

IS NOT KNOWN.

## Oil Refinery

The next ten days should see an actual start made on building the Standard Oil refinery on the Cooper river waterfront. No official figures have been made public as to what this plant will cost, but it is known that the aggregate investment will reach impressive totals.

# BIG REFINERY GETTING OIL

## As Huge Plant Nears Completion Raw Material Is Being Stored

A movement of crude oil to the Standard Oil refinery that is expected to assume big proportions as the refining plant progresses and gets into operation, has commenced, two steamers having brought initial cargoes here, and more steamers, it is reported, being due to get here in the future. A representative of the Standard Oil Co., is here for the purpose of making arrangements for handling vessels of the company's fleet. In addition to vessels that it charters, the Standard Oil Co., has a large fleet of its own, and doubtless many of these vessels will make this port in the future. The S. S. Avondale, which came in yesterday, and the S. S. Maricopa, which came in a few days ago, brought the first shipments of crude oil which was discharged into the tanks that have been constructed.

In addition to the crude oil for the refinery, a number of ships have come here with fuel oil used in bunkering vessels, and with gasoline, the ports oil business being developed substantially, both the Standard Oil Co., and the Texas Company now engaging in the bunkering business.

The immense refining plant under construction is nearing completion, and crude oil for refining purposes is being stored in readiness for operation when the big plant functions.



# PREMIER OIL PORT OF THE SOUTHEAST

Standard Refinery and Storage Plants of  
Standard, Texas, Gulf, and Sin-  
clair are Operated Here

Charleston's position as the premier oil distribution center of the Southeast is firmly entrenched in the operation here of the only refinery on the South Atlantic coast, that of the Standard Oil Co., and of the bulk storage plants of the Standard, Texas, Gulf Refining, and Sinclair Oil companies, the latter two being of recent development. The combined storage facilities of these concerns is over 1,000,000 barrels of refined products, while the Standard refinery, handling about 15,000 barrels of crude oil daily, is recognized as one of the most efficient plants of its kind in the country. Charleston's advantages as a port of distribution are strikingly demonstrated by its selection as a base of operations for these four big companies, and the past year has seen an increase in the oil movement that promises a future of ever more impressive volume in this important business. From a standpoint of shipping, rail business, service in supplying commodities to a large inland territory, bunkering ships, employment of labor, and contributions to the general prosperity of Charleston; these plants constitute one of this port's chief assets.

## Standard Oil Refinery

Ranking as Charleston's largest industrial plant, the huge Standard Oil Refinery, fronting extensively on the Cooper river, and including an area of about 185 acres that extends westward as far as the Meeting street road, represents an investment of several million dollars. The plant employs on an average of 600 men and the volume of the outputs of big proportions. The refinery is in operation day and night, every day in the year. The capacity of the plant is about 15000 barrels of crude oil per day, ships bringing the commodity from the fields in Mexico, California, Peru and other sources. That the officials of the big oil company decided to locate such an important plant here is convincing recognition of Charleston's importance as a port and a center of distribution, and the business of the port has been added to substantially by Standard Oil ships coming here to discharge and load and by still other ships calling at the pier for bunker.

Work on the refinery was begun in 1919, and it started operation on Christmas day, 1920. In April, 1925, the size of the area belonging to the refinery was increased about 50 per cent through the purchase of tracts belonging to the Charleston Country Club and the Miller interests, of New York, in all embracing about sixty acres of highland admirably suited for the location of storage tanks and other expansions.

The products of the refinery are gasoline, kerosene, gas oil, fuel oil, Diesel oil and all grades of paving asphalt, the demand for the last named product having increased tremendously from all points in the South. The kerosene production of the refinery in one year would be sufficient to supply oil to fifteen lamps which if lighted 2,000 years ago would still be burning. Another activity that has recently been added to the list of those going on within the refinery area is the location here of a car repair shop by the Union Tank Line, the company that owns and operates the tank cars which carry the refined products to other parts of the country.

Asphalt production at the refinery has really attained such proportions that it can well be ranked as a major industry. The output for 1925 was over 150,000 tons, more than double the quantity that was manufactured the preceding year. The surfacing material is shipped to such states as North Carolina, Alabama, Virginia, Georgia, Florida and to points in South Carolina,

and besides to yet more distant states in the middle west. The sales of this and other products are handled through the offices of A. D. Willis, district sales manager, occupying the entire top floor of the People's Office building. The manufacture of asphalt has been given special attention at the Charleston Refinery since first it was started, and besides the paving material, roofing asphalts and fluxes are also made and sent out to such distant states as Illinois and Ohio.

