

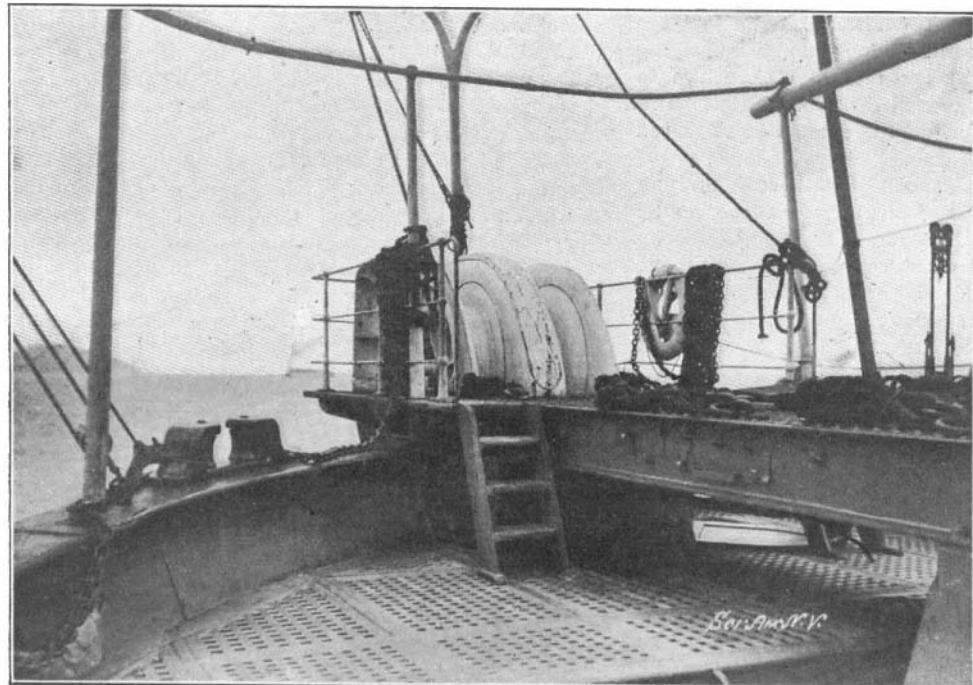
OPENING OF THE FIRST SECTION OF THE PACIFIC CABLE.

A Pacific cable, which was, for many years, the dream of the late John W. Mackay, at length is nearing accomplishment, the opening of the first section from San Francisco to Honolulu having occurred on New Year's day. The cable, when completed, will reach from San Francisco to Manila, in the Philippine Islands, a distance of 6,912 miles. A branch to Hong Kong, China, is contemplated later. The second section is to extend from Honolulu to the Midway Islands, the third from the latter point to Guam, and the fourth from Guam to Manila. Cable for the last three sections will soon be laid in order, now that the first has been completed. The total cost of the cable will exceed \$12,000,000.

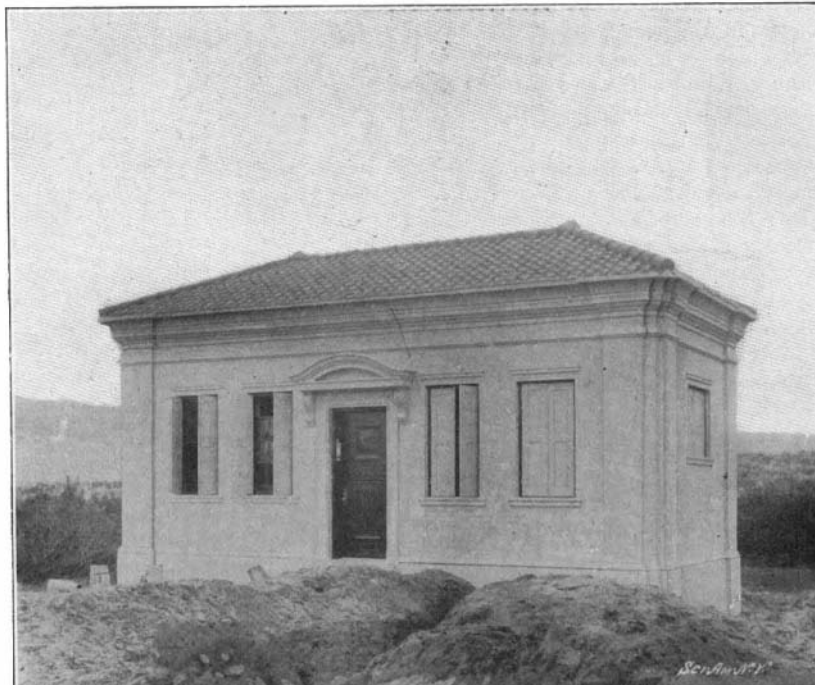
Beyond the extreme depth met with in places, the

