■ The statistics in this article are old and need upgrading but the varied uses of coconut are as tangible now as it was 30 years ago.

THE VERSATILE COCONUT

The story of the coconut is the story of the economic progress of the Philippines, to which it has contributed more than any other product. Few plants, if any, are as serviceable to primitive man as is the coconut. The nut meat is eaten as food; the oil is useful in making edible fats and soap, and is also used for illumination; the tree roots provide a dye, and the trunks, building material; the leaves are employed for thatching roofs; the midrib of the leaf is used for making baskets, brooms, and brushes; the fiber from the nut husk is woven into ropes and mats; and the nut shells, in addition to providing fuel, are shaped into cups, ladles, spoons, and other utensils.

Under primitive conditions, the production of coconuts, copra, and coconut oil was confined to groves of wild palms. These uncultivated trees still constitute a considerable source of supply when the market price is sufficiently attractive to natives. The coco palm, however, is now cultivated like any other staple agricultural product, and large plantations are to be found throughout the tropics.

In domestic cultivation, it is customary to set out the trees in rows, about 30 feet apart, giving room for about 48 to the acre. Crops of abaca, or Manila hemp, and other quickly growing plants, are usually grown between the rows. During the fifth or sixth year, the trees begin to bear, and after the seventh year the planter can reap an annual harvest of 15 or more nuts from each tree. The trees reach maturity at the age of ten years, when about 70 nuts per tree are collected annually. In rare instances, as many as 500 nuts have been harvested in a year from a single tree, and trees have been known to

continue to produce after reaching an age of 150 years.

The natives crack open the nuts with a bolo. The broken nut meats are then placed in the sun to dry. Sometimes the broken pieces are placed on drying racks under which coconut husks are burned to speed the drying process. The resulting smoke-colored copra is called "smoke-dried" to distinguish it from that which has been sun-dried. The firedrying method is used in regions where excessive rain makes natural drying impossible. Mechanical driers are employed on some of the larger plantation, but the practice has not become prevalent.

The natives have various ways of disposing of their crop. In some districts they sell their copra direct to the dealers at trading stations operated by the exporters. Chinese merchants in the small towns also acquire much of the local copra stocks, usually giving merchandise in exchange. The coconuts are frequently made into "rafts," and are floated down the rivers to market.

Some years ago it was the practice to ship almost all of the copra overseas for crushing and conversion into coconut oil, but a few mills have been established in the Philippines, in India, and in the Dutch East Indies. These local mills have become important factors in the copra market, exerting a balancing influence on the market price of copra and oil.

Copra first became an important item in world commerce in 1886 although a French sailing vessel had carried a load of coconuts to Marseilles as early as 1750. Marseilles soon became a manufacturing center for copra products, and is still one of the most important copra importing ports in the world. It was in France that the first butter substitute, consisting of coconut oil and peanut oil, was produced.

The phenomenal growth of the copra industry in the United States is shown by the fact that imports in 1920 amounted to 218,521,916 pounds, of which only seven percent came from the Philippines. By 1927, our copra imports had increased to 450,-994,519 pounds, of which 72 percent came from the Philippines. About two-thirds of

the American copra imports were consigned to the major Pacific Coasts ports – San Francisco, Los Angeles, Portland, and Seattle.

Originally coconut oil extracted from copra the source was shipped to San Francisco and other ports in five-gallon cases, barrels, and drums. Then a system was perfected whereby the oil was shipped in tank steamers and in deep tanks on passenger and cargo vessels operating between American and the Orient. This practice immediately revolutionized the transportation situation; for years the great ocean steamers had been carrying petroleum from this country to the Orient and returning in ballast, until someone thought out a practical scheme of carrying the coconut oil on the return voyage. A number of tank steamers are now engaged in transporting petroleum from Pacific Coast points to the Orient, returning with a capacity cargo of coconut oil in the same tanks.

Of course, it was necessary to devise a very effective system of cleaning the tanks of the ships before filling them with edible oil. After the petroleum cargo has been removed, a charge of live steam is forced into the tanks. This is continued for a period of 12 to 24 hours. After pumping out the bilges, and waiting a sufficient length of time for the interiors to cool, men are sent down into the tanks to clean them as thoroughly as possible. Later, upon arrival at the port where the coconut oil is taken on, the tanks are given a final cleaning.

The most important factor in handling coconut oil is temperature, for in order to keep the oil in a liquid state, the temperature must be more than 70 degrees, Fahrenheit. Under cooler conditions, it hardens into a dense material resembling butter or lard. Consequently it is necessary to provide heating pipes in the tanks of the steamers, in storage tanks, and in the tank cars used for distributing the oil in the United States. In many cases, the delivery hoses have a small heating tube running down the center, carrying steam or hot water.

In making coconut oil the copra is first but through expellers which force out

about 25 percent of the oil content. The residue is then ground into meal, and the remaining oil is squeezed out by hydraulic presses. Most of the oil is then filtered, and used for the manufacturing soap, shaving cream, shampoo solutions, and a long list of cosmetics. Some of the coconut oil is used for edible products, and must be refined several times to remove free fatty acids, color, and odor.

Besides being used in making margarine, the oil is employed in manufacturing thin sugar wafers, cookies, candies, and for shortening in cakes and pies. About 63 percent of the copra is converted into coconut oil, and the remaining 37 percent is used as coconut meal, which has high food value and is used as a feed for stock and poultry. About three-fifths of the coconut oil consumed in this country is used in the soap industry; one-fifth is used in the production of margarine, and practically all of the remainder is consumed in the manufacture of candy and biscuits. — *Based on an article by Charles W. Geiger and Ruth Sabichi in Scientific American.*

POLITICS

The following is a statement attributed to the late G. K. Chesterton:

"The mere proposal to set the politician to watch the capitalist has been disturbed by the rather disconcerting discovery that they are both the same man. We are past the point where being a capitalist is the only way of becoming a politician, and we are dangerously near the point where being a politician is much the quickest way of becoming a capitalist."