

Despite the fact that the coal discovered is of unusual richness, the Mexicans have never worked the deposits. The first important purchase was made in Coahuila by Mr. C. P. Huntington. This coal contains seventy-three per cent. of fixed carbon, and has a heating power of eighty-two and four-tenths per cent. The very first year that Mr. Huntington's mines were worked they yielded one hundred and fifty thousand tons, and they are now producing two hundred and fifty thousand tons a year.

Mexico uses about five million gallons of petroleum per annum. Crude petroleum springs running freely are to be seen on the banks of several rivers, some of them having a natural flow three inches in diameter. This industry has not been developed.

Attention may be called to abundant and easily worked sources upon the Gulf of Mexico, and above all those of Macuspana (state of Tabasco). They have not been worked, except to a trifling extent in the state of Vera Cruz, where there are rich deposits.

All along the Gulf coast there are traces of asphalt, and in the northern part are deposits thereof. This asphalt may be broken into blocks and floated down the river to the sea-coast, there to be collected and loaded on vessels.

Lower California contains, besides silver and copper and gold, mica, alum, saltpetre, borax, salt, and sulphur. The little islands of Rasa, St. Teresa, and Palos contain phosphates, of which there are exported about fifty thousand dollars' worth per year.

The legal taxes in taking title to a mine are one dollar for admission and declaration and five dollars for adjudication. The costs of advertisement are charged to the claimant, as well as the tax of two dollars per league to the member of the delegation who makes the adjudication.

Mines and deposits of every inorganic substance may be exploited without authorization from the owners of the land on which they are found; these, however, reserving their rights in coal, building-stone, mineral springs, and placers of all metals except gold and platinum, and of precious stones.

The Mexican government, desirous of favoring the development of the mining industry, and understanding that the small legal claim of two hundred metres square allowed to one person would not attract foreign capital, gives large companies special concessions, embracing a considerable extent of territory, and permitting the working of many veins, thus diminishing the fleeting character of enterprises of this kind. A mining company may have a maximum of twenty claims in ordinary cases and thirty where the company works newly discovered mines or takes up work in an abandoned mining district. The maximum quantity of land that may be taken up is one million eight hundred thousand square metres. All special concessions made to companies last ten years, after which the companies come under the general law. They must invest in working their mines at least two hundred thousand dollars. This sum is exempt from all federal taxation except that of timber.

The name Atotonilco is very common in Mexico, and always indicates the proximity of warm mineral springs.

Sponges, mother-of-pearl, and shell—which can hardly be deemed mining products, yet which cannot be classed among agricultural productions—are found in abundance of the best quality on both coasts, and are already worked regularly in Vera Cruz, Yucatán, and Lower California. The government, in order to develop this branch of industry, has already made very liberal concessions to companies desiring to follow this profitable line. It is an infant industry, but well worthy of recommendation,—above all, because the capital necessary to establish it is very small, while the profits are high.

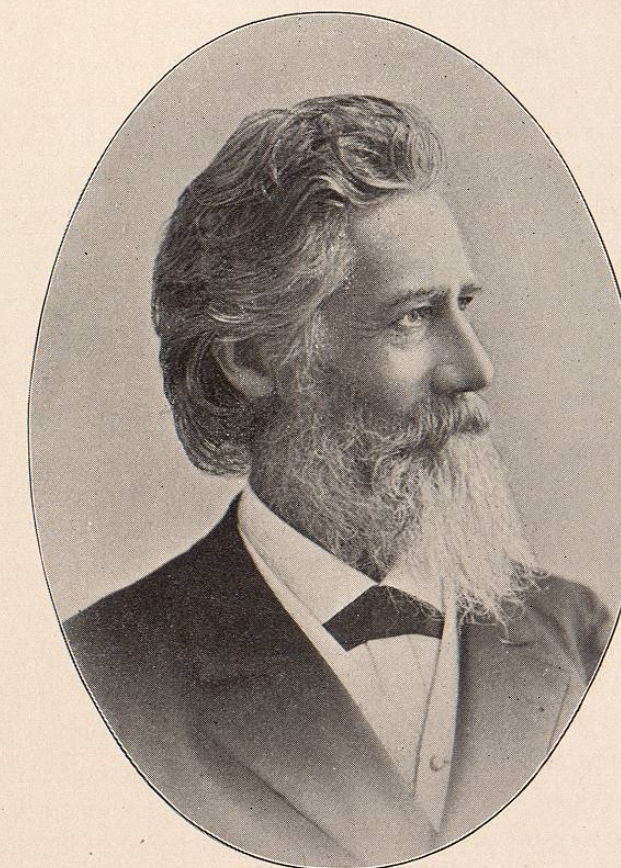
At Yucatán tortoise-shell is manufactured with considerable skill into articles of ornament.

