elected by the departments, and a cabinet of six ministers; of interior, foreign affairs, worship and colonisation, justice and public instruction, war and marine, finance, industry and public works. The minister of the interior acts as vice-president when necessary. A council of state of twelve members, comprising the president and five appointed by him and six by congress, form part of the machinery of governance. The national congress, or legislative branch of government, contains a senate of thirty-two members and a chamber of ninety-four deputies. The senators are elected by provinces, with office for six years, and one half retiring every three years; and the deputies by proportional representation of one for each 30,000 of the departmental population. As in the usual Latin American constitution, it is set forth that the sovereignty resides in the nation, but suffrage is confined to married citizens over twenty-one and unmarried over twenty-five, who are literate, owners of real estate or invested capital, of a stated amount; and as 70 per cent. of the population is enumerated as illiterate, and the greater part landless and poor or earning a very low wage, the sovereignty of the people is held by a small minority—conditions such as are general in Latin America and not peculiar to Chile. The judicial power is independent of the executive, consisting in a supreme court of justice of seven members in the capital, six courts of appeal in the provinces, and tribunals of first instance in the departments, with justices of the peace in the districts. The jury system does not exist. The higher judges are appointed by the executive. The civil and commercial law are based upon the French code. The twenty-three provinces and territory are sub-divided for the above methods of administration into 75 departments, 855 sub-delegations, and 3,068 districts.

The Chilean people are composed of the three usual South American classes of whites: of earlier Spanish origin; mestizos, formed of the alliance of the early settlers with the aborigines; and the Indians. The mestizos form the bulk of the population, constituting 60 per cent. of the total,

and the people of white extraction 30 to 40 per cent. The Indians of pure race are numbered at about 100,000. The Chileans lay claim to having but a small admixture of aboriginal blood, but whilst there is undoubtedly a far larger proportion of people of European extraction in Chile than in any other Latin American republic except Argentina, the mestizos nevertheless are the principal basis of the population. The Indians are mainly concentrated in the eastern forest region, and are principally the remains of the brave and independent Araucanians who successfully resisted both the Inca and the Spanish advance, and the element they provided in the formation of Chilean nationality has been of the utmost value. Like the Indians of the Andes of Peru and Bolivia, their numbers are now being steadily reduced by drunkenness, the effect of the white man's alcohol, and by disease brought about by the poverty-stricken and unsanitary condition of their life. The principal part of the population of Chile, about 73 per cent. of the inhabitants, is concentrated in the fertile provinces which form the vale of Chile.

The ruling and educated class of Chileans, including the professional and landed element and those engaged in industrial and commercial enterprise, are of energetic and generally shrewd character. In their business operations they are more advanced than their neighbours of the other Andean republics, and pride themselves, not unjustifiably, on their commercial methods; and joint-stock enterprise and company formation has a considerable vogue in Chilean industrial affairs. The educated Chileans possess pleasing characteristics of hospitality and politeness, which almost disarm criticism of their national defects, and they have a marked admiration for those virile qualities of the Anglo-Saxon race, which to some extent they have adopted in their business pursuits and in certain national institutions. Foremost among these is the British-built navy, whose regimen is modelled upon that of England, with certain well-known traditions connecting it therewith. The women of Chile are handsome and vivacious, and display to a marked extent the addiction to society functions,

which does not, however, minimise the love of home which characterises the women of Latin America generally. The Chilean is to a certain extent marked out from the neighbouring people of South America by a somewhat brusque mode of address, and harsher rendering of the Spanish language, yet there is a strong poetic temperament beneath it. Not less hospitable than the Latin American people generally, the Chileans have less of the somewhat superficial urbanity which is the marked characteristic of the Spanish American people. Taken as a whole, the Chileans must be regarded as one of the dominating personalities of the community of South American nations.

Whilst the upper and educated class and the land-holding oligarchies which govern the republic are well advanced in comfort and civilisation, they form but a small minority, and the bulk of the population of Chile, like that of the other Andean republics, is poor and ignorant in the extreme ; and the workers as a class, being landless, badly paid, illiterate, are without voice in the government of the country. One of the principal causes of this backward condition is that of land tenure. The upper classes are the descendants principally of the early Spanish settlers who, when the republic was founded, secured to themselves entire political control and the possession of the land ; the workers being kept in a state of almost hopeless servitude. Since then a species of oligarchy composed of the rich land-owning class rules the country, and the laws formed in the interests of this class and against the lower class have suffered comparatively little modification ; although some improvement in education and the establishment of manufacturing industries, which have been fostered under a high tariff, have benefited the common people to some extent. Yet were it not that the Chilean peons and *rotos* came of an extremely hardy stock, the deprivation of almost all means of advancement in the past, and the low wages paid, would have rendered them much less numerous than at the present time. Their qualities of patience and endurance under poverty and petty oppression, like those of their neighbours, the Peruvian Cholos, are worthy of acknowledgment, and

of a better lot in life. The chief defects of this class are their drunkenness and the sanguinary spirit they display in private or national quarrels. Murder is lightly regarded; the knife is the most ready argument among them, and the butchery of fallen enemies on the field of battle has been one of the greatest reproaches against their remarkable fighting qualities. Infant mortality is very heavy.

But the Chilean *rotos*, the men of the mining and agricultural and working class generally, have some excellent qualities. As a miner the *roto* has few equals in the world, with his tenacity and absence of fear, his resolution to win in whatever he does, his love of gain in which he does not spare his body, his powers, or his pocket, and his primitive sense of honour—the honour of the bandit at times it may be. He is a good friend and a terrific enemy, fearing nothing, and stopping at nothing, bearing in his veins the blood and valour of his indomitable Araucanian ancestors, the most vigorous and tenacious indigenous race of the whole western hemisphere—which kept back the redoubtable Incas and fought long with the Christians. Furthermore Chile has enjoyed a clean record, and has possessed a beneficial factor from the absence of negro slavery, with very small exceptions, such as in colonial times degraded a part of the population of Brazil, Peru, and other countries, and brought about an undesirable racial conglomeration.

The character of the Chilean people was well shewn in the war of the Pacific, waged against Peru and Bolivia. Thousands of miles from their base, the Chileans nevertheless manned their fleets, fought terrible sea battles, and swarmed over Peru, took from her the nitrate provinces, deprived Bolivia of her only seaboard of Antofagasta, ravaged the coast of Peru, attacked and overcame the first, second, and third lines of defence of Lima—heroically defended by Peruvians, young and old, rich and poor—and kept the Chilean flag flying over the Peruvian capital for several years; lastly obtaining as their recompense what has proved to be the most valuable indemnity ever paid one nation by another, in the handing over the nitrate provinces.

The reproach of backwardness in literacy the Chileans

are now making endeavours to cast off. The old conservative regimen is giving place to the increasing influence of more liberal ideas, even if the advance in popular education is slow. The increase in urban employment, due to the expansion of industry, is also helping to stimulate a desire for education among the lower classes, and this will doubtless extend to the small towns and rural communities. Education is largely under the control of the government, and from the university down to the smallest and most distant primary school, educational establishments are under the direction of the minister of justice and public works. The university buildings of Santiago form a prominent architectural feature of the capital. The Instituto Nacional is the principal secondary school of the country. There is a total of about 2,500 primary schools, equal to nearly one per 1,500 of the population, of which 1,700 exist in rural districts and the remainder in the towns. Part of the teaching is devoted to instruction in manual labour, and to education in civic matters, and in every grade some hours per week are devoted to religious instruction. Representatives of the church sit on the central committee for education, which works in harmony with the ecclesiastical authorities, and as there is little or no avowed dissent from the national Roman Catholic religion, questions of denominational character are not aroused. Sixteen training colleges are maintained by the state throughout the republic, six for men and ten for women: the course lasting five years, with training, board, lodgings, and books free of cost, carrying, however, the obligation of state service as primary teachers for a minimum period of seven years. In the men's training colleges regular instruction is given in lessons on "Religion and Morality," and in the women's on "Religion." Secondary education is carried on in establishments or lycées in the chief towns, to the number of seventy-five, about equally divided between boys and girls, those for boys being under the direction of the university of Santiago, and those for girls directly administered by the state. There are five classes, or courses, in these institutions, the first of six years, and the second of three years, from which

matriculation for the university is allowable ; and thus a path is open from state education to the university career. University teaching is free, and the degree of " doctor " does not exist in Chile, being considered undemocratic. As regards technical education, institutions for such are also provided by the state. There are also six agricultural colleges, ten commercial schools, three mining schools, twenty-nine technical colleges for women, where they are taught all kinds of practical women's work ; also a school of art and a conservatoire of music and the drama. English is an obligatory study in most of the men's educational establishments. The English and German schools are also a feature of education in Chile.

