

Pan-American Highway Nearly Finished

Engineering

Less than 120 miles of roadway is all that will remain unopened at the end of 1929, of the new Pan-American highway between Laredo, Texas, and Mexico City, it is reported by the National Highway Commission of Mexico.

It is now possible to go from Laredo, via Monterey, to Ciudad Victoria, capital of Tamaulipas, and by the end of the year the road will be open to traffic, though not completed, as far as Valles, in the state of San Luis Potosi. Working north from Mexico City, the road is now open to Zimapan, state of Hidalgo, and by the end of the year, automobiles will be able to go as far as Jacala, a point farther north.

The portion between Valles and Jacala is being saved for 1930, as it is the most difficult part of the road of a very mountainous region, which will require much engineering to bring through.

South of Mexico City, the Pan-American highway goes through Puebla, a sector that is already complete, but from there on no official work has as yet been carried on. Work, however, will be begun on this southern sector in 1930. The

road will lead from Puebla south to Huajuapán, and from there to the city of Oaxaca, an inaccessible region much broken up by mountains.

From Oaxaca, the road leads to Tehuantepec on the isthmus of that name, and from there to Tuxtla Gutiérrez, capital of Chiapas. Then it goes to Tapachula, on the Mexican side of the Guatemala border, through a region of Chiapas but little known.

Road construction was first begun seriously in Mexico in 1925, when four state capitals, Cuernavaca, Toluca, Pachuca and Puebla, were connected with Mexico City. Because the traffic on these roads is heavy, they are largely macadamized, but it is the policy of the Road Commission to produce long mileage at low cost, until traffic is denser.

More than 1200 miles of highway have been opened to motor traffic in Mexico since 1925, and over 21,000,000 dollars have been spent. Gasoline consumption in 1928 was about 212 million liters. Although Mexico is one of the world's leading oil producing countries, gasoline prices are several times higher than in the United States.

A motor trip to Mexico will be of geographical and ethnographic value to the tourist. He will pass through deserts, rich tropical villages, semi-tropical towns at a medium elevation, and then as he approaches the central state of Hidalgo, he will go higher than 10,000 feet, where it is always cold and scrub pine and oak are the only trees.

He will pass through the Huasteca region of Indians that are the puzzle of anthropologists, because they are apparently related to the Maya Indians much farther south. Then in the state of Hidalgo are the Otomies, and around the region of the valley in which Mexico City lies, are the Aztecs. After Puebla comes Huajuapán, where Mixtec is spoken, and farther south near Oaxaca City there are Zapotec towns, while in the state of Chiapas are Indian groups related to the Mayas. Each of these Indian groups has largely retained its own language, though frequently in addition to the national Spanish; and the costume, too, varies as one passes from region to region.

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Making Gas from Cornstalks—Continued

gas-producing possibilities of cornstalks on the average farm. He calculates that a ton of stalks will yield from ten to twenty thousand cubic feet of gas. Taking the lower figure, a ton of cornstalk would furnish gas for 400 people for one day, allowing 25 cubic feet per person per day. In the corn belt, where at least one-third of the land is always in corn, a circle 16 miles in diameter would produce enough stalks to supply a city of 80,000 inhabitants with gas.

Since cities cover a considerable area of ground themselves, the fringe of land about them that would supply their domestic gas requirements would be even narrower than eight miles. So even after the maximum use of cornstalks is attained on the present basis of gas consumption, there will still be great quantities left over. This opens up the possibilities of the development of cheap power in parts of the country not blessed with cheap water power nor underlain with beds of high-grade coal, oil or natural gas. It may be that corn itself will be one of the most potent influences tending toward

an industrialization of the corn belt.

There are two other angles to the new corn-gas making process, one agricultural, the other industrial. The dreaded European corn borer spends the winter lurking in old cornstalks and stubble, emerging as a trouble-spreading adult moth only when the weather begins to warm up in the spring. But if the farmer has a good dollars-and-cents reason for clearing his fields of all the stalks he can get, either for fuel for his own house or for sale to the city gas-works, the corn borer will be out of a winter home.

The industrial advantages of the bacterial digestion of cornstalks are of promise to paper makers. Not all of the cornstalk is digested in the tank. The long, tough fibers are left, and they are apparently about as tough and strong when they come out as when they go in. Now this is exactly what the paper manufacturer wants. The short, crackly cells of the pith are more or less nuisances to him; the bacteria can have them and welcome. But the long fibers, which the bacteria do not want, can

be washed, fluffed out, and then compacted into high-grade writing and print paper.

Cornstalks are not the only material that may be handled to advantage by the bacterial digestion method. One of the largest manufacturers of wall-board has already expressed his interest in the method as a possibility in the working of sugar cane bagasse, which is his raw material. Sugar cane is much like cornstalk in its structure—a thick, pith-filled grass stem with numerous fibers running through it. This manufacturer thinks that he may possibly be able to get gas for power in his factory from the pith cells, which are at present more or less in his way, and then use the power to press into wall-board the residue of the stalks from which it came.

The old boast of the Chicago packer, that "we use all of the pig except the squeal", now bids fair to be equalled by the cornstalk chemist, who will utilize all of the stalk except the rustle of its leaves.

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