What Value Our Forests?

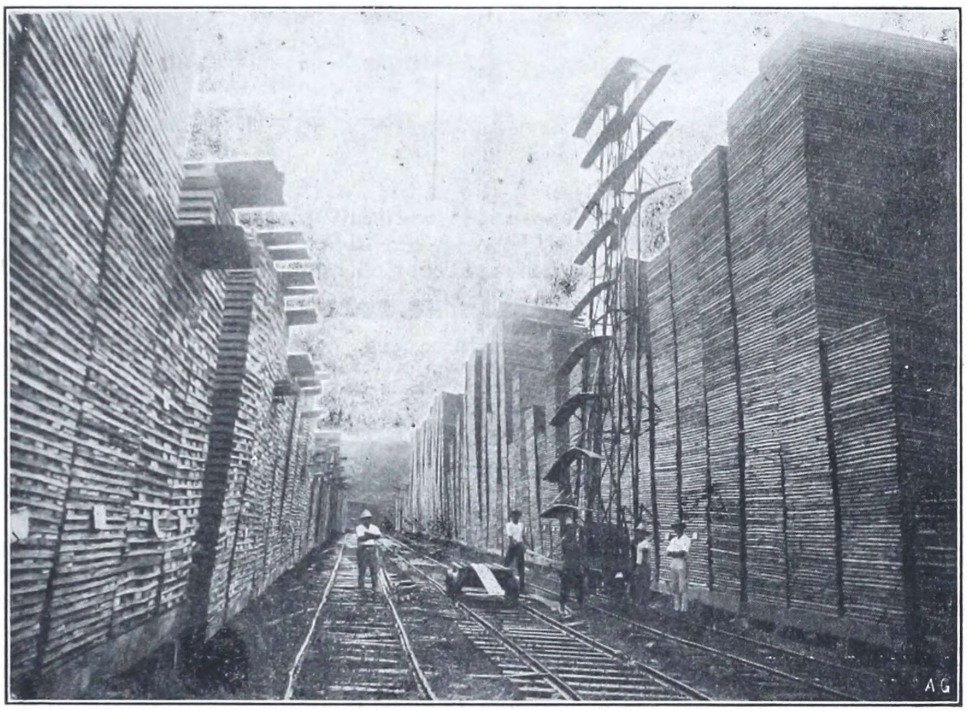
Philippine forests offer excellent opportunities for the manufacture of turpentine, varnishes and quinine, now minor products.

The commercial exploitation of Philippine forests has been limited to logging and the manufacture of lumber for building and cabinet purposes. The Philippine Islands possess an untapped source of wealth in the stands of almaciga timber for the making of high grade varnishes phonograph records, linoleum, sealing wax, and patent leather. The pine forests of the Mountain Province could be made to yield a valuable revenue in turpentine. The Bureau of Forestry by experiments have found that cinchona trees from the bark of which quinine is extracted can be grown in the islands.

The annual report of the bureau of customs shows that the Philippines have been importing annually from 30.000 to 304,000 liters of spirits of turpentine. The average importation for the past nine years being 81,000 liters valued at from ₱15,000 to ₱133,000. This represents a yearly retail trade of ₱40,000 in turpentine, the retail price being ₱.45 to ₱.50 per liter in the local market. This commodity is imported mostly from the United States and some from Great Britain, and Sweden. Here is a new industry where the investor has before him the prospect of ₱30,000 to ₱50,000 in local trade annually with practically no competitor, and the additional possibility of an European market.

There has been little attempt to manufacture turpentine in the Philippine Islands. A few attempts were made prior to 1930 to ascertain the value of the Benguet pine for making turpentine. In 1930, the Bureau of Science analyzed the sap of this pine in Baguio and found that a productive tree with a one cup tap produced 3683 grams of resin in 3 months. A standard tree, 40 to 60 cm., in diameter with 2 cups produced about 7 kilos of resin per year. Pine trees in the United States produce more than this, but the tapping season is shortened by cold weather. In the Philippines this would not be true, the tress yielding sap the year around. The scattered stands of Benguet pine are a decided drawback to turpentinine here in the islands as is also the mountainous character of the land where it grows.

From the bark of the almaciga tree is taken a hardened resin called Manila Copal. The almaciga is a member of the pine family. Copal varies in color from an almost transparent yellow to reddish brown, and is used in the manufacture of varnish. Since 1921 the industry has grown from the production of 542,700 kilos of copal, valued at ₱140,607 in 1921 to an output of 1,116,474 kilos valued at about ₱300,000 in 1930. Compared with the world's annual supply of which the Dutch Indies produce about 88%, the Philippine output is less than 10%.



A Lumber yard at one of the provincial Mills

Almaciga trees are found in most of the forests of the large islands and provinces, but only Camarines Sur, Tayabas, Palawan, Davao, Cagayan, Zamboanga, Camarines Norte and Sorsogon make regular shipments to Manila. No extensive surveys have been made on the possibilities of the copal industry except to locate the stands of the trees. There is no area covered entirely by almaciga trees. The percentage varies from 10 to 50% of the entire stand.