It is to be observed that the Chileans, although one of the most virile and military of the Latin American people, are at the same time among the most religious. The Chilean clergy are generally drawn from the higher classes, and are of better intellectual and social standing than in the Latin American states generally. The Roman Catholic religion is by the constitution the religion of the state, and the church, although wealthy, derives a large part of its income from a subsidy included in the national budget ; with a Minister of Worship as supervening authority. The higher appointments of the church are also subject to intervention by the Executive. The privilege of religious worship is accorded to other faiths by a law of 1865, with civil marriage and the secularisation of cemeteries. Santiago is the see of an archbishop, and there are three bishops. The Chilean worker and miner is superstitious, like all his brethren of Latin America—superstition largely mixed with religion. A tangible evidence of religious ideas lies in the great bronze statue of El Cristo de los Andes, which was placed upon the snowy pass of the Cordillera at the time of delimiting the Chilean-Argentine frontiers ; as an evidence of the value of arbitration, whose successful consummation avoided what doubtless would have been a hard and bloody struggle between the two countries.

Santiago, the capital of Chile, is a name far less familiar to the foreigner than is that of Valparaiso, its seaport ; due

largely to its position inland. It is a city of stately and attractive appearance, well laid out, upon a fertile plain overlooked by the snow-clad peaks of the Cordillera; with broad, regular streets, and handsome public buildings, plazas and alamedas: closed in from the sea by a low range of mountains paralleling the coast, forming part of the beautiful vale of Chile, and is reached from Valparaiso by the railway which traverses the rocky and barren coast belt.

The railway, which is 115 miles long, enters the city through one of the finest avenues of any South American capital, the broad Alameda, planted with giant poplars and lined with imposing buildings, three miles in length, adorned with flower gardens, fountains and sculptures, among which are grandiose equestrian statues of San Martin and O'Higgins, the two famous Chilean heroes and liberators. From the centre of the city rises the rocky hill or crag of Santa Lucia, formerly a citadel, but now laid out as a great pleasure-ground, with theatres, restaurants and monuments, and winding walks which lead to points where picturesque views of the surroundings are obtained. Seen from this high point, 300 feet above the valley, the city unfolds on both sides of the Mapocho river, with parks and squares which relieve the sameness of the geometrical plan of its construction, and the great Alameda bisects the whole. The Mapocho river, in earlier time the agent of destructive floods, is retained by solid embankments and crossed by handsome bridges. Among the plazas enclosed by the parallelograms formed by the straight streets and those which cross them—in almost too great a uniformity—are the Plaza de Independencia and the Campo de Marte. Upon the former faces the cathedral, which however, is not of striking exterior effect, although the interior decorations are good. The original building, erected by Valdivia and rebuilt by Mendoza, was destroyed by an earthquake in 1647 and rebuilt in 1748, and is 350 feet long, and 92 feet wide. Among the most noteworthy buildings of the city is the Capitol, with its rows of massive columns, surrounded with beautiful gardens, the Moneda, or executive residence, the municipal Palacio, the courts of justice, the

university. The national library, with more than 100,000 books, the school of arts and trades, or Lyceo, the national conservatory of music, the observatory, national institute, mint, and the theatres are others of the principal edifices which form the handsome grouping of the national capital. The water-supply of Santiago is obtained by an aqueduct five miles long, and the streets are paved with asphalt and traversed by tramway lines. A small plaza and column marks the spot where in 1868 the Jesuits' church was burned down, with 2,000 victims, chiefly women. The city has been the scene of many earthquake shocks and of frequent revolutionary disorders. The present population is over 400,000 inhabitants. Santiago stands at an elevation of more than 1,800 feet above sea level, and to the east and north-east rise the serrated Andes, snow-clad and scarred, appearing as if almost close beyond, their crests gaining an altitude of 17,000 feet. The climate is temperate and healthy, with a moderate rainfall, and its latitude, $33^{\circ} 26'$ south, and elevation insures freedom from the diseases of the more northern coast towns. The Chileans take great pride in their handsome capital, which has never yet been subjected to a siege.

Valparaiso is the most important centre of commercial activity on the whole Pacific coast of South America, ranking next as a seaport to San Francisco, the western capital of the United States. It lies upon a broad, open, semi-circular bay, on the slope of a spur of barren hills forming a rocky peninsula, whose promontory affords good shelter from the westerly and southerly storms. But from the north the bay is open to the gales which at times work serious damage upon the shipping in the harbour, and improvements at heavy cost are being carried out to remedy this condition, such as will make of the port a more desirable haven. The harbour suffers from the disadvantage of many other South American harbours, such as Montevideo and Brazilian and Peruvian ports, in the relative shallowness of the bay, which obliges vessels of large draught to anchor off shore and to discharge by means of boats and lighters. The town is in a singular situation, topographically composed

of a number of hills separated by deep ravines, spanned by numerous bridges, and a narrow strip of level ground on the sea edge, less than half a mile wide. From the lower to the upper portion of the town a number of lifts, stairways, and winding roads ascend, giving access to the higher districts, 1,000 or more feet above the shore. The poetical name of Valparaiso—the Valley of Paradise—was bestowed upon the port by the Spaniard Saavedra, who founded it in 1536; but it was a misnomer, which the barren hills and unpleasing odours of the foreshore and narrow streets sufficiently attest. The town is, nevertheless, not without some pleasing elements, and approached from the sea is of an imposing character, its white buildings standing out upon the shore, and climbing the hills in picturesque form, backed by the mountains. But its principal claim to greatness is in the commercial importance as a great shipping terminus and famous seaport. Valparaiso was captured in 1578 by Drake, and in 1596 by Hawkins, and in 1600 was sacked by the Dutchman van Noort. In 1866 it was bombarded by the Spanish fleet and laid in ruins, and in 1891 was sacked by the Chileans themselves after the repulse of Balmaceda. It suffered greatly from earthquakes in 1730, 1822, 1839, and 1873, and in 1908 it was almost totally destroyed by an earthquake: its public edifices, private residences, water, lighting and transport services all were wrecked, and the population obliged to flee to the plateau above. But with characteristic Chilean energy the town has risen from its ashes, with improved conditions architecturally. The new port works now under construction by a British firm, comprising breakwaters, wharves, railways, custom house, electric cranes and other matters, are being executed at a cost of 33,000,000 Chilean dollars.

To the north of Valparaiso is the handsome seaside resort of Viña del Mar, a place of gardens, hotels, casinos, concerts, and restaurants, and other attributes of holiday life, and Chilean society crowds thither, the men in clothes of London fashion, and the women in Paris modes, graceful and handsome, with the peculiar attractiveness of the women of the western South American coast towns. Aquatic sports,

bathing, boating, piers, bands, and the usual elements of seaside resorts indicate that the pleasures of the Chilean people are upon lines such as are common in Britain, California, or elsewhere.

