

# California Mill Varies Raw Materials

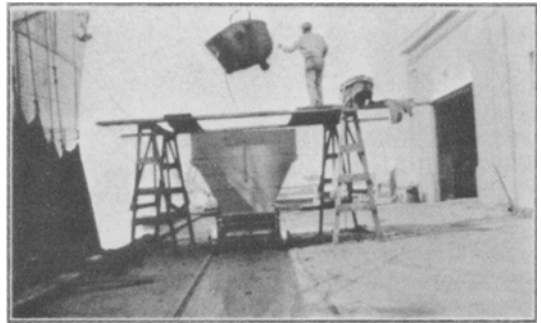
*Los Angeles Crushing Plant Equipped to Handle Copra  
or Sesame Seed as Market Conditions Warrant*

By D. A. PHILLIPS

**T**HE Copra Oil and Meal Company, situated on Mormon Island, Los Angeles Harbor, has just completed an addition to its mill for producing oil from copra, the addition being for the purpose of working up sesame seed. Sesame oil produces a choice salad oil when properly refined. Practically the same machinery used for obtaining the coconut oil is used in obtaining the oil from the sesame seed. The plant is now equipped for handling about 500 tons of sesame seed per month.

In this connection it is interesting to note that a serious attempt to raise the sesame plant in this country is now being tried in Imperial Valley, California, but the venture is still in the experimental stage. The free fatty acid in sesame oil is low enough that the natives of China and Manchuria, where most of the seed is produced, use it for edible purposes without refining. The residue of meal left after recovery of the oil is considered equivalent to linseed meal for stock feeding purposes.

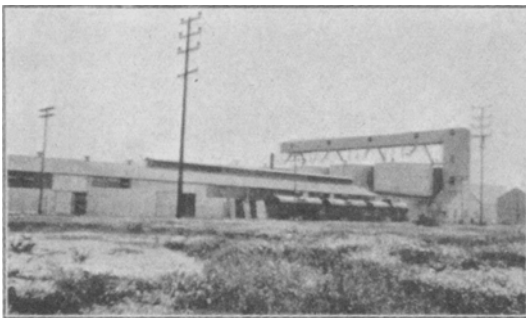
The amount of copra received at Pacific ports has increased considerably in the past



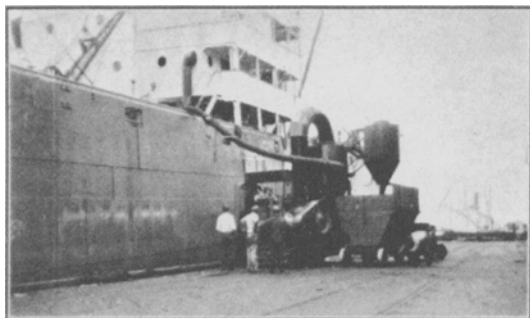
*Unloading copra from a steamer by means of bucket hoist discharging into specially-built truck at Los Angeles*

few years, and, according to F. W. Woll, of the Agricultural Experiment Station in connection with the California State University, the demands for meal and oil increased greatly in the past dozen or so years. Due to war conditions, European markets were closed for a time to oleaginous raw materials. Within the past few years a great deal of the copra shipped to this country has been coming to Southern California ports, as against previous years, when most of it went to San Francisco, Seattle and Portland, where there were mills for working it up. The largest of the plants at Los Angeles Harbor ran 30,000 tons of copra through its mill last year. As high as 2000 tons has been received in a single cargo. Most of the copra comes from the Philippines and Straits Settlements to the port of Los Angeles.

The ordinary method of discharging copra from a ship's hold is by means of grab-bucket elevators operated by the ship's cargo booms. An operator standing on a scaffolding alongside the ship tips the contents of the scoop into hoppers mounted on dump trucks waiting beneath the scaffolding.