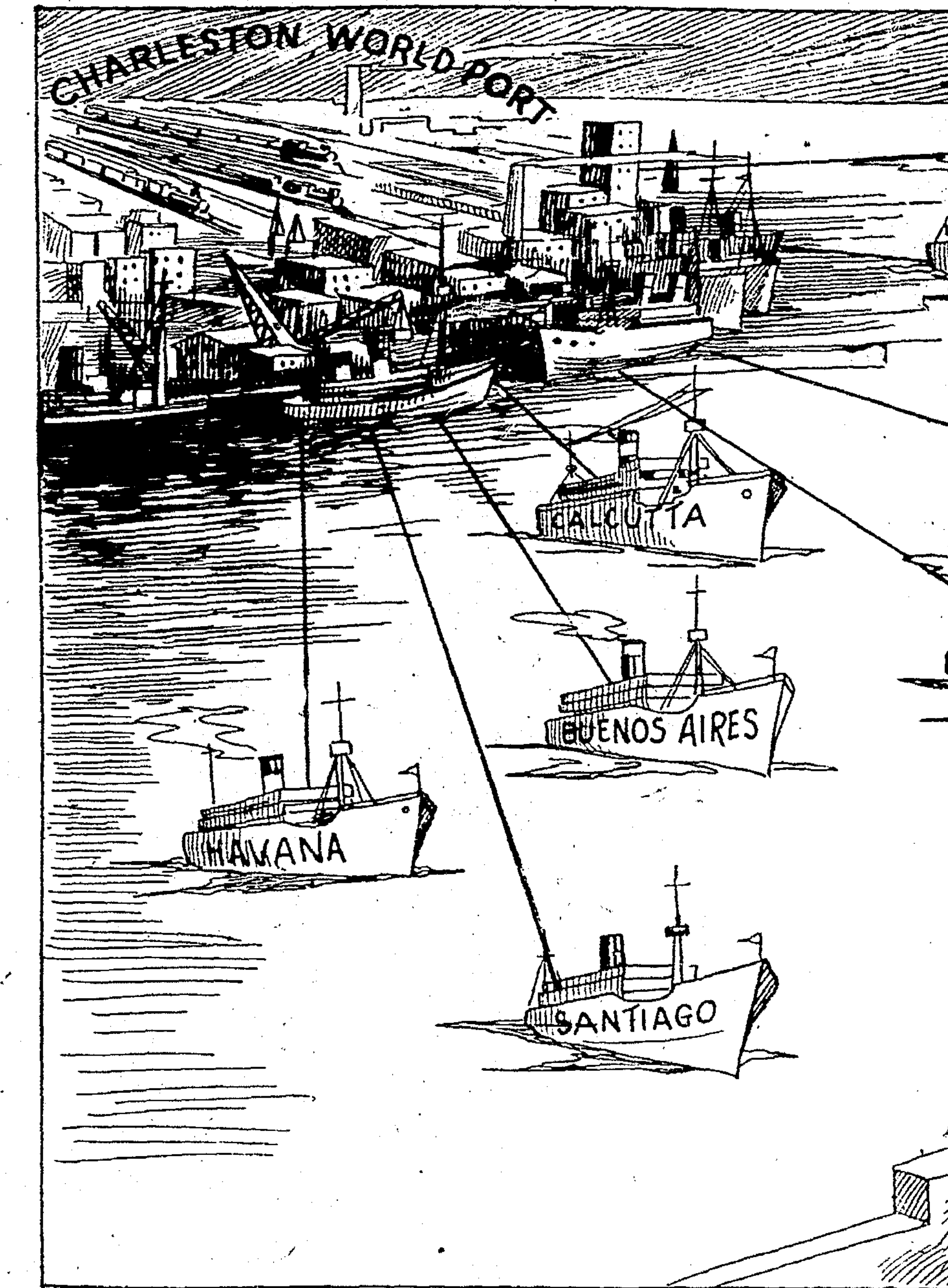
The best grades of asphalt are made from Mexican crude oil. This oil is transported from the Mexican fields to the coast and from there in great tank steamers to Charleston. The number of these vessels handled by the company to the local refinery, has steadily increased in the last few years, until at the present time the importation of crude oil makes up an important percentage of the business of the port of Charleston. Asphalt is produced from a special crude from which little or no gasoline or other refined products are obtained. The process requires great quantities of steam to distill the distillate and leaves a steam refined finished asphalt meeting all the demands of a paving material. It is one of the most popular materials in use in the world today, as testified by the fact that it is in more general use than any other. Its durability and economy are said to have been responsible for this.