The mountains are nearer the sea in this part of Chile than in the northern region and in Peru, and the peaks of the snowy Cordillera are seen from the coast. The loftiest peak, Aconcagua, the highest mountain in the New World, reaching 23,097 feet above sea level, is finely beheld from the Chilean Trans-Andean Railway beyond Santiago.

The principal seat of life and agriculture in Chile, and the really typical part of the civilisation of the republic, is in the Vale of Chile, the broad valley or plain extending from the Aconcagua river slightly to the north of Santiago, the capital, to the gulf of Ancud, more than 600 miles long and 60 broad, forming in the main a fertile region of alluvial soil, watered by numerous streams which descend from the Cordillera. This valley is the richest and most thickly populated part of the republic, and embodies an agricultural and pastoral region of great productiveness. The rainfall is moderate, being heaviest in the south, where the plain is covered with forest. This great vale of Chile lies between the maritime Cordillera and the Andes, and extends approximately from latitude 32° to 42° south.

The railway line running southward from Santiago along the valley reaches Valdivia, some 400 miles long, with branch lines to various points upon the coast. This great artery of travel is state owned. The port of Talcahuano is the largest and best protected port on the Pacific coast of South America, lying about mid-way between Santiago and Valdivia and connected therewith by the railway. It is the principal naval station of Chile, and has a large dry dock for the repair of vessels; and a new naval dry dock to accommodate the largest type of warship is being built, the only one upon the Pacific coast. Concepcion lies seven miles from the port on the Bio-Bio river, the centre of a rich agricultural region, and the town has a population of some 63,000 people. Wheat, wine, wool, cattle, timber, and coal are produced, and it possesses flour mills, carriage and

furniture factories, and breweries. The city is well laid out on level ground, with broad streets and squares, a cathedral and fine churches, and is an episcopal see. Above, the river is navigable for 100 miles and carries considerable traffic, but at the mouth is somewhat obstructed. Another line of railway extends to the south through the coal-fields, crossing the river by a steel viaduct 6,000 feet long. Concepcion has many times been destroyed by earthquakes. It was burned twice in early times by the Araucanians in their long struggle against the Spaniards.

Valdivia is a town of 19,000 inhabitants of a pioneer character, to a large extent German, surrounded by flourishing settlements of the enterprising German colonists. The main industries are tanneries, dried meat factories, breweries and distilleries, and a shipyard for the building of wooden vessels and small steel steamers. Important sources of raw material around Valdivia and the investment of capital have been the factors, added to German immigration, which have developed the town. Grain, hides; and fine timber from the forests are among the sources of industry, which are characteristic of the temperate regions. German colonists were first brought in by the state, and between 1850 and 1870, and since that time, private settlers have arrived in such numbers that German is the principal language spoken, and beer from the German breweries at Valdivia finds a market all over the republic. The railway journey to Santiago occupies about twenty-two hours. Corral, the seat of some extensive ironworks, is a short distance away by steamboat, at the mouth of the river.

The port of Coquimbo lies 200 miles north of Valparaiso, and has one of the best harbours on the coast. It is the outlet for a hinterland of mixed mining and agricultural industries, and famous locally for its wine. One of the oldest Spanish towns, La Serena, lies five miles distant by railway, with a fine cathedral and other buildings such as the Spanish regimen bequeathed, and an attractive plaza where local society congregates, after the Latin American fashion, at evening concerts—matters which impart an atmosphere of distinction and agreeable social life to the place.

Agriculture in Chile possesses certain characteristics of its own. The general aspect of the lands under cultivation differs from that of closely civilised parts of the world, as there are few small areas of ground where agricultural products of various kinds are cultivated, nor does there exist a succession of woods and valleys with isolated patches of green, nor even farms to mark the site of an estate. In the agricultural region of Chile, as in the western portion of the United States, there are rolling plains, covered with wheat and corn, stretching away to the horizon, and in other districts immense pasture lands devoted to the raising of cattle. These lands, whether employed for grazing or for agriculture, are generally crossed by a network of irrigating canals. The system of cultivation, on a large scale, by the landowner himself, the raising of cattle in the open country, and artificial irrigation are the bases of Chilean agriculture. The great extension of the estates or country properties necessarily requires the employment of considerable capital, a large stock of cattle, and a full complement of machinery, buildings, and farm hands. The method of cattle-breeding within walled enclosures, on the one hand, and the character of the water used for irrigation on the other, containing a large percentage of lime, have so far rendered the use of fertilisers unnecessary, while the number of farm hands or field labourers employed has been comparatively small in proportion to the area under cultivation. Thus, Chile is not a land of small cultivation, as is the case in the highlands of Peru and Bolivia. The discarding of old methods in the cultivation of the soil, and introducing modern ideas and implements, has progressed during the last few years, but conservative ideas are hard to conquer, even in the face of modern progress, and although Chilean agriculturists are progressive and often adopt advanced methods of land culture, nevertheless primitive methods are still employed on many *haciendas*. The government, aided by the National Society of Agriculture, endeavour to diffuse information regarding modern methods of cultivation and machinery, and maintain agricultural schools and practical experimental stations in various parts of the country, and the society

holds expositions from time to time, to which the government contribute. The wheat yield is above 25,000,000 bushels annually. Recent estimates place the number of farms in Chile at about 50,000, with an assessed valuation of £75,000,000.

Agricultural industries occupy about half the population of Chile ; the chief products being cereals, alfalfa, vines and fruits. Cattle-raising and its products are mainly absorbed by the home market. Wheat, although grown also in the northern part of the country, yields its best result under the greater rainfall of the south, with a lower temperature ; and somewhat more than a million acres have been brought under cultivation altogether. The principal wheat export is to Great Britain ; the purchases of the neighbouring republics on the Pacific coast, which formerly were supplied by Chile, having fallen off due to their own production. The average yield of Chilean wheat is given as seventeen bushels to the acre, which is consequently superior to that of Argentina. One of the principal articles of diet among the agricultural population is maize, from which also the national drink, the *chicha*, or maize beer, similar to that of Peru, is made. The Chilean *roto*, especially in the nitrate mines, generally demands wheaten bread, and a sufficiency of meat ; and other articles such as are unheard of among the Latin American working class, as a rule. The wines of Chile have attained a deserved reputation for excellence, and are equal in many respects to those of California. The vine is cultivated from Atacama and Coquimbo to Concepcion, a zone over 1,000 miles long, but the best wines are made in the last-named district. Potatoes, walnuts—largely exported—beans, peas are important products and largely cultivated and consumed. The European apple flourishes excellently in the south, and peaches, apricots, plums, and cherries. Central Chile is a well-favoured region for agriculture, and few of the well-known fruits are not produced ; whilst the irrigated valleys of Coquimbo and Aconcagua furnish supplies of alfalfa, shipped as fodder to the desert provinces. The climate generally of Chile is suitable for cattle-raising, but the industry

cannot compete for purposes of export with the vast industry of the Argentina pampas, lying across the Cordillera to the east. It forms, however, the sole occupation of the people in certain districts. A feature of the Chilean landscape in the more fertile region is the profusion of wild-flowers, with bee-keeping as a resulting industry of some importance ; wild strawberries are found on both sides of the Andes, and the cultivated berries are excellent.