## CHAPTER XLVII

## RAILROADS AND TELEGRAPHS

THE time has gone by when Mexico was isolated from her fellow-republics and the world at large by lack of means of communication. At present she has large and rapidly developing facilities of transportation of matter and communication of thought.

The first concession granted for the construction of a railway in the Valley of Mexico was issued on October 12, 1852, the concessionnaire being Count Cortina, who is often and favorably mentioned in Madame Calderon de la Barca's "Life in Mexico." The charter was for a line from the city of Mexico to Tlalpam, passing *en route* through the towns of Tacubaya, Mixcoac, Coyacán, and San Angel. The count was a very brilliant and versatile man, being at once a littérateur, a journalist, a man of business, and a conspicuous figure in society. But he did not succeed as a railroad-builder, and the concession lapsed. The next charter was granted on August 13, 1856, to Mr. George Luis Hammecken for the construction of a railway from Mexico to Tacubaya. This line, which was no other than the present one, was bought by the Mexican (Vera Cruz) Railroad in 1865.



MAJOR ROBERT B. GORSUCH.

The railway era of Mexico may be dated from the year 1880, when the charters were granted under which the two great systems of the country, the Mexican Central and the Mexican National, were commenced. These charters were dated respectively the 8th and the 13th of September, 1880; and then followed the flood of concessions for railways which, if all had been carried out, were more than sufficient to create a complete net-work of rails, covering the whole country from north to south, from east to west.

The development of railway construction in Mexico since 1880 has been really remarkable, and the benefits which have resulted to the republic are incalculable. From a turbulent nation,



always in civil war, without security on its highways for travellers or protection for capital and business; without any export trade, and with a stationary import trade; without a sure revenue; without credit in the financial markets of the world; its only means of communication the heavy diligencia drawn by twelve or fourteen mules and making not over seventy-five miles a day; its transportation of merchandise limited to pack-mules and clumsy carts, whose rate of travel was at most fifteen miles in twenty-four hours, Mexico has been transformed by steel rails and the locomotive into a nation possessing six thousand five hundred and ten miles of railway, and these are daily increasing, connecting all its important cities, and creating centres of trade; with a rapidly growing export trade and an annually increasing import trade; a stable and strong government inviting foreign capital and foreign enterprise into the country and affording them the fullest protection; with an established credit throughout the financial world, and with peace, security, prosperity, and contentment reigning throughout the land from the Rio Grande to its southern limits, from the Atlantic to the Pacific.

Of the existing railways, eight hundred and ninety miles have been built by native capital and native engineers and are managed entirely by Mexicans, and five thousand six hundred and twenty miles by foreign capital and foreign engineers, and are managed by foreigners, mostly English and American.

The first concession for the creation of a street railway system proper was granted under the Empire, in 1865, to a Frenchman, Carlos T. Arnoux, and after being renewed on February 19, 1866, was finally declared to have been forfeited on November 13 of the same year. But no great progress was effected in the creation of a tramway system until 1878, when the District Railway Company was brought into existence. Concessions were obtained in quick succession for the lines uniting the city of Mexico with all the other towns and villages in the Valley. An American company, with Mr. Thomas H. McLean as president, has now come into possession of the street railways of the city of Mexico, and is extending them rapidly.

The great railway of Mexico, from the traffic and mileage point of view, is the Mexican Central, whose system extends over eighteen hundred and fifty-five miles, the main line being from Mexico City to Ciudad Juarez, on the Rio Grande frontier, with branch lines to Guanajuato, San Luis Potosí and Tampico, Pachuca and Guadalajara. The scenery on the line of the Mexican Central is characteristic of the country in all its variations. On the northern end, leaving Juarez, you pass through the prairies of the state of Chihuahua; then through the rocky ranges of the state of Zacatecas, filled with minerals of every kind, where mines have been worked for over three hundred years; through Aguas Calientes, with its luscious grapes and hot baths and great American smelting-works; then through Irapuato, with its delicious strawberries, and Celaya, with its tempting dried and candied fruits; then through Querétaro, with its historical and romantic reminiscences of the collapse of the ephemeral empire Napoleon attempted to raise on the ruins of a republic under a hapless Austrian prince; then through Tula, with its Toltec ruins and fine agricultural lands; now through the imposing Nochistongo cut, a huge monument to Spanish mispent efforts to drain the Valley of Mexico in 1607; then the capital of the republic is approached through cultivated fields and ranches where herds of cattle are pasturing; then, at last, after an entertaining ride of twelve hundred and twenty-four miles in luxurious Pullman cars, through ever-varying scenery, you enter the city of Mexico, where once were the mystic halls of the Montezumas, and where now are all the attractions of a charming climate, novelties beyond description, rich in traditions and romantic reminiscences of the past, all replete with interest for the tourist.

