

INDUSTRIAL AND COMMERCIAL SOUTH AMERICA

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PREFACE TO THE REVISED EDITION

“Industrial and Commercial South America” (1922) received so many flattering encomiums from officials of the various Republics, from well-known experts, scholars, bankers, commercial men, and the press as to inspire the conviction that a new and revised edition would receive a still more cordial welcome.

Although in recent years our Government has supplied a vast amount of information in numerous publications, the presentation in a single volume of a survey of the geography, the climate, and especially of the latest facts in regard to the resources, the industries, and the development of these in every South American country, will, I trust, be a convenience to many who have a working knowledge of such matters, and a genuine service to novices in export trade, as to all who desire a more intimate acquaintance with our neighboring continent, its wonderful resources and opportunities.

My grateful appreciation is due and my hearty thanks are here expressed to all who in any degree have helped by supplying or verifying data of whatever nature. Officials of the various countries and of many large companies evinced kindly interest in the work and gave freely of their time, few being too busy to afford information. The names are too numerous to mention, but I trust that all will feel assured that their courtesy was recognized and that the remembrance will be cherished.

ANNIE S. PECK.

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CHAPTER XXVI

BOLIVIA: PORTS AND TRANSPORTATION

La Paz. Bolivia unhappily has no seaport, but lake and river ports are better than none; of these she has several. Nevertheless La Paz is the chief port of entry with the principal Custom House, the terminus of the three railways leading from the Pacific.

RAILWAYS

Route from Mollendo. In 1903 not a single railway reached La Paz; but not long after, the road, which then left one on the great plateau, arrived at the edge of the *alto*, whence by electric power the cars are brought down the steep walls of the cañon to the picturesque city. This route is the conclusion of the road from Mollendo, by all means the most desirable for the traveler coming from the north. The inconvenience suffered by many persons going from the coast directly to the high table-land, and the real danger to those with weak hearts, may be lessened or entirely obviated by pausing two or three days in the pleasant city of Arequipa. The through sleeping car service I advise no tourist to patronize as one is far more likely at night to suffer from an attack of *soroche*. Having crossed the divide, altitude 14,688 feet, one arrives at night-fall at Puno, on the shore of Lake Titicaca, altitude 12,500 feet. The boat is there taken for the day or night journey of 130 miles to Guaqui, the Bolivian port at the south end of the lake, a 14 hour sail that no one should miss; for in the later hours he may behold a wonderful panorama, surpassed by few on the globe, of the magnificent Cordillera Real, a hundred mile stretch of rugged snowclad peaks

from Illampu to Illimani with Huaina Potosí halfway. A splendid view of Illampu is had on the left, during part of the three hours' ride, 56 miles, over the almost desert plateau; and after passing its edge there is a matchless picture of the cañon, the city, 1000 feet below, and Illimani towering far above.

Arica-La Paz Railway. The second route is from the port of Arica, formerly in Peru, but now in the possession of Chile, which country in accordance with the peace terms with Bolivia of 1904 constructed the Arica-La Paz Railway. A branch 5 miles long leads to the important mining town of Corocoro. This is by far the shortest route from the coast, only 276 miles, but as we have seen, this is a disadvantage to travelers rather than a benefit; nor is there a gain in time to one coming from the north, as the steamer arrives at Arica a day later than at Mollendo. As one may come up from Mollendo, including the night at Arequipa, in 48 hours, one may thus arrive in La Paz a few hours before one who travels in 22 hours from Arica. The journey from Mollendo is 534 miles. For the more rapid climb from Arica there are 28 miles of track railway with a maximum grade of six per cent. The equipment of the road was long inadequate for the business, but more has been supplied; larger and better port works at Arica are needed. The highest point on the railway is 13,986 feet near the Bolivian boundary, nearly 700 feet lower than on the road from Mollendo; but being reached in less than half as many hours, and also at night when the effect of the altitude is always greater, even the most robust are likely to suffer from a headache if not worse, as is the case with persons coming up from Antofagasta. Going down by either route there is usually no trouble, except for those who have been a long time at the higher altitude; but some tourists have suffered in making the rapid descent.

Bolivia-Antofagasta Railway. The journey to La Paz from Antofagasta, on the Chilian coast 400 miles below Arica, occupies two days for the 718 miles. This, the earliest of Bolivian railways, with Oruro for years as the terminus, in 1911 was continued to La Paz, *i.e.*, to Viacha

(15 miles from La Paz), where it meets the road from Guaqui, the two forming a long link in the Pan American chain. The later road now has its own line into the city. At Uyuni, where there is a Custom House and a change of cars, the road turns off towards Chile. From Ollague on the Chilian border, a 58-mile branch runs to the Collahuasi copper mines, among the richest in the world.