The agricultural products of the Latin American countries are generally of considerable interest, due to their great variety. Chile does not produce fruits of the tropics, except in a very small degree in the north, and consequently the agricultural resources are of the temperate zone. The products include wheat, rye, barley, oats, maize, beans, peas, lentils, potatoes, hemp (seed), alfalfa (seed), clover (seed), tobacco, hemp (fibre), alfalfa, clover, cheese, butter, wax, nuts, figs, dry plums, olives. There were in addition 177,500 beehives in the country, which produced 10,700 quintals of honey ; and of milk 12,000,000 decalitres were produced.* There was a total area of 30,600 hectares of vineyards ($2\frac{1}{2}$ acres) under cultivation, about half of which were irrigated : and an area of 9,600 hectares of fruit-trees.

The pastoral industry of Chile, as a result of better transportation facilities, is being developed, especially in the territory of Magellan, the southernmost political division of the republic. Magellan is an excellent field for stock-raising. It comprises about one-fourth of the total area of Chile, and contains approximately 48,000,000 acres of land. Its present prosperity is due principally to sheep-farming and the working of its gold placer mines. In Tierra del Fuego an English company maintains a flock of a million sheep, and the increase in cattle and horses, etc., is considerable, but much less than the resources of the country warrant. Horse-breeding is profitable. The native horse is descended from Andalusian stock and is hardy and docile, and, it is said, is capable of doing more work with less food and care than the European or American horse. During the last twenty years the native stock has been considerably

* The decalitre is equal to 2.2 gallons.

improved by the introduction of stallions from England, Germany, and France.

One of the greatest needs for the increase of agriculture in Chile is more agricultural labour, and of a better quality. Strong efforts have been made by successive Chilean governments to direct a stream of European immigration into the country, but it cannot be said that this has been very successful. At the present time various inducements are offered for skilled artisans and agriculturists. At one period, in the latter half of last century, large sums of money were spent for that purpose: and on the one hand immigrants were coming in, whilst on the other the native labouring classes were leaving the country in thousands to the neighbouring republics in search of better conditions of life, the emigrants having numbered as many as 30,000 in a single year. Since that time the conditions of labour have improved. In the last census of the foreign element Spaniards and Italians largely predominated, whilst of British, French and German there were about 10,000 of each, with a few thousands of other European nationalities and a small sprinkling of Asiatics. Immigration is highly desirable, but is very small. The difficulties in the way of attracting settlers have been due in large degree to the labour and hardships involved in making homes in the lands set aside for colonisation, which were situated in the inhospitable forestal belt, where to physical difficulties was added that of lack of protection from the lawless elements. The best agricultural land of Chile is in the hands of the ruling families and the Catholic Church, and is not susceptible so far to subdivision. There is no land tax. The most important colonies are the German, which have been successful, and important towns and agricultural industries have been established.

In the regions more suitable for colonisation, however, the government offers agriculturists a free grant of land, with implements and materials for building, and under certain conditions free third and second-class passages to Chile from abroad, and assistance in money, with second-class passage for skilled artisans. At certain ports, such as Talcahuano and Antofagasta, there are free hotels for

immigrants during the first few days of their arrival, and all rights and liberties are guaranteed—conditions which are not without certain attractions and possibilities, but which have fully to be weighed by the intending emigrant.

The great region—the “Farthest South” of the New World—is one of much interest to the explorer, but in the archipelago of Western Patagonia and Chilean Tierra del Fuego the climate is a harsh one. Terrific and almost continuous gales from the west and south-west, incessant deluges of rain, and great cold seem to render colonisation and profitable industry difficult. Nevertheless, on both sides of the straits of Magellan sheep-farming is carried on. The rapid growth of Punta Arenas, the most southerly port in the world, which already contains more than 12,000 inhabitants, drawn from many nationalities, is a proof of the increasing trade and prosperity of the district that it serves. The great lakes and channels which communicate with the Magellan straits are but little known, and the grandeur and wildness of the scenery of these rock-girt solitudes, with their snow-clad mountains, dark forests, and giant glaciers, are impressive. The Patagonian channels, through the labyrinth of islands into which the west coast is broken up, stretch from the entrance of the straits to Puerto Montt through twelve degrees of latitude. Part of the region is inhabited by the moribund race of the Yagans or Boat Indians, upon the Fuegian coast and in the Patagonian channels—the men of which have been described as throwing their women overboard from their canoes in a storm, to lighten the load.

Punta Arenas lies in the famous straits of Magellan, on the route generally taken by steamers as opposed to that of rounding the Horn. The strait is entirely in Chilean territory, whose boundary with Argentina runs east and west, north of almost the whole of Tierra del Fuego. Through the strait, 360 miles long, narrow, twisted and overlooked by snowy mountains, Magellan in 1520 guided his armada; past the land to the south, stark with eternal cold, to which from the many fires observed on shore he gave the name of the Land of Fire—the fires of the Patagonians, the people

of the big feet. From the strait Magellan pushed his way across the great "South Sea," which he named the Pacific—first seen by Balboa at Darien. He would push on even if he and his crew "had to eat the leather of the rigging," as Magellan exclaimed: a prophecy which later was realised, for famine attacked them.

Among the territorial possessions of Chile are the remarkable Easter island and the interesting Juan Fernandez, or Selkirk's islands. The principal island of this latter group is of beautiful aspect, about thirteen miles long and four wide, with a wide valley traversed by streams and surmounted by precipitous volcanic rocks and pinnacles, which contrast with the rich vegetation, the most massive rising to an elevation of 3,225 feet above the sea. There is a fair anchorage at Cumberland bay, and the few inhabitants keep a small number of sheep, cattle, and horses. The island was discovered by the Spanish pilot, whose name it bears, in 1563, and in 1704 Alexander Selkirk was marooned there at his own request, after a quarrel with the *Cinque Porte's* captain; and his adventures are believed to have inspired the great romance of Defoe's "Robinson Crusoe." It was reported that the island had been swamped by the great tidal wave at the time of the Valparaiso earthquake, but this was found to be incorrect. The island lies off the Valparaiso coast. Easter island lies 2,000 miles from the Chilean coast, and has an area of forty-five square miles, with about 100 inhabitants of Polynesian race. In 1863 large numbers of a much greater population of that time were kidnapped by Peru, for work on the guano deposits of the Peruvian coast. The island is famous for its astonishing archæological remains, consisting principally in great stone platforms and colossal images, for whose existence and of whose origin there is no explanation—vast idols which are one of the enigmas of the world. Some of these colossal weigh 250 tons each, and are as much as thirty-five to seventy feet long, with numerous smaller ones. A great row of these images faces a crater lake on the island, and others remain in the quarry in the trachyte formation whence they were cut. The mighty, stony visages of these strange idols and

their half-human trunks have not been identified so far with the features of any living race : and the fanciful theory has been advanced that they were erected by the "wicked giants" before the flood. The great stone houses and platforms are in some cases thirty feet high and 300 feet long, of squared blocks, some of which are six feet long, fitted without mortar, with the roofs formed by overlapping slabs. There are hieroglyphics on some of the interiors, and some resemblance has been traced with the works of the Aymaras of early Peru.*

The principal wealth of Chile, unlike the other Latin American nations, is produced by the mineral industries and exports, of which the nitrate or saltpetre is the most important, its value being greater than all the other industries of the country combined. The mining, smelting, and export of copper, and of copper ores, is also an important branch of Chilean industry. Chile having been formerly the chief producer of copper for the world's market. The principal mines are in the mountain provinces, where valuable copper lodes and deposits are being worked. The output of copper from Chile in 1897 was 22,000 tons, and in 1918 nearly 107,000 tons. Next in order is coal, mined principally in the south, and although not of first-class quality it is a valuable source of fuel. Coal has also been discovered of late at Rio Blanco, in the Aconcagua region. Gold exists in nearly all the Chilean provinces, both in the form of reefs and placer deposits, but the output is not large. Silver represents an equal value; and borates, manganese, and sulphur are even more important products. Nearly 50,000 labourers are employed in the mineral industries of Chile, half of whom are the employés of the nitrate Oficinas. The first great fortunes made in Chile were won from the mines. It is known that the ores of Chañarcillo alone yielded £6,000,000 from 1832 to 1851, and the output reached £14,000,000 in 1867, when their decadence began, as the lodes easily mined were exhausted. The mine-owners were without the means to continue the working into the second region, which, according to the geological features