bed of the sea along the route of the cable presents no extraordinary difficulties to laying the cable, or to its subsequent maintenance. The most hazardous portion is that between San Francisco and Honolulu, where depressions of 5,160 and 5,269 fathoms have been encountered. This part of the route is extremely irregular in profile, and is marked by mountains of immense elevation and by valleys of great depth. A level plain, with an average depth of 2,700 fathoms, extends all the way from Honolulu to the Midway Islands; the bottom being of soft mud and extremely favorable for cable laying. Toward Guam, an average of 3,200 fathoms is found. Favorable conditions are maintained throughout the entire distance. The last section is similar in its profile to section 1, though the depth averages less, being from 1,400 to 2,700 fathoms. The sea bed in this section is extremely irregular in

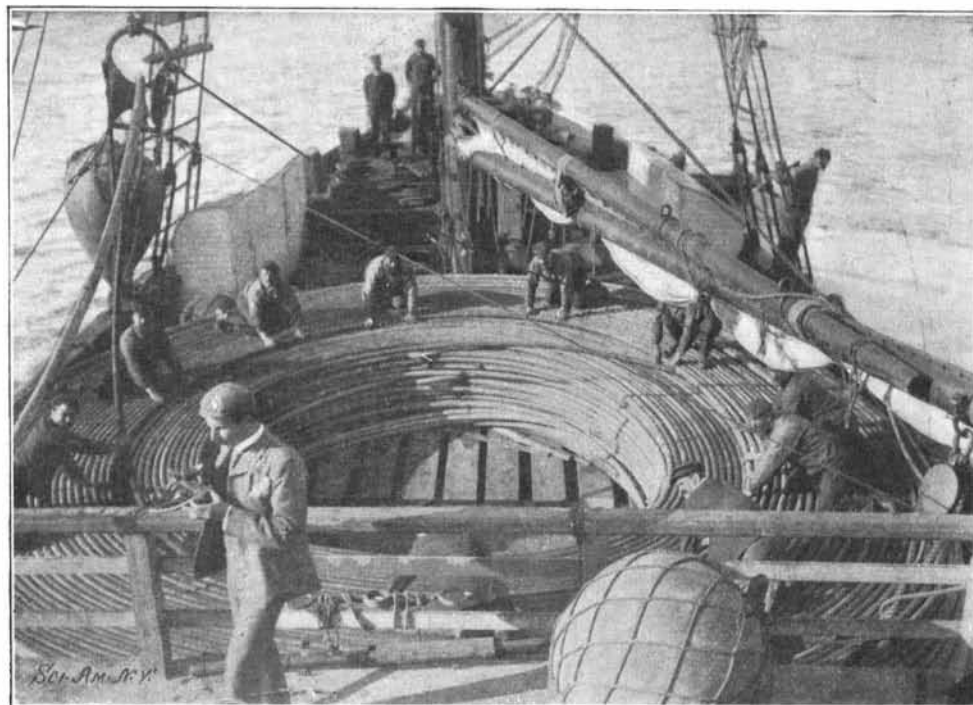
outline, with many reefs and depressions. From the central office in San Francisco to the ocean beach, a distance of 37,000 feet, the shore end of the cable is laid in an underground iron conduit 3½ inches in diameter. Four independent wires, perfectly insulated, are inclosed in the iron conduit. The landing station at the shore is a plain, substantial structure, and contains, besides rooms for the operators, testing rooms for the necessary instruments. The sea cable itself is built around a core formed of copper wire insulated by gutta percha covering, around which layers of jute yarn are wound. This, in turn, is sheathed in small cables, each formed of several strands of steel wires. An outer covering of jute yarn, the whole saturated with a bituminous compound, binds together the conducting and protecting wires in one solid mass, thus forming the complete cable.