The Mexican Central's division from near Aguas Calientes to San Luis Potosí and thence

to the splendid port of Tampico presents in some places the wildest, grandest scenery it is possible to imagine; it passes through deep, rugged cañons and then winds through lands as rich as nature can make them, and covered with an exuberance of vegetation all the year round.

The Mexican National is next in importance, taking the second place in traffic and miles operated. Its system covers one thousand and fifty-two miles, and consists of its main line from the city of Mexico to Laredo on the Rio Grande, with a branch to Morelia and Patzcuaro and another to El Salto.

The scenery on the line of the National is at some points grand and picturesque.

The Mexican Railway is next in traffic importance. Its system embraces three hundred and twenty-one miles, consisting of the main line from Mexico to Vera Cruz, with a branch to Puebla and another to Pachuca. Among the contracting parties was Mr. Thomas Braniff, the well-known American resident and millionaire, whose fortune is associated with the steady progress of the country. Mr. Braniff's financial ability was exercised most opportunely during a critical period in the construction of this the first railway venture from the coast to the capital city, and he is now actively connected with several of the most progressive industries established during recent years.

The Mexican Railway Company, the original pioneer railway in the republic, is organized with British capital; its head office is in London, and its rolling stock of the English pattern. The main line leads from

the Buena Vista station in the city of Mexico, seven thousand three hundred and forty-nine feet above the sea, two hundred and sixty-three miles by an average descending grade to Vera Cruz, at the sea-level; but at one point (Ocotlan) the line is eight thousand three hundred feet above the sea. Most of the seven thousand three hundred and forty-nine feet of descent is made in a distance of twenty miles between Boca del Monte and Maltrata, this twenty miles (on the right side of the train) being the best worth seeing of the whole line; but of this later. So precipitous is the grade that the Indian who sells fruit and flowers at one of the half-way stations has time to clamber down the cañon road to Maltrata before the train gets there.

In many parts of the line the scenery is grand. Leaving the city of Mexico, it passes through the great pulque district which supplies the popular national beverage, and then winds down around and among wooded and steep mountains, where the scenery is enchanting and the engineering is admirable and bold.

The narrow-gauge Interoceanic Railway in part competes with the Mexican Railway. Its

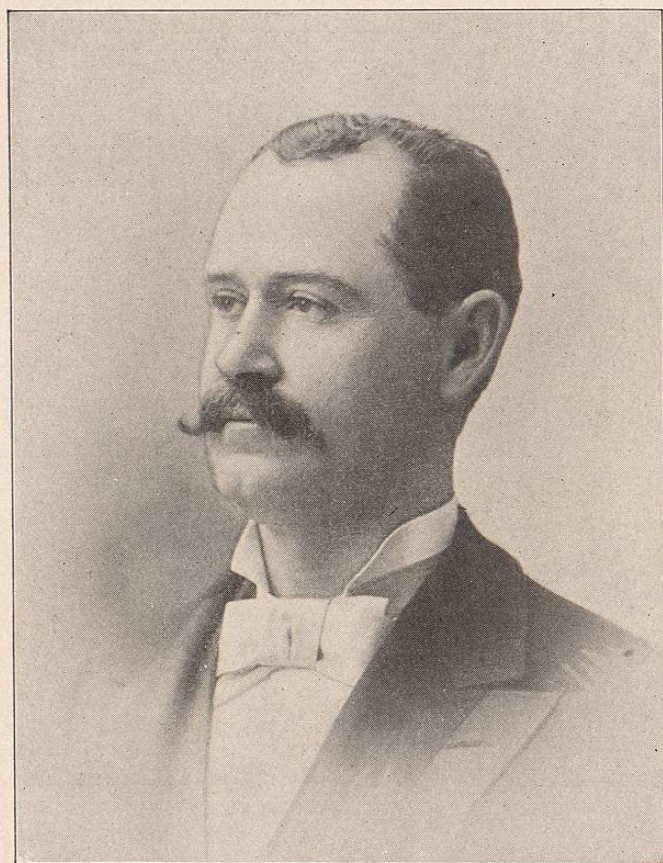


ACROSS THE ISTHMUS OF TEHUANTEPEC.