Crude oil as it comes from the well, consists of a mixture of non-condensable gas, gasoline, kerosene, gas oil (used to make illuminating gas) lubricating oil, wax and fuel. There are many hundreds of combinations of these products, but these are the chief constituents. Each of these separate stocks will boil at decidedly different temperatures, a typical crude ranging from 100 degrees Fahrenheit to 800, and it is this fact on which the refiner bases his work.

When the crude reaches the refiner, either by transcontinental pipe lines or by tank steamer, it is put into a still, which is merely a huge cylindrical boiler of about 1,000 barrels capacity and the temperature on this still is very gradually raised by building fires under it. As the temperature rises to around 100 degrees F., a light gas comes off which cannot be condensed. This is collected and burned under the stills for fuel; then the gasoline content in the crude vaporizes and is led through very long pipes which are immersed in cold water and the condensed vapors, run into what is known as a receiving house for inspection.

As the temperature of the still gradually rises, these condensed vapors gradually become heavier and at a given point the flowing stream is diverted from the gasoline tank, for which it is now too heavy, into the kerosene tank. As the temperature continues to rise, it is again turned toward gas oil, and again to lubricating oil, etc. The final residue which remains in the still and has never been vaporized, is pumped out to the fuel oil storage.

The gasoline, as it comes from the crude still, is by no means a finished product. It is then taken and treated with concentrated sulphuric acid to remove the gum forming constituents and objectionable sulphur compounds. After neutralizing the last traces of acid with caustic soda, it is water washed and then transferred to other stills where it is re-distilled, but this time no fire whatever is used, but only superheated steam. The over head distillate is bright and clear as crystal and by the proper operation of the stills, it can



be made to meet just the desired boiling point specifications.

Kerosene, as it comes from the crude stills, contains some light naphtha fractions and some heavy gas oil fractions. This stock, therefore, is also treated with sulphuric acid and again distilled by a combination of fire and steam: the resulting over-head distillate is sweetened with caustic soda, water washed and is then ready for the market. Every batch made up, however, is first burned in the laboratory test lamps, for in addition to the burning test naturally is "the proof of the pudding."

Besides the refinery the Standard Oil Company maintains in Charleston a storage depot that is located on Brigade street, which is under the direction of the district sales manager. A pipe line connects this storage depot with the refinery. The company also conducts three service stations in the city, one on Meeting street, one on King street and another on Rutledge avenue, at Cannon street.

The refinery inclosure has within it many storage tanks, ranging in size from 8400 barrels down. A number of the newest tanks have been erected on the old Country Club property. The refinery is protected from fire by a system of pipes ready to sprinkle a blaze with a fire extinguisher known as "Foamnite," the tanks are also surrounded by earthen rings six feet high as a further precaution. There high at the refinery among the usual process units, a number of "tube and tank" cracking coils developed by the Standard Oil Company for the conversion of gas oil and fuel oil fractions into the low boiling gasoline. This and similar cracking processes have done much to avert the gasoline shortage which the country would certainly be facing without synthetic gasoline.

W. J. Haley has been superintendent of the big plant since 1921. Other superintendents preceding

him were C. O. Meyer and J. L. Finley.

## Gulf Refining Company

The distribution base of the Gulf Refining Company on Shipyard creek, an arm of the Cooper river that has its confluence with that important commercial waterway at a point just above the refinery of the Standard Oil Company, began active operation with the receipt of large imports of gasoline and lubricants from refineries in Texas and other points in the southwest slightly less than a year ago. Now the company is running a heavy schedule of vessels to the port five or six coming in each month with average cargoes of 5,000 barrels of gasoline.