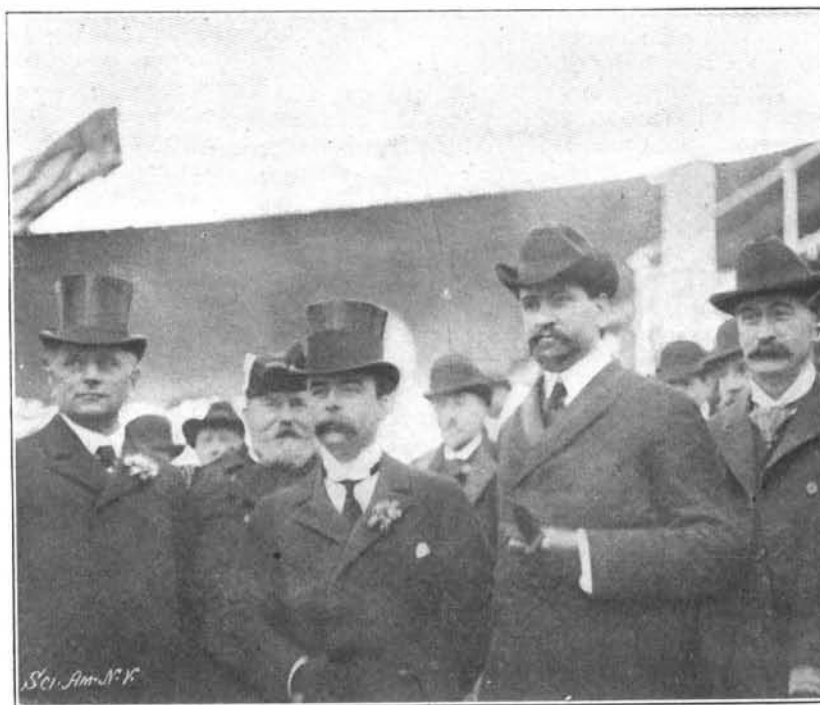
Stern of Cable Ship, Showing Big Sheaves over which the Cable is Paid Out.



Landing Station of Pacific Cable, on Ocean Beach, San Francisco.



Coil of 6½ Miles of Cable on the Deck of the Steamer "Newsboy."



Mr. Clarence H. Mackay, Mayor of San Francisco, and other Notables at the Landing of the Pacific Cable.



Landing of the Pacific Cable.



The Cable Ship "Silvertown" Loaded with the San Francisco-Honolulu Cable

OPENING OF THE FIRST SECTION OF THE PACIFIC CABLE.

The first section of this new cable was opened late in the evening of January 1, when the splicing of the deep sea portion to the shore end on the island of Honolulu was accomplished. The cable steamer "Silvertown," after successfully laying the 2,400-odd miles of cable in the depths of the Pacific Ocean, was obliged to stand by for several days and wait for a sufficiently calm sea in which to lay the Honolulu shore end, before the final splicing could be made. The laying of the shore end on the island was much more difficult because of the nature of the bottom, on which are many coral reefs; and if a calm sea was necessary to accomplish this successfully on the sandy San Francisco shore, it was imperative on the Hawaiian coast. As the shore ends of a cable are the most difficult portions to lay, the method of procedure being much the same, however, in every case, a brief account of the opening of this great enterprise by the laying and christening of the San Francisco end of the new cable, will be of interest.

An attempt was made on Friday, December 12, to bring the cable ashore, but this was frustrated by the strong currents and heavy surf breaking on the beach.

On Saturday, December 13, a piece of the cable, the total length of which is 2,413 miles, was cut off and coiled up on the deck of a light draught steamer, the "Newsboy." This piece used for the connection was 6½ miles long. As the "Silvertown" could not approach any nearer shore on account of her heavy draught—28 feet—it was necessary to employ a smaller steamer for laying the first six miles of cable.

