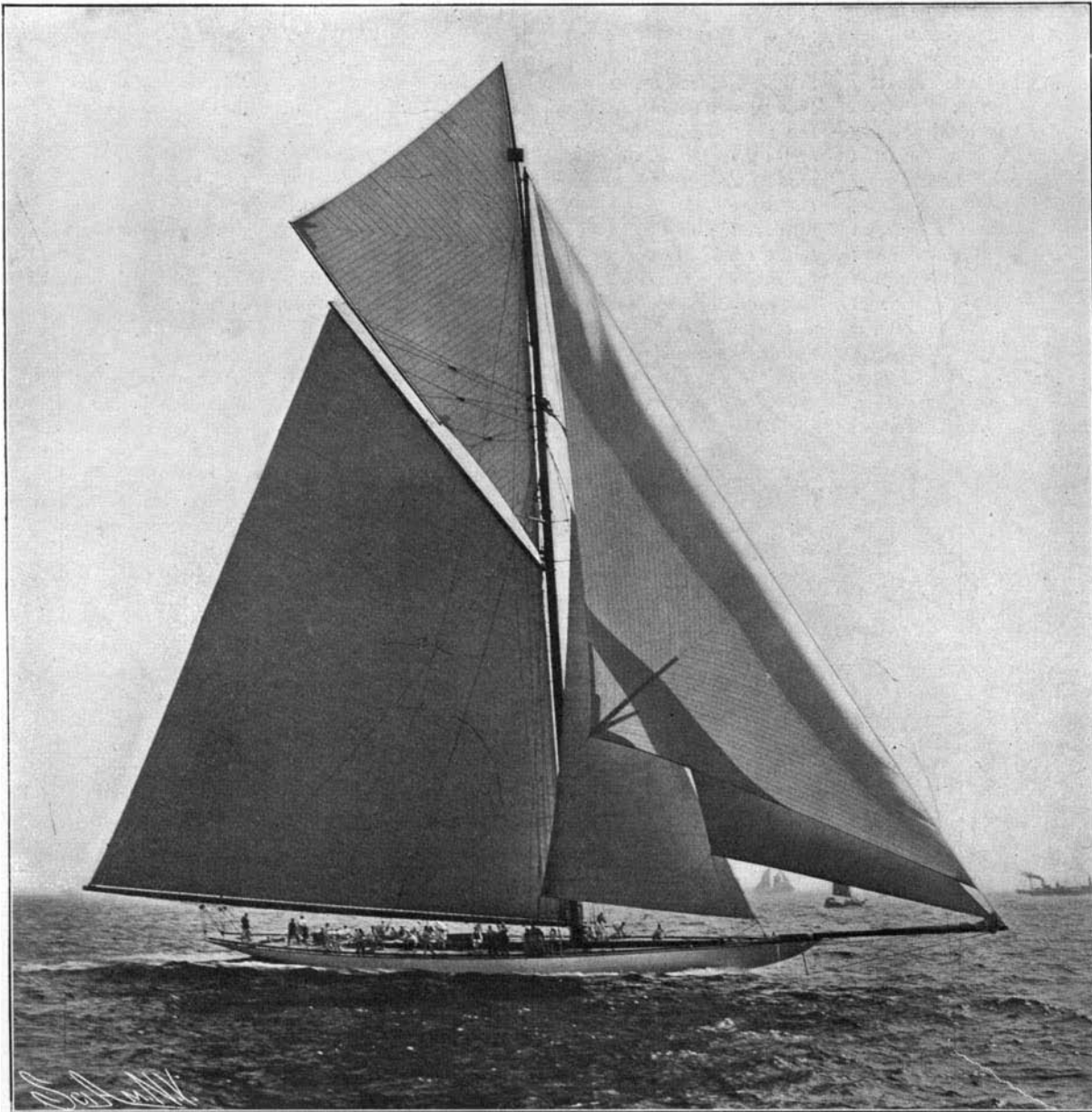


THE "SHAMROCK"-"RELIANCE" RACES OF 1903.