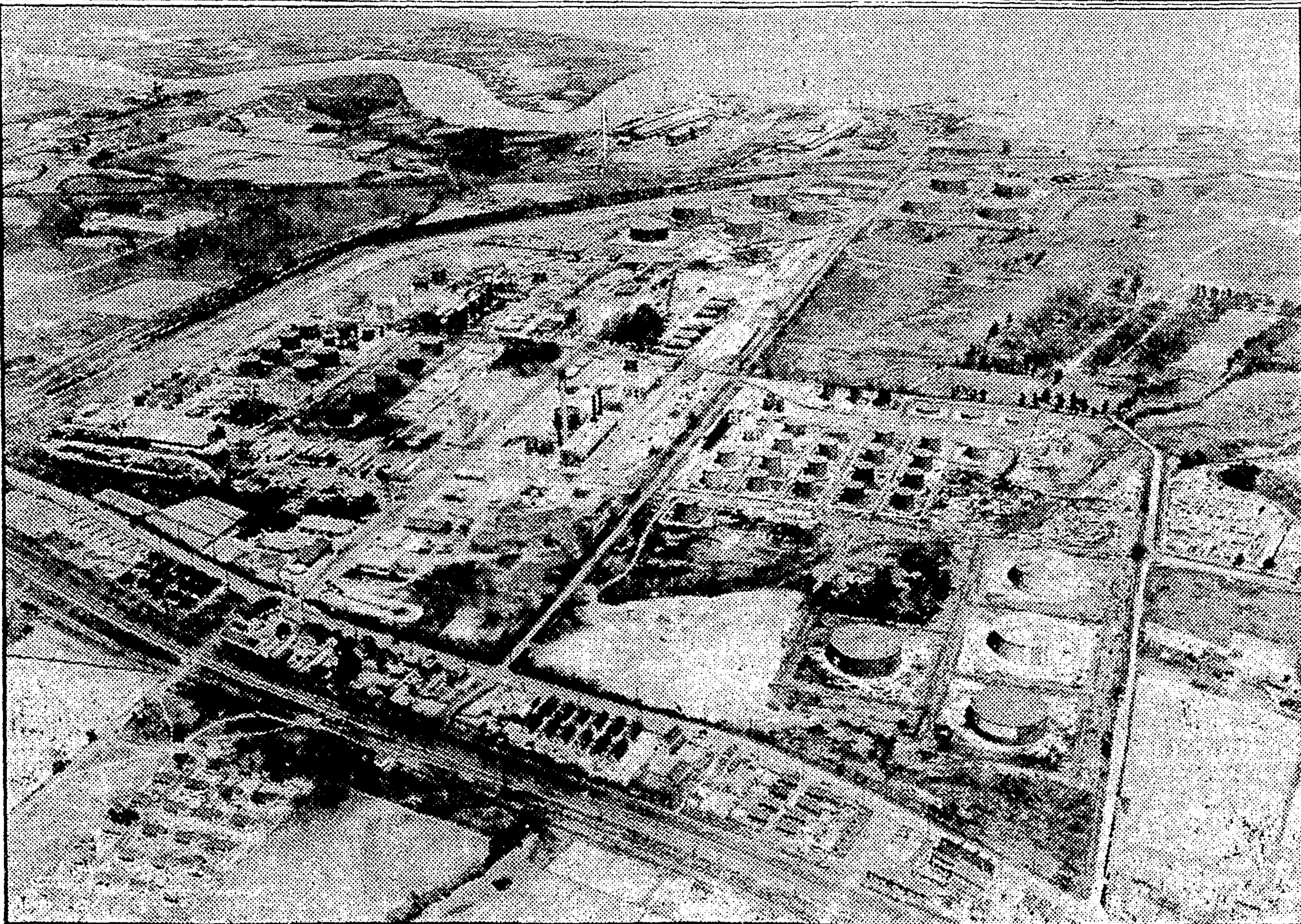
The Gulf Refining Company operates similar distribution plants at Jacksonville and at Savannah, but the local terminal is the largest of the trio. Figures are not available, but it is manifest that it represents an impressively large investment. The property includes an area of about fifty-five acres and there is plenty of room for expansion.

At the eastern extremity of the area is the dock fronting on Shipyard creek for 1,000 feet, making it possible for the terminal to discharge or load two vessels at once. The margin of the creek opposite the pier has been cut away allowing ample room for a vessel to the Cooper river channel prow first. At the present time there is a depth of 26 feet at mean low water at the pier head, giving all the water needed as the majority of the Gulf fleet are steamers of about twenty-three feet draft with cargo abroad. Ships can also be refueled at the dock.

Not far from the dock is the structure housing the terminal's machinery, the pump engines and the boiler rooms. Cargo is pumped from the dock to the tanks by means of pipe lines and from the tanks to

(Continued on H-2)

## Standard Oil Company Refinery at Charleston



This air view shows the big refinery established by the Standard Oil Co. on the Cooper river several years ago, there being seen the stills, storage tanks, various buildings, athletic grounds, and the former country club and other property recently added to the territory covered by the extensive plant.