*General view of plant of Copra Oil and Meal Company, Los Angeles harbor, showing oil mill, copra elevator and copra storage tanks.*



*Portable suction unloader, operated by gasoline engine, at work discharging copra from steamer in Los Angeles harbor*

A somewhat newer method of unloading copra employs the vacuum unloader, a mechanism operating on the principle of the vacuum cleaner, or sweeper. It is run by a gasoline engine stationed alongside the ship. A large hose is thrust into the hold of the ship, through which hose the copra is sucked up by vacuum, being discharged through a drum into the hopper above the dump trucks. In satisfactory operation this suction conveyer unloads material such as copra much more rapidly than do scoop elevators. It is now being tried out, and as yet its possibilities are not fully known, but it is believed that it will greatly facilitate unloading when perfected.\*

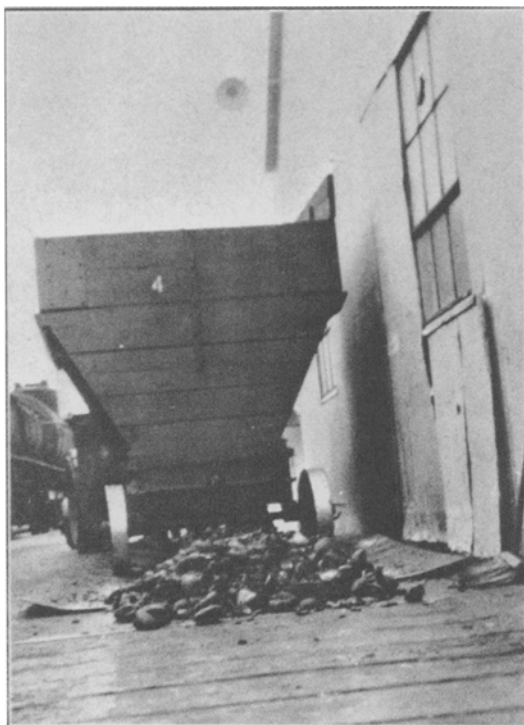
When the dump trucks are loaded they are hauled to the mill a short distance away, and after passing over platform scales where the copra is weighed, are dumped into the basement. The discharge is through a grating to prevent extraneous matter, such as large pieces of coconut fibre and sacks, from going in with the copra. In some instances, tiny shoes made of coconut shells, and long strands of copra strung on strings by the Filipino children as a pastime, are found in a copra load. On reaching the basement, the copra is carried in bucket elevators to the top of the building, whence it is discharged into the tops of the tall storage tanks, each of which has a capacity of about 875 tons. This mill has about a half-dozen of these tanks, and the others in the Los Angeles area have three each or more.

When the copra is to be run through the mill, it is taken from the bottom of the tanks. On being taken by conveyors from the tanks, it is automatically weighed, as it goes on its way, by scales which weigh 175 pounds to the

spill, the scale counter registering any overweight or underweight. The copra proceeds by another conveyer from the scale house to the mill, passing over a magnetic pulley, for the removal of any iron or other metal which may be in the mass. Pieces of iron nearly as large as a man's fist have been found in the copra.

The raw material is next conveyed to the breakers, where it is reduced to small pieces. From the breakers it goes to the driers, thence to the tempering apparatus of the expellers. The next step in the journey is through the expellers. Those in use here are of the Anderson type, and it is claimed that all the oil is expelled at one operation. This type is being used here for the first time.

The oil, at first mixed with fibre and meal, goes to the basement to be settled for the "foots" removal. It is then pumped upstairs to the agitating tank, thence through the filter process, where the oil is forced through canvas cloth at high pressure. A thirty-six plate press is used. As the stream of oil comes from the filter press it goes into a large tank, and is later pumped into the storage tanks to await shipment.



*Dump truck discharging copra into house conveyor at plant of Copra Oil and Meal Company*

\* *Editor's Note:* Suction unloading equipment was successfully applied to copra in Portland, Oregon in 1920, and in Philadelphia in 1923. These installations were stationary, however, unlike the portable outfit described in this article.