The two finished races and the two inconclusive attempts at a race which have already occurred in the contests this year for the America cup, have demonstrated that in average wind and weather "Reliance" is unquestionably the better boat under the conditions governing the America cup contest; and to say this is to say nothing disparaging of the challenging boat. "Shamrock III." is by far the best challenger that ever hoisted sail at Sandy Hook. She is a splendid boat of which both her designer and owner may well be proud, but in "Reliance," as we have shown elsewhere, she has met a type of yacht which by its peculiarities of form and overpowering spread of canvas is more than a match for her in any but certain specified conditions of wind and sea, which are rarely to be met with off Sandy Hook.

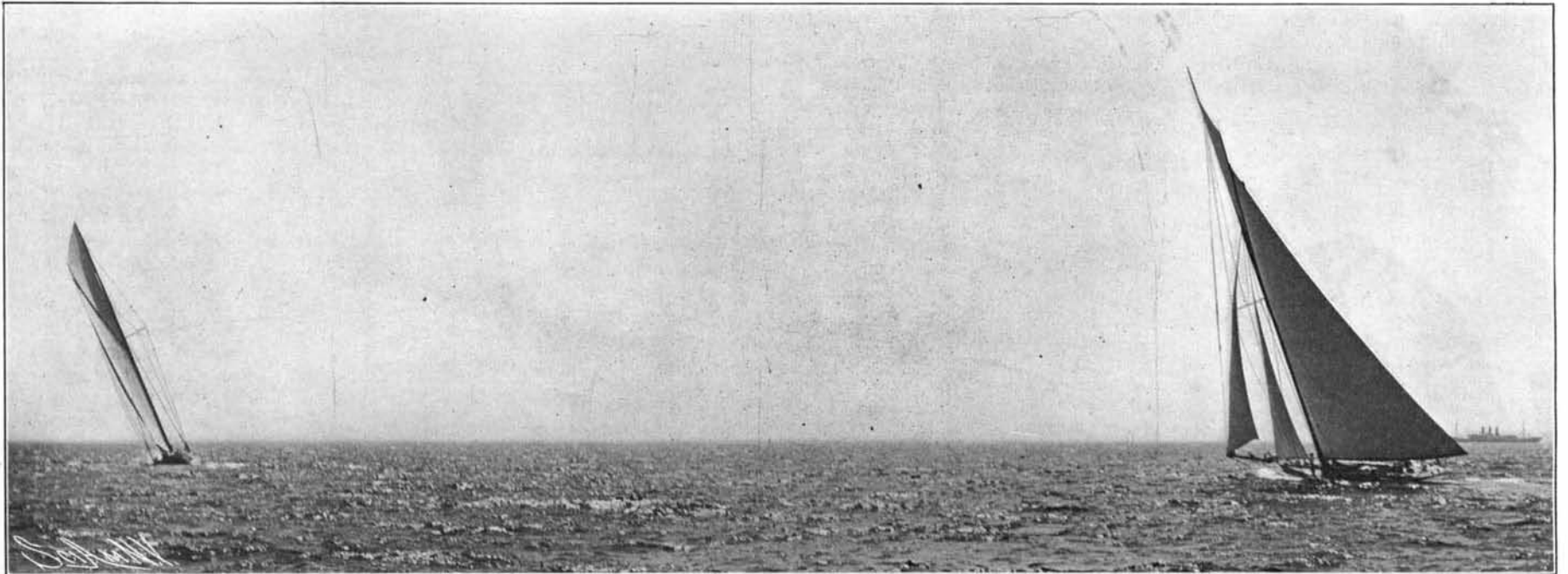
A remarkable feature of the present series of races is that both boats have proved to be weakest on those very points of sailing in which each was supposed to show to the best advantage against its opponent, and the curious thing is that this upsetting of expectations applies not merely to the general public, and to the yachting experts, but even to



Copyrighted, 1903, by James Burton.