Soon after 5 o'clock on Sunday morning, December 14, the "Newsboy" steamed out of San Francisco Harbor; and a little after 7, the anchor was dropped about half a mile to the south of Cliff House and about one-third of a mile from the ocean beach, to the west of the city of San Francisco. The morning was bright and full of sunshine, and the surf rolled in lazily in three

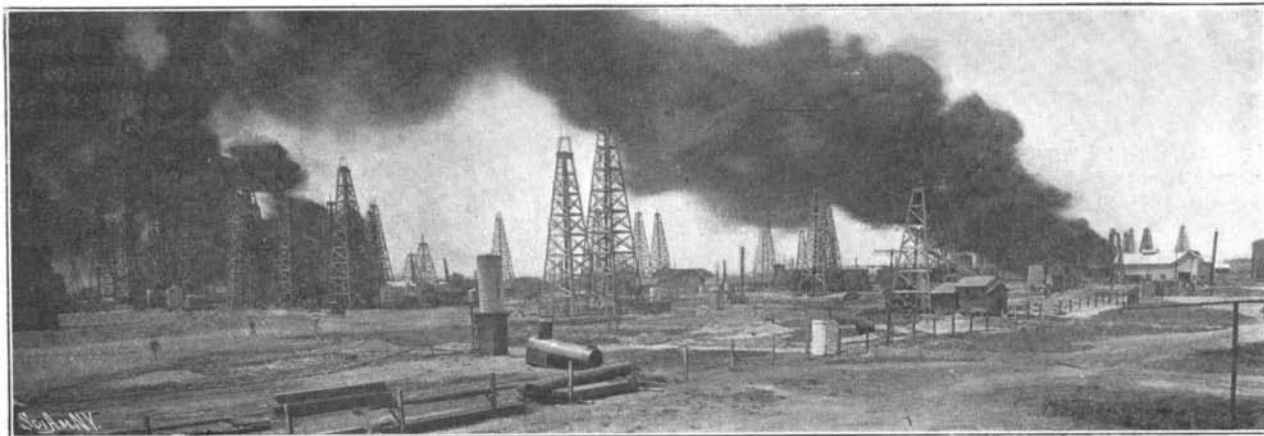
was dropped into the ocean, and a team of twelve horses began to haul it ashore. As the cable was paid out from the "Newsboy," balloon buoys were attached to it at intervals of ten fathoms, seventeen of them intervening between the vessel and the line of breakers.

Shortly before 10 o'clock Mr. Clarence Mackay, Mr.

already in position. Meanwhile the steamer "Newsboy" was making her way out to the cable-ship "Silvertown," paying out the 6½ miles as she went. When all was paid out, the end was attached to an anchor buoy and dropped overboard till the "Silvertown" should be ready to pick it up and begin the work of splicing it to the main cable. It was past 6 o'clock in the evening before this work was finished and the "Silvertown" had started on her voyage to the Hawaiian Islands. At 8:55 P. M. a message from Mr. Benest to Mr. Mackay announced that all was well. During the whole trip, the cable was tested, night and day, in a cable hut built on the sand dunes about two blocks distant from the spot where the cable was landed.



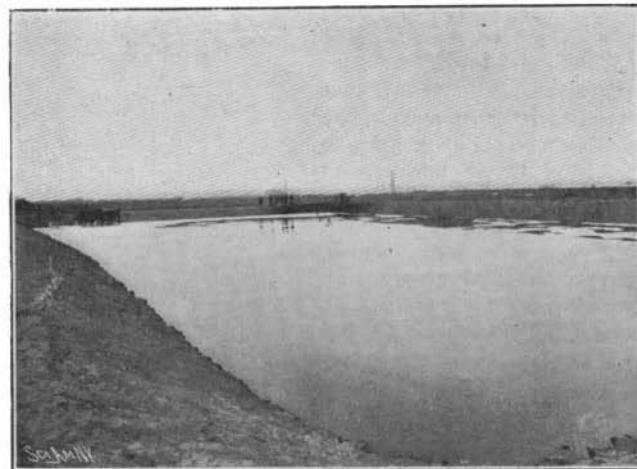
A Typical Pipe Line, and an Open Ditch for Conveying Oil to the Earthen Reservoir