* But see the Routledge expedition results of 1914.

of the district, may be still richer in ores than the first. The backward position now occupied by some of the richest mines in Chile is due to the fact that they have not been explored by properly organised companies

The nitrate region, and its environment, and the Oficinas or great establishments and general life of the industry are of a unique character, peculiar to Chile. A desert territory, 500 or 600 miles in length between the Andes and the Pacific, constitutes the nitrate region. Studding these deserts are the great Oficinas, active centres of nitrate production, a hundred or more in number, where English overseers dress for dinner, and champagne is freely encountered; and the picturesque but hard-working and turbulent Chilean *roto*, or nitrate-worker—a being *sui-generis*—forms the human background of the industry. These nitrate-producing centres are worked in the main by British capital, and represent in the aggregate an investment of more than £20,000,000 sterling. So far these centres of wealth, from Taltal to Pisagua, have been isolated from each other, except by sea, with short lines of railway descending from the pampas, as the elevated deserts whereon they are situated are termed, to the open roadsteads of the Pacific. The Longitudinal Railway of Chile, under construction, is designed to serve these centres and simultaneously to render strategic service to the region, which has always lain open to attack from the sea, and was lost to Peru from this circumstance. Even the most important of the nitrate ports, such as Iquique, depend practically for their means of subsistence on produce brought in by the steamers, and for their water supply upon pipe-lines from springs many miles distant in the interior.

The method of occurrence of the Chilean nitrate is peculiar. The great nitrate beds lie between the coast range and the Cordillera in the rainless desert, at an elevation of 3,000 to 5,000 feet above sea level, in large basins or depressions. Conflicting theories have been advanced as to the origin of the deposits—the one most generally accepted is that the nitrate beds were the result of the evaporation of sea-water in what were, in earlier times, inland seas, which became

severed and raised from the ocean by volcanic upheavals. Thus the origin of the nitrate may have been in decayed vegetation, seaweed, and animal matter, fish, etc.: the nitrogen contained in which, by a process of nitrification, combined with the soda derived from the salt of the sea. The caliche or native nitrate is rich in iodine, which is commercially a by-product of its treatment; and this might seem to point to the origin in decayed seaweed.

The general aspect of the nitrate-bearing ground is that of a sandy desert, without any appearance on the surface of the mineral values beneath. On excavating this sand a crust of a compact nature is laid bare, and beneath this lies a further mass of sand with stones, salt, and traces of nitrate; and finally, at a total depth of only a few feet from the surface, lies the bed of caliche or nitrate, great flat deposits, white, or sometimes brilliantly stained with various minerals, and of several feet in thickness. This caliche is blasted and mined in open cuts, and transported by light railway or by mules or carts to the Oficinas or refining establishment. The process of purifying the salt is comparatively simple, although a formidable array of tanks, elevators, bins, engines, and boilers constitute the establishment of the Oficina. The material is boiled in great vats, where the various constituent salts are dissolved, and the iodine extracted, and the solution flows through channels to crystallising pans in the sun and lies like heaps of snow or salt in the drying yards, where, after drying, the nitrate is packed in sacks for export. The whole operation of mining and treating nitrate is one of much interest, and one of the most important mineral industries in the world.

The nitrate fields or salitreras, as they are termed, are not inexhaustible. Calculations have been made assigning them various durations of life, from forty to 100 years. Of late, more extensive nitrate beds have been discovered, and doubtless the smaller period given is too low an estimate. A report by Chilean government engineers in 1908 gave a minimum reserve stock for the nitrate grounds—whose total area is calculated in 200,000 square kilometres—of 220,000,000 tons. There are also large deposits of the "ripio,"

as the waste matter from the vats is termed, containing a recoverable proportion of nitrate; for the material has in years past been imperfectly treated, and a large percentage of salts left in the refuse. The pre-war yearly exports of nitrate were about 2,000,000 tons, which it was then calculated might rise to 5,000,000 tons. Upwards of 100 years of life for the nitrate fields may not be an exaggerated estimate, but figures are problematical. The cost of producing the nitrate, including coal, labour, freights, water, administration, which are all expensive matters in the Chilean desert regions, does not always leave a large margin of profit to the producer, although the industry as a whole is a profitable one. The Chilean nitrate worker earns good wages, and demands good food, but it cannot be said that he represents any growing standard of civilisation. His work is hard, his life semi-bestial and illiterate, his dress and habitation primitive, his surroundings dreary, and lacking in amenities which might make for social betterment; and he is a hard drinker, due largely to the arduous nature of the work: but there is some improvement of late. Labour is become more difficult to obtain, and with the opening of new Oficinas is likely to be more expensive.

The very considerable revenue reaped by the government of Chile from nitrate export dues is a source of national wealth that should make for civic improvement. Great public works have been carried out with the wealth thus obtained, public buildings and warships have been built, and other matters and evidences of prosperity are observed which have a direct bearing upon the receipts. But it cannot be said that much benefit accrues to the immediate community that produces this wealth. As shewn, the surroundings of the nitrate workers possess few elements of comfort and progress. It has been stated that between 1880 and 1908, "more than 1,000,000,000 dollars have been produced by the nitrate industry for Chile, but that this enormous sum has in great part been ill-spent. There are neither ships, sanitation works, docks, nor sufficient schools and libraries where they are wanted. Sumptuous public buildings and houses, it is true, have been erected in the

capital, leaving other places without improvements, and where no improvements are effected nitrate revenues only become a source of satisfaction for hungry office-seekers and of benefit to nepotism at the public cost." This criticism was not made from abroad, but by a newspaper of Valparaiso* and although the Press of every country is prone to attack its own national institutions from political and other motives, this is not without a substratum of truth. It is unfortunately the failing of every land to tend to exhaust its natural resources without establishing permanent conditions and institutions for betterment for the workers, who, at the bottom, produce the wealth, as evidenced in a less degree by the coal mining industry of Great Britain or the United States.

Of the many uses of nitrate, that of a fertiliser is the principal, and its application to the ground largely increases the yield of wheat. The use of nitrate by the various countries of the world is shewn below. The Chilean government maintains a Propaganda Agency abroad, and spends upon this work some £40,000 annually, together with sums accruing from a levy on the owners of the salitreras, at the rate of half of one per cent. on their output of nitrate. It remains to be seen if the production of nitrate from the atmosphere is likely in the future to compete seriously with the Chilean product.

The production of nitrate from Chile in 1911 reached 55,550,000 quintals. Of this 20,000,000 quintals went to Great Britain or Continental ports, and more than 2,000,000 direct; 13,500,000 to Germany, and 10,500,000 to the United States. Considerable quantities are taken by other countries, such as France 1,825,000 quintals, Netherlands 2,000,000, Belgium 2,200,000, South Africa, 627,000, Italy 250,000, Hawaii 340,000, Japan 460,000, Mediterranean ports 434,000, Spain 298,000, British Columbia 108,000, Egypt 413,000. The exports to Japan and Egypt increased considerably. The value of the total nitrate export in 1911 was 250,000,000 gold pesos or dollars, the peso being equal to 18d. : and it formed three-quarters of the total export trade, and yielded 70 per cent. of the national revenue.

* *El Mercurio*.