system covers five hundred and thirty miles, its main line being from Vera Cruz to Puebla and Mexico and southward from Mexico through the state of Morelos to Ixtla, with a branch line from Puebla to Matamoros, Izucar, and Chietla. From Mexico it also passes through the pulque district to Puebla; thence to Perote, an old Spanish fortress; Jalapa, the capital of the state of Vera Cruz, called the "City of Flowers"; thence to Vera Cruz, touching many intermediate towns. The other part of the main line runs from Mexico to Amecameca, where is the famous shrine of the Sacre-Monte, visited annually by thousands of pilgrims.

This railway purchased all the concessions granted by the Mexican government to Señor Don Delfin Sanchez, who constructed all the lines. Through the great executive ability of this latter gentleman the line is not only the best but the most cheaply constructed in the country.



COLONEL JOE H. HAMPSON.

This road is considered by the Mexicans themselves as of such great importance in the development of their resources that President Diaz in person specially requested the writer to inspect it from one end to the other, a task which was rendered much more easy, while its results were much more thorough, by a most comfortable and well-equipped special train.

The Mexican International Railway, a short, standard-gauge route to Mexico, and the only standard-gauge road to Monterey, has its eastern terminus at Ciudad Porfirio Diaz, opposite Eagle Pass, Texas, where it connects with the Southern Pacific system. Trevino, formerly called Venadito, two hundred and twenty-four miles from Ciudad Porfirio Diaz, is the junction with the Monterey and Mexican Gulf road, and Torreón, three hundred and eighty-four miles from Ciudad Porfirio Diaz, with the Mexican Central road. At Sabinas the line branches to the San Felipe coal-mines; at Hornos a branch runs through the cotton district of the republic to San Pedro. From Monclova its line to

Sierra Mojada runs, and its Durango extension commences at Torreón, and is of great importance to the country. It is the finest equipped line in Mexico, and its road-bed, bridges, and culverts are alike first-class.

The San Pedro branch runs through the cotton district of Mexico. Over sixty thousand bales of cotton are annually shipped over it to mills in the city of Mexico, Hercules, and other large cotton-factories in the republic. The International Railway comprises five hundred and seventy-three miles; in addition to its main line from Eagle Pass, or rather Ciudad Porfirio Diaz, on the Mexican side of the Rio Grande, to the city of Durango, it has branch lines to Hondo, to San Pedro, and to Velardeña.

The main line leaving Porfirio Diaz strikes the Central at Torreón, and thence runs to Durango, the capital of the state. In its course it connects many flourishing towns, and passes

through grazing-lands, agricultural districts, and mining regions; at Durango it taps the greatest iron mountain in the world. Its branch from Sabinas runs to the great coal-field of San Felipe.

Major Robert B. Gorsuch is the official representative of Mr. C. P. Huntington in all his great enterprises in the republic. He makes his home in the city, and is the most distinguished American that has ever lived in Mexico. He came from New York early in 1850 to commence the construction of the Vera Cruz Railroad. He has taken an active interest in every railroad development in the country, and his complete study of everything that has tended toward the material progress of Mexico has made him the authority on all important



TWO TUNNELS ON THE INTEROCEANIC RAILROAD.

matters pertaining to the growth of the country. The great men of Mexico are his personal friends, and to his rare store of solid and general knowledge of the republic I am indebted for much valuable information.

The Hidalgo and Northwestern was begun in 1880 by native capital and Mexican engineers. Its main line is from Mexico to Tulancingo, with a branch to Pachuca, and traverses the great agricultural region of the northern part of the state of Vera Cruz and the water-shed of the broad Tuxpan River.

The Mexican Southern Railway, from Puebla to Oaxaca, three hundred and twenty-eight miles, passes through a rich and extensive agricultural country in its whole length. It touches the towns of Tehuacan, Tecmovaca, Tomellin, Huitzo, and Etla, as well as many others of less importance. Oaxaca is one of the historic places of Mexico, and gave the republic Benito Juarez and Porfirio Diaz. A short distance from the city are the wonderful ruins of Mitla, the vestiges of an Egyptian civilization, and the great cypress-tree at Tula, the trunk of which