A Fire in the Spindle Top District



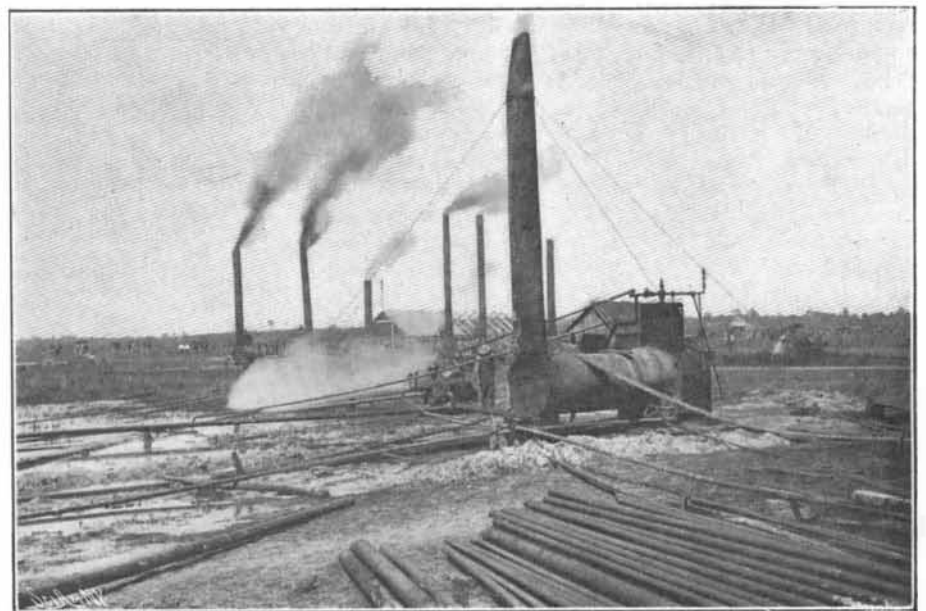
A Lake of Oil.



The Great Higgins Reservoir in the Beaumont District.



Fighting the Jennings Oil Fire.



Boilers Used at the Jennings Fire, Showing Connections with the Pipe Lines.

HOW OIL FIRES ARE EXTINGUISHED.

lines, breaking gently. A boat of the United States Life-Saving Service rowed out through the breakers, carrying a light line, one end of which was given to the "Newsboy." This line was bent to a heavier line, to which the cable was attached. At 9:15 A. M., the end of the cable, with a balloon buoy attached to it,

Gage, the Governor of the State, his daughter, and others reached the beach, and the end of the cable was dragged out of the ocean on to the sand, and Miss Gage then christened the cable, dedicating it to the memory of Mr. John W. Mackay. The end which had just been brought ashore was then spliced to the end

of one framework almost touches another. The area of Spindle Top is comparatively small, and for two years oil has been secured through a natural flow and by pumping. When the gushers were first brought in, it will be remembered that so much enthusiasm was manifested over the great yield that some were allowed

OIL FIRES IN THE SOUTHWEST.

BY DAY ALLEN WILLEY.

Since the discovery of oil in large quantities in the Southwest several of the principal districts have suffered great damage by fire, conflagrations being started by carelessness of employes of the oil companies as well as others, which have spread over an extensive territory and have proved very destructive to not only derricks but

the pumping plants and reservoirs. Several fires of unusual magnitude have occurred in the Spindle Top district, while a few months ago one of the largest wells in the Jennings, La., region caught fire, the flames only being extinguished after several weeks had elapsed from the time the fire started.

The conditions, especially in the Beaumont district, are such that the utmost precaution must be taken, owing to the highly inflammable character of the plants, also to the fact that much of the soil is literally saturated with oil. At present it is estimated that about 220 wells are being operated at Spindle Top, but fully three times as many derricks have been erected, some of them so close together that the end