The amount of nitrate actually used in Great Britain is relatively small, being in 1911 only 150,000 tons, and the amount of the import, whose value was £8,700,000, was mainly dispersed elsewhere. In 1921 the export of nitrate had greatly declined from various economic causes, and the article has been almost a drug on the market, with serious loss to producers and the Chilean Government. The total world consumption for 1920 was 1½ million tons. The importance of the industry is shewn by the fact that the twenty-two principal Oficinas have an aggregate capital of £7,500,000: dividends in some cases of 25 and 35 per cent.

The principal nitrate-shipping port of Chile is Iquique, which is also the main commercial centre of the great arid coast region. The amount of the nitrate export for 1911 was 12,350,000 quintals, and from the copper mines of the Province, mainly the Collahuasi district, copper ores of the amount of 1,500 to 2,500 tons per month were shipped, of a value of 18 to 30 per cent. copper. A small amount of silver is still exported from the old and extensive Huantajaya silver mines, lying behind the towns. The import trade and varied nationalities of the inhabitants of Iquique show the world-wide connections of the town and province of Tarapacá. According to the last census the province contained 1,400 British residents, 700 Germans, 450 French, 820 Spanish, 420 Austrians and Hungarians, 170 Americans, 1,000 Italians, 1,400 Chinese. The value of imported goods from Great Britain largely exceeds that from all other sources, with the United States and Germany following. It is natural that Great Britain should predominate in the trade of Iquique, the trade depending in the main upon the nitrate industry, a large proportion of the capital invested in which—approximately £10,700,000 out of a total of £27,500,000—being British capital. German trade has tended to decline with the port. The most important manufactured articles imported are machinery, of which Great Britain supplied £94,000, the United States £20,000, Belgium £10,500 and Germany £2,000. Naturally the figures for any year are dependent upon the placing of large contracts, and large single items may cause them to vary, but the strong business

and social position occupied by the British in Iquique is reflected naturally in trade, for wherever a British community is established abroad, the importation of British-made goods generally follows.

Various Oficinas in the province have substituted oil for coal as fuel, and large tanks are being erected in Iquique; and the example will probably be followed by the nitrate railways. The oil is of Californian and Peruvian origin.

The completion of the Longitudinal railway will destroy the present isolation of Iquique, which has always been dependent upon steamer traffic for its means of communication and food products, and which must be regarded as a community set in the midst of deserts, drawing its life from one single and exhaustible product. Iquique is not without various pleasing features of social life, however, and among its institutions is the well-known British Club. The other nitrate ports are Pisagua, Junin, Caleta Buena, Tocopilla, Antofagasta, and Taltal.

The coal-mining industry of Chile is of considerable importance, in view of the necessity for sources of fuel, both for railway, steamers, and other industries. The coal deposits of Chile lie in the south, and Coronel and Talcahuano are the ports around which the industry centres, and which give outlet to the coal-producing districts. The Arauco Company, a British enterprise, has greatly improved the port, with docks and breakwaters, for the easier shipment of the coal and wheat supplies of the region, and the company possesses 100 miles of railway line; and in 1912 had an output of about 200,000 tons of coal. The coal mines of Lota and Coronel in this region are the largest in Chile, and of great importance as sources of fuel on the Pacific coast. They belong to a wealthy Chilean company, with a capital of 18,000,000 dollars, whose \$100 shares in 1912 were quoted at \$170. The town of Lota has some 10,000 inhabitants, and is picturesquely situated, with a good roadstead. The coal mines incline under the sea, and one of the shafts, 1,000 feet deep, has galleries extending for more than 3,000 feet seaward. and years ago a catastrophe was suffered

by an inundation of water. The three principal mines produce an aggregate of more than 1,000,000 tons of coal per annum, consumed in about equal parts by the steamers and the railways. The coal is of moderate quality, but inferior to that of Britain and Australia, to which it stands in the relation of about 120 to 100 tons in value as a combustible. It is, however, cheaper, selling at about 18s. per ton, whilst English or Australian coal in Valparaiso costs up to 60s., the cost of freight being more than the original value of the article. The Lota mines have been producing since 1852. In connection with the coal industry at Lota are smelting works, reducing the ores from the interior at the rate of some 30,000 tons of bars annually.

The first cargo of iron from Chile, which amounted to 40,000 tons, was received in 1912 at Glasgow, and was pronounced superior in quality to Spanish and Swedish irons. Chile was the first country to work the iron industry on anything like a large scale. A syndicate of European capitalists, including the well-known French firm of Creusot, under concession from the government, erected, at the picturesque port of Corral, in Southern Chile, large smelting works, which were capable of turning out both bar iron and manufactured iron goods in quantities sufficient to meet the needs of Chile and a large part of the South American continent: also pig iron. The enterprise closed down in 1911 due to difficulties of labour and material and questions with the government, and the mines were sold in 1913 to the American Steel Company of Bethlehem, Pennsylvania, whose experts pronounced the deposits to be of enormous extent. But recently an arrangement has been made with the German Krupps to develop the industry.

In means of communication Chile, although lacking greatly, is much in advance of the other Andean republics, and has an aggregate length of railway of nearly 4,800 miles. Of this mileage about half is controlled by the state, and about half by private enterprise or public companies. Some 1,600 miles have been under construction on account of the government, or under state guarantee, at a cost of nearly £15,000,000. The working of the Chilean state railways

does not give satisfactory results from a financial point of view, the gross receipts in general being increasingly less than the running expenses, with serious national loss. It is, however, held in Chile that they are worked in the interests of the community and of the industries they serve, but there are proposals to lease them to foreign companies, which would doubtless bring greater benefit financially. These state lines are those which traverse the vale of Chile in the main, as previously described. But the region served by the government lines is the most productive, and promises to become more so in the future, and it might have been thought that, conducted on business lines and with improved service, a profit instead of a loss would result. The main line, from the port of Valparaiso in the north of the region to Osorno in the south, forty-seven miles inland from Puerto Montt, is 709 miles long.

There is a wide variation of gauges in the connecting and isolated railway lines of Chile, the state lines having three different gauges, embodying 1,120 miles of 5 feet 6 inches, 56 miles of 3 feet 6 inches, and 22 miles of metre, or 3 feet 3 inches. In the private or company-owned lines there are as many as seven different gauges, ranging from 2 feet 6 inches to 5 feet 6 inches. The Antofagasta and Bolivia line is of the former very narrow gauge, of 2 feet 6 inches; the Nitrate railway is of the British standard gauge of 4 feet 8½ inches; the Taltal line is 3 feet 6 inches, and the Trans-Andean is one metre gauge, changing at Los Andes to the Valparaiso-Santiago government line of 5 feet 6 inches.

The total capital of the four principal railways of non-state ownership amounts to £14,500,000. These are British enterprises, and include the Antofagasta railway, 769 miles long, the Arauco, 100 miles, the Nitrate railway, 377 miles, serving Iquique and the allied ports and Oficinas, and the Taltal railway, 184 miles. These railways earn in gross receipts an annual sum of several million sterling, with dividends of nine per cent. at times. For 1920, the Antofagasta line earned £2,370,000: total expenses were sixty-eight per cent. Their total mileage is 1,430 miles,

including, however, 300 miles of the Antofagasta railway in Bolivia.