The collection of the resin cannot be classed as an industry even now. When other crops fail in the almaciga regions, or when the price of the resin is high it is collected. There are two methods of extracting the resin. One is by digging in the ground where the trees stand and the other is by tapping the bark of the live tree. The first method yields what is called ground or fossil resin, and the second tapped resin. Fossil resin is older, darker in color, more compact and commands a higher price than tapped resin. Fossil resin is formed by injuries to the roots of the tree which cause the sap to flow and harden in a compact mass. These collections are often very large, weighing as much as 60 kilos. Copal is found in some cases on the surface of the ground, generally a few inches below the surface and sometimes to a depth of from 2 to 4 feet. The latter is unusual however here in the Philippines. There is very little fossil resin now available on the market although it is possible that there is still a large supply in regions where there has been little collection.

Tapped resin when exposed to the air congeals in formations resembling tear-drops, and when the flow is great and exposed for a long time takes on the appearance of icicles. No cup is used to collect the sap as in the case of turpentine, for the resin hardens in a short time. The icicle-like masses often become a meter long if left for any length of time. A collector can collect as much as 30 to 40 kilos of resin in a day.

In 1930, 1,023,478 kilos of resin was produced, about 90% of which came from Davao, Camarines Sur, Palawan and Tayabas. This amount could be increased three to four times that amount if the industry were properly developed. The cost of shipping 1 picul of almaciga resin to Manila including forest charges varies from ₱4 to ₱5. The price of copal in Manila varies from ₱10 to ₱25 per picul depending upon the grade.

Quinine is an alkaloid derived from the bark of the cinchona tree. The

(Please turn to page 20)

there is some thought about abacá. A competent layman reports that the fields in southeastern Luzon and the eastern Bisayas will peter out unless machines for the stripping are introduced and modern cultivation is practiced, as the industry is being handled in Davao. The plant industry bureau, on its part, reports that the 30 to 40 million sugar sacks used in the Philippines yearly could be made of abacá. Jute sacks are now used, a product of India.

The plant industry bureau says a peasant woman and 2 girls working a week could make ₱2.50 worth of abacá sacks, if the price were ₱0.10 apiece; the price of imported jute sacks runs about ₱0.16 apiece, higher to others than sugar-mill buyers. The abacá-sack idea seems to be principally just an idea. It is the resale value of the jute sack that counts; it is necessary to spin an abacá yarn successfully, and make of it such a fabric as will have the qualities of the jute sack—no one-day task. The logical place for the experiment is at the science bureau, not the plant industry bureau; and there, instead of at their desks reeling off industrial conjectures, the plant-industry experts might be profitably employed. If Japan is launching an abacá-rayon industry, good solid chemistry research is at the bottom of the enterprise; and if we are to have abacá textile business, applied chemistry must indicate the way for capital to follow.

What Value . . . .

(*Continued from page 7*)

growing of quinine is another forest industry that has been neglected in the Philippine Islands. It has been estimated that ⅓ of the world's population suffers from malaria. Health experts have estimated that 26,000 tons of quinine a year would be required to treat these people. Yet the production of this drug is a virtual monopoly of the Dutch East Indies. The price of the drug is fixed at well over a pound sterling for a pound of quinine, and the world's supply is about 600 tons a year. A small percentage of the amount needed to supply the sufferers with a remedy. Malaria is a poor man's disease, and its cure only a rich man's privilege.

Attempts have been made to grow cinchona in the Philippines, and the experiments have been successful. On October 5, 1927, the Governor General set aside 378 hectares of land in Barrio Impalutao, Bukidnon, as timber land to be used for the growing of quinine trees. At present there are about 12,000 quinine trees growing. About 10,000 are four years old. In three or four years these trees will be ready for cutting to determine the alkaloid content of the bark, and the quinine derivatives for combating malaria, a disease prevalent in the islands.

In view of this experiment it is safe to say that quinine can be produced in the islands on a commercial scale for we have both the soil and climate necessary to its growth. Java with a very similar climate has extensive plantations where cinchona is grown and that country at present controls 97% of the world's supply of quinine.

NOTE.—The notes and data for the above article were supplied from articles written by Luis Aguilar and Juan Fontanoza, rangers of the Bureau of Forestry.

HERE FOR SPAIN

Republican Spain has sent to Manila as her vice-consul in the Philippines a man eminent in her public life, and of course prominent in the republican movement, Don Andrés Rodriguez Ramón, who arrived in Manila on the s. s. *Trier* and was met at the pier by Acting Consul General Ricardo Muñiz and a delegation representative of the Spanish community. Newspapers interviewers learned from Consul Ramón that Spain has not gone scathless in the business depression. She has been perceptibly affected by it. But he feels her overseas commerce will be prosperous under the Republic, brought about so largely by the industrial element of the population.

The new consul general, Don Luis Ariño Rodriguez, is sojourning in London and will arrive in Manila later this year. The Republic of Spain is formulating a foreign policy favoring commercial progress.

THE GOVERNMENT OF THE PHILIPPINE ISLANDS

DEPARTMENT OF COMMERCE AND COMMUNICATIONS

BUREAU OF POSTS

MANILA

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Page 11, No. 308, Book 4.