Bolivia-Argentine Railway. Long planned was a connection of the Bolivian Railway with the Argentine, which some years ago reached the boundary at La Quiaca. At intervals construction has proceeded, with automobiles of late in the dry season serving where rails were lacking. But in 1925 the completion of the railway contributed to the joyous celebration of the Centenary, providing an all rail route from La Paz to Buenos Aires, 1714 miles, 519 in Bolivia and 1195 in Argentina. Later the journey may be made in four days without change of cars by one who does not care to visit Chile, or when the Trans-Andine is blocked by snow. Also by this route, changing cars at Córdoba and Mendoza, one may pass by the Trans-Andine to Santiago and Valparaiso.

Another Argentine connection. A contract has been made with Argentina to construct a railway from Embarcación, on the North Central Argentine Railway and on the navigable River Bermejo, through Yacuiba to the important capital city of Santa Cruz. Thus will be opened for settlement and export an immense section suited to many varieties of agriculture, and an outlet of a region where petroleum riches are in evidence, now being explored.

Several Branches. Farther north important branches to the interior are in operation. The first, opened in 1912, was from the station, Rio Mulato, 130 miles south of Oruro, to far famed Potosí. This section, 108 miles long, climbs to a height of 15,814 feet, the second highest altitude reached by rail, nine feet above the Morococha branch of the Central Peruvian. The cost was over \$8,000,000, the maximum grade three per cent. The trip occupies eight hours; there is weekly service. The Oruro-Cochabamba Line was completed in 1917; its length, 132 miles, its cost,

above \$10,000,000. It crosses the Cordillera at about 14,000 feet. This road is equally important, opening up a rich agricultural and well populated district. Its fine scenic attractions should allure the tourist. Food has been very expensive on the plateau, but with improved access to the warmer sections, lower prices and greater variety of fruits and vegetables may be expected above.

A branch on the plateau long in operation is a 24 mile line from Uyuni to the Huanchaca silver mines, the road owned by the Mining Company. Another branch recently constructed is from Machacamarca to Uncía, 65 miles, built by Simón Patiño, the wealthy owner of extremely rich tin mines at Uncía.

New Lines. Under construction are two very important lines: one the Potosí-Sucre Railway, 105 miles, with 40 in operation; the other, the La Paz-Yungas Line of very difficult construction, passing over the mountain range near La Paz at an altitude of 15,338 feet and going down into the deep valley. One hundred and thirty-seven miles have been surveyed. The passage has been accomplished, the road opened 33 miles to Hichuloma, altitude 10,550 feet. It was designed to continue this line down the valley to Coroico, later to Rurenabaque, and some time to Puerto Brais on the Beni, the latter port being open to navigation all the year. Should prosecution of this work be delayed for a time a motor road will be made to Coroico, altitude 6500 feet, and one down another valley to Chulumani. Already a delightful road for tourist travel and useful for bringing fruit, vegetables, and other products to the La Paz market, has been constructed. With the completion of the road to Puerto Brais, a more speedy route for travel and freight to Europe will be attained. On account of the scarcity and high cost of coal this road is operated by electricity, for which the great fall of small streams gives ample power.

On account of transportation difficulties and increased cost the completion of the Potosí-Sucre Railway has been delayed. Work is progressing, and it will probably be finished in 1928. A railroad from Cochabamba to Santa Cruz is considered of immediate importance. From the

latter city it will later be continued to Puerto Suarez on the Paraguay River, where, on the other side, connection will be made with the existing Brazil railway, Porto Esperança-São Paulo.

OTHER FORMS OF TRANSPORTATION

Air Mail. Of great interest and importance is the Aero-plane Service installed in 1925 between Cochabamba and Santa Cruz. The distance of 350 miles is covered in two and a half hours instead of ten days by horse or muleback. Though the planes which accommodate five passengers cross a mountain range at a height of 16,000 feet, the trip has been made by persons of age varying from three weeks to 72 years. Another line will be established from Cochabamba to Trinidad.

Roads. Automobile roads are planned and being constructed to fill as far as possible present requirements, but in the rainy months, December to May, traffic is sometimes suspended. From Cochabamba to Sucre there is motor service for freight and passenger traffic, a more direct route than that from Potosí for persons in La Paz. From Potosí to Sucre a motor bus makes the journey in 12 hours, though part of the distance may be made by rail. Another motor car road soon to be available is from Riberalta to Guayaramerín (65 miles), opposite Guajará-Mirim in Brazil, the terminus of the Madeira-Mamoré Railway. From Cochabamba autos run to Totora, also from La Paz to Achacachi, and over a spur of Illampu down to Sorata.

Aside from railways land transportation is largely confined to burros, mules, and llamas; in some places there are mule wagons or ox-carts, mules generally carrying the traveler. The cart roads, constructed and maintained by the Government or the Municipality, are mostly very poor; yet such as they are they extend 2000 miles. They are often if not usually impassable in the wet season. Llamas are more extensively employed than in any other country. In the plateau region with their 100 pound burden they wander leisurely along, cropping the coarse grass, tended by