This railway, the Antofagasta and Bolivian line, is an international railway connecting Antofagasta, Mejillares, and Coloso, the Chilean ports, with La Paz, the capital of Bolivia, and with the great mining centre of Potosi and others. The extensive nitrate region of Antofagasta, with twenty or more Oficinas, is traversed, and the irrigated territory of the river Loa, beyond which is the copper mining region of Calama, 7,500 feet above sea level. At 10,000 feet elevation the Loa is crossed by a remarkable steel viaduct, and the snow-capped Cordillera is seen; the San Pedro volcano, with a perpetual wreath of smoke. The highest point reached on the main line is at 223 miles from the coast, at 13,000 feet elevation. Thence the remarkable borax deposits of Cebollar are passed: a solid lake of gleaming mineral salts, the greatest borax deposit in the world, lying 12,200 feet above sea level, and forming a source of profit to the British-owned company which exploits it. The great Bolivian plateau to Oruro which is traversed is the centre of a rich mining district; and the branch line to the copper mines of Colluahuasi is the highest railway in the world, reaching 15,809 feet above sea level, through an extremely bleak and rocky region. The culminating point of the Cordillera is Ollague, a snow-clad mountain rising to 20,000 feet, a giant landmark on the frontier of Bolivia. The railway passes Uyuni, the chief town of the silver mining district, which contains the famous Huanchaca mines, and skirts the shores of Lake Poopo to Oruro; and, continuing along the Desaguadero river, and the Titicaca plateau, reaches La Paz. The total distance by rail from the coast is 720 miles, which is covered in forty-eight hours, the traveller having the advantage of the sleeping car. The railway from Arica to La Paz, which also runs both in Chilean and Bolivian territory, is described in the chapter upon Bolivia. It has been very recently completed and opened for traffic.

The Chilean Trans-Andean railway, and the corresponding line upon the Argentine slope of the Andes, is one of the

greatest engineering accomplishments in the world, in its particular field. From Valparaiso the line reaches Santiago, and ascends the fertile lower slopes and valleys of the Cordillera, reaching the great Cumbre or summit, and perforating the crest with a tunnel at 10,880 feet above sea level, below the Uspallata Pass. This tunnel is 10,450 feet long. Exceedingly heavy work was necessary upon this line, and the narrow gauge system of the mountain section renders transshipment necessary. The total distance of the international route from Valparaiso to Buenos Ayres is 888 miles: the line thus forming a transcontinental route across South America in its narrowing part, and avoiding for the traveller the sea voyage through the straits of Magellan. The heavy snowfall on the Chilean Andes has rendered the line unreliable since its construction. Due to avalanches, floods, and resulting damage, the railway in 1912 was closed from May to October. At one time snow fell unceasingly for many days on the Chilean side, and drifts fifty feet deep were formed: these were the cause of a series of gigantic avalanches, which in one place carried down a rock slide, burying the railway track under 6,000 tons of rock, and completely sweeping it away in others. An exceptionally severe winter was encountered in the temperate regions of South America in 1912, and the possibility is one which is likely to occur periodically: and it has been necessary to build snow-sheds to protect the line. These snow-sheds, which are familiar to the traveller on other mountain railways, are long "tunnels" of timber baulks, of immense strength. There are forty miles of such on the Californian Sierra Nevada railway, and the avalanches, as well as rock slides, pass harmless over these structures. They tend to prevent the enjoyment by the passenger of the magnificent mountain views, however, and in some instances a summer line is conducted around them. On the Chilean line the extension of the snow-sheds has been necessary, and snow ploughs, as used in North America, are being introduced. The great peak of Aconcagua is the most striking landmark beheld from the railway. Financially the Trans-Andean railway has not yet been a success. The cost of

the Chilean section of the line was approximately £1,500,000, upon which the state had guaranteed a 5 per cent interest, or nearly £75,000 per annum, which was payable since 1910, when the line was completed. But the traffic returns have not nearly reached this sum, nor has international trade developed across the Andes to the extent that was hoped for. Defects in construction and management were alleged. The future may show that with an amalgamation of the two companies which operate the Chilean and Argentine section, and an arrangement with the Buenos Ayres and Pacific Line, better results will be attained.

The Longitudinal railway of Chile, under construction for the government by a British firm of contractors, is designed to traverse the entire country from north to south, effecting a juncture with the railway systems of the republic itself, connecting the various isolated lines, such as those of the Vale of Chile, the Nitrate railways of Iquique, and other coast lines, and the systems which run from the Chilean coast into Bolivia: and thus through communication, upon the completion of the Bolivia-Argentine link at Tupiza, would be effected between the Chilean and Argentine capitals, and—given the joining of the Peruvian Central and Southern railways at Cuzco—with the capital of Peru. Thus the system would form part of the long-proposed Pan-American railway, which is designed to connect North with South America.

One of the valuable purposes of the Longitudinal railway is that, in establishing communication by land between the agricultural southern districts of Chile and the arid northern region, food supplies for the nitrate towns and Oficinas will be readily available, and less dependence placed upon the sea and the difficult harbours of the coast served by the steamers. The line is already constructed in part, and from the Baquedano station on the Antofagasta railway to Quillaga, on the river Loa, a distance of 125 miles, lies one of the richest nitrate regions, in the suffocating desert, at an elevation 3,400 feet above sea level. These nitrate lands belong principally to the state, but large Oficinas are being erected, and towns springing up, and important copper mines

working: places which were formerly too remote from means of transport. The Loa at that point is a mere thread of salt-laden water that has forced its way through the desert from the Cordillera, flowing through a broad, ancient river channel—the channel in a different climatic period possibly of a great river—only a few feet wide and deep. Yet this relatively feeble stream is worth perhaps millions of pounds to the nitrate industry. The value of water in desert regions is almost incalculable, and cannot be realised by the dweller in lands of the temperate zones. The stream furnishes hydraulic power and water supply, tapped by steel pipe lines. The railway crosses the oasis of Quillaga, with its huge carob-trees a hundred years old; a valley a mile broad. Quillaga is an ancient Inca town, and of considerable interest to the archæologist as marking the southerly extent of Inca settlements. An old Sun Temple, ruined, exists, and from the Acropolis petrified corpses have been disinterred, from the character of whose skulls evidence has been adduced in support of the Mongolian origin of the earlier inhabitants. The remains of old smelting furnaces are also encountered, as in other parts of northern Chile. The few inhabitants of the village dwell in the squalid adobe huts, raising small crops of alfalfa and maize and collecting the carob seeds, which are used in making a native drink: and in netting the *camarones* or great fresh-water prawns, which exist in the coast rivers, as described elsewhere: crustacea which command a good price as a table delicacy. This northern section of the Longitudinal railway was to be completed in 1914, at a contracted cost of more than £3,000,000, carrying a government guarantee of 5 per cent. Difficulties of floods, as well as lack of water, and, finally, of the war, have been encountered, and in 1921 a small gap between Arica and Iquique remained incomplete.

As regards through communication upon the Chilean railways, the break of gauge on the existing lines is a serious difficulty, which will involve, until it is remedied, costly transshipment charges.

The sea furnishes, and doubtless always will furnish the chief means of communication for Chile. Yet, notwith-

standing this maritime environment, the nation has not developed a sea-trafficking element, although the navy is famous, and the Chilean sailor, when well led, has proved a good sea fighter. The Chilean native boatmen, moreover, are expert in the management of their craft, fearless and strong. But the steamers of the Chilean line are officered by Europeans principally, and there is little or no national coasting traffic beyond. The navy is essentially British in organisation and regimen, and all the best ships were built in Great Britain. The two countries are strongly linked together by traditions connected with the navy and the history of sea power on the Pacific coast. and in the capital the names of British sea heroes connected with Chilean history are freely to be seen in the nomenclature of streets and monuments. There is a naval school at Valparaiso which is noted for the excellence of its instruction, and the Chileans take great pride in their generally efficient navy, which they regard as one of the greatest of their national institutions. One of the principal sources of wealth of South America—the nitrate fields—was lost to Peru by reason of a lack of sea power ; and Chile to-day is open to easy attack from the sea : a matter which is not forgotten by the state.

The manufacturing interests in Chile are of growing importance, as is to be expected of a people whose commercial instincts are relatively strong. A high tariff policy has been forced upon the country by these interests, but they are mainly confined to articles of necessity, foods, beverages, textile fabrics, and clothes, also leatherwork, woodwork, ironware, chemicals, and pottery. Of great mineral and agricultural resources, Chile has not yet had sufficient capital, nor can command sufficient expert labour, necessary for the textile and other manufacturing industries to reach their fuller development. But there are more than 500 large flour mills in the country, part of which are equipped with modern machinery, and in earlier times, before competition grew, flour was one of the principal articles of Chilean export. The coal deposits have made possible the development of various industries in addition

to ore-smelting, and numerous small manufactories have been built, principally in Santiago, Valparaiso, and Copiapo. Leather tanning is an important industry, and boot, shoe, and saddle factories have been established as a result, under a high tariff. There are also foundries and machine shops: and a large number of factories for canning and preserving fruits and vegetables, numerous small factories for textiles, and several large cloth factories, also paper mills. The breweries are generally worked by Germans. Sugar beet production and refining is a further industry; and furniture and other wood-working factories. Chemicals are also produced, due partly to the growth of the mining industry. There are good opportunities for the investment of capital in the expanding manufacturing industries of Chile, in various fields.

Chile, before its acquisition of the rich nitrate and mining provinces of the north, was one of the poorest of the Latin American countries. During the years of much fiscal prosperity brought about by the growing revenue from the nitrate fields, up to 1906, the country suffered much from financial crises, caused by the stagnation of industries and political disorder, added to the effect of a greatly debased paper currency. In 1895 a law had been passed under which the sterling value of the peso was reduced to 18d, at which rate the outstanding paper money should be converted, and a conversion fund was created for that purpose. To ensure the meeting of its foreign obligations the nitrate and iodine taxes and import duties were collected in gold, and gold and currency accounts were kept separately. In 1898 the financial crisis caused the suspension of specie payments, and forced an issue of additional paper money, which was repeated later, but in 1907 an act fixed a limit to the amount of paper in circulation. The currency of Chile is therefore of two kinds—the gold peso, of 18 English pence, and the fiscal peso, subject to exchange fluctuations. The gold coins are of 5, 10, and 20 peso picces. The method of treating receipts from loans as revenue and of dividing receipts and expenditures into ordinary and extraordinary classes, and into separate gold and currency accounts, leads

to confusion and discrepancies in the national accounts.

A feature of the Chilean budget has been for many years the excess of expenditure over revenue, with an accumulation of deficits. The budget estimates for 1913 revealed various matters of interest, such as the income derived from nitrate dues—the principal source of wealth—import dues, railways, which belong to the state; the sale of nitrate grounds, and so forth. and in the expenditure the items disbursed for railways, colonisation, education, worship, and other matters, such as are in some respects foreign to European economy. The accounts showed a deficit in currency and a surplus in gold, which, calculated at 65 per cent. premium, theoretically cancelled the deficit, leaving a small balance in favour of the exchequer. The estimated income was \$192,800,000 currency, and \$103,500,000 gold.

The Chilean exports largely exceed in value that of the imports, for 1920 being nearly double. These last are considered to be much under the requirements of the nation, but high prices, unemployment, and other matters have reduced purchasing power. Before the war Great Britain held first place in the foreign trade, but during the war the United States occupied that place. The general trade of the country has advanced considerably, and there is keen rivalry among the manufacturing nations for it. The following table shews the growth:

YEAR	IMPORTS	EXPORTS
1913	£25,100,000	£30,100,000
1914	20,232,000	22,476,000
1915	11,491,000	24,561,000
1916	16,689,000	38,519,000
1917	26,600,000	53,400,000
1918	32,706,000	57,272,000
1919	30,100,000	23,772,000
1920	34,100,000	59,300,000

The fluctuations in the paper "peso" have been severe, the exchange falling from 14 pence to 10 pence in 1920 and 7 pence in 1921.

In summing up the general position of Chile, it may be said, as regards the foreign visitor, that the republic is one of those countries which, having great internal riches, a

splendid climate, and many other attractions, is more or less cut off from the Old World on account of its geographical position. Yet the west coast of South America is to-day ripe for commercial enterprise and affords an excellent field for the investment of foreign capital.* There are few countries which contain such diverse conditions of life as is the case in Chile. From the neighbourhood of the Antarctic regions in the south there is every range of climate up to the northern districts, which are well within the tropics. As a result of the extended coast line and owing to the undeveloped state of the country Chile is for all practical purposes a series of separate regions, as communication by land is difficult, where not impossible, and in many cases the various ports are as much isolated as though they were actually cut off from the mainland. This condition will, however, be remedied by the new railways. The three regions—the southern or wet region, the central or temperate region, and the northern or barren region—are those most pointedly characteristic of the country. In the region of the south, given over principally to agricultural pursuits, there appears to be a prospect of great prosperity for this calling, as, with a steady increase in the population and wealth of the north, the demand for meat and vegetables grows in proportion. The townships are small and scattered, but the recent completion of a railway from the capital should do much to open up the southern districts of the republic. In the central region conditions generally are much more advanced, and the two principal cities, Santiago and Valparaiso, are of considerable size and wealth, and Concepcion is a town of some importance. The hotels in Chile are, with few exceptions, uncomfortable, and travelling for pleasure is almost out of the question in most districts, a condition common to nearly all Latin American republics, except for the traveller whose objects are more than those of the mere tourist. Of roads there are none, as the word is understood in Europe, what tracks there are being thick with dust in the summer and muddy slime in the winter. The shops in the large towns are good, but prices make living very expensive, and

* Some of the views expressed here are from the Foreign Office Report.

what may seem a good income is soon swallowed up in the necessaries and comforts which a foreigner must have. The climate of Valparaiso is temperate, but the prevalence of high winds and clouds of dust in the summer, and violent rains in the winter, are discomforts which, however, have the compensations in the inter-season of fine weather, with eight months of sunshine. In winter the town is flooded on frequent occasions, due to choked sewers, but the new drainage works should remedy this condition. Santiago is essentially Chilean, while Valparaiso is cosmopolitan, and the greater number of Europeans remain in the port. The Spanish spoken by the Chileans is of stronger accent than that of their neighbours. English is spoken by almost every Chilean business man, and is the international medium of intercourse. The southern parts of Chile, especially around Santiago and Valparaiso, are infested with bandits, who, by their methods of murder, assault and robbery, make it dangerous to wander off the beaten track or be abroad after dark." * The Chilean army of 9,000 men is efficient, the officers having been trained by Germans, and some of the officers of the navy have served on board British men-of-war. The cruisers perform the duty of patrols up and down the coast, assisting in preventing or quelling the strikes which are common in the northern ports

The fauna of Chile exhibits a marked absence of animal and bird life. The vegetation is rich in some of the southern parts, but it is nowhere brilliant, and gives the foreigner the impression that something is missing from the natural aspect of a land where there is so much warmth and sunshine. The birds are few, and nearly all of sombre plumage. A few hawks and a species of turkey buzzard are the most noteworthy, and in the solitudes of the Cordillera the condor. Of insects and reptiles there are none particularly characteristic of the country. A ramble in the hills of Central Chile offers, in many respects, similar landscape to that of parts of Britain; but farther afield the traveller cannot venture without special equipment.

The future of Chile is greatly bound up with the better

* Report *ante*

development of agriculture, the smaller manufacturing industries, and the increase of railways. Figures of imports and exports do not necessarily disclose prosperity for the masses. As has been shown, the land is held, in the main, by large landowners; and the profits from the mineral industries filter down but scantily to the mining labourer. The great bulk of the people are illiterate, and so cannot vote. But with its varied resources and climate, Chile possesses conditions capable of assuring steady economic development, and its people should continue to occupy a dominant position in their particular sphere.