Shamrock III. Crossing the Line at the Finish, August 25. Reliance Won by 1 min., 19 sec.

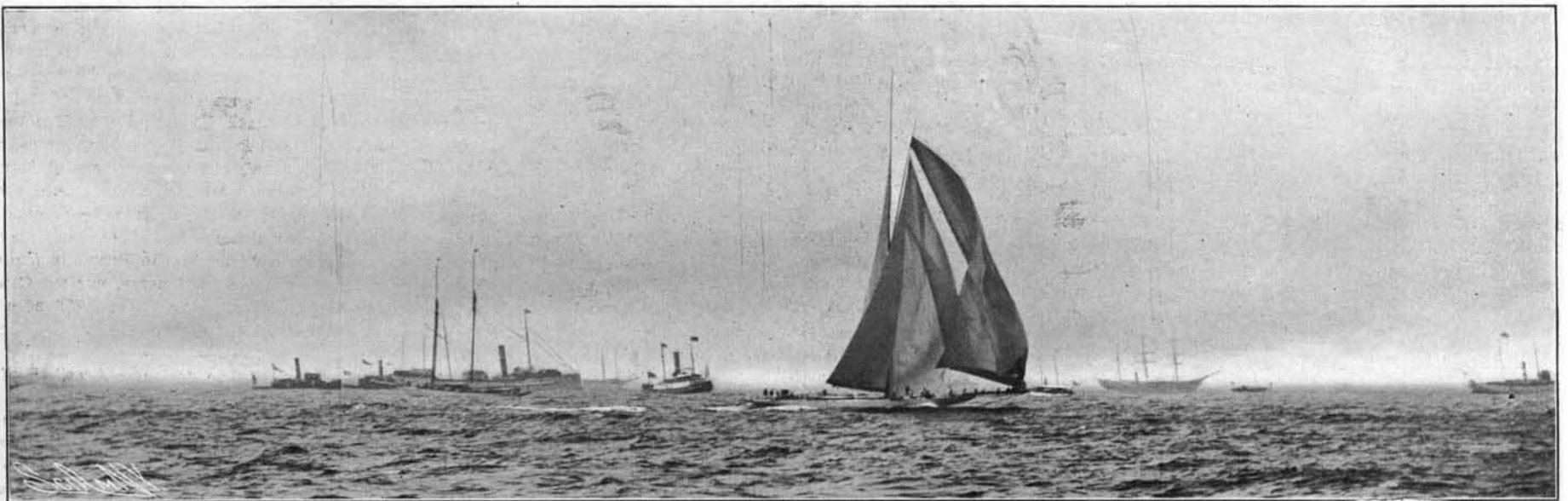
the designers themselves. Herreshoff believed that the full-water line and great overhangs of "Reliance," which increase her water line to 125 feet in a scupper breeze, would make her by far the fastest boat in reaching of the 90-foot class. At the same time it was feared that in light winds her work when close-hauled for the weather mark would be much below her general average on other points of sailing. It has turned out to be just the reverse, for in a whole-sail breeze "Shamrock III.," as was proved in the triangular race, was able to hold on very closely to her more powerful sister, while in going to windward in a light breeze "Reliance" has proved herself to be simply unbeatable. On the other hand it was expected by those who had "Shamrock" in charge that her best work would be in turning to windward in a light breeze, and that as the winds freshened her chances of defeating "Reliance" would proportionately diminish. As a matter of fact it has been just the reverse, the greatest gains by "Reliance" over "Shamrock" being made in light breezes to windward, and the most successful races for the challenger being those in which the winds were strongest. Evidently there are more things in sails and models



"Shamrock III."
Copyrighted, 1903, by James Burton.

The Start of the First Race, August 22.

"Reliance."



Copyrighted, 1903, by James Burton.

Finish, August 22. Reliance Winning by 7 min. 3 sec.

THE "SHAMROCK"-"RELIANCE" RACES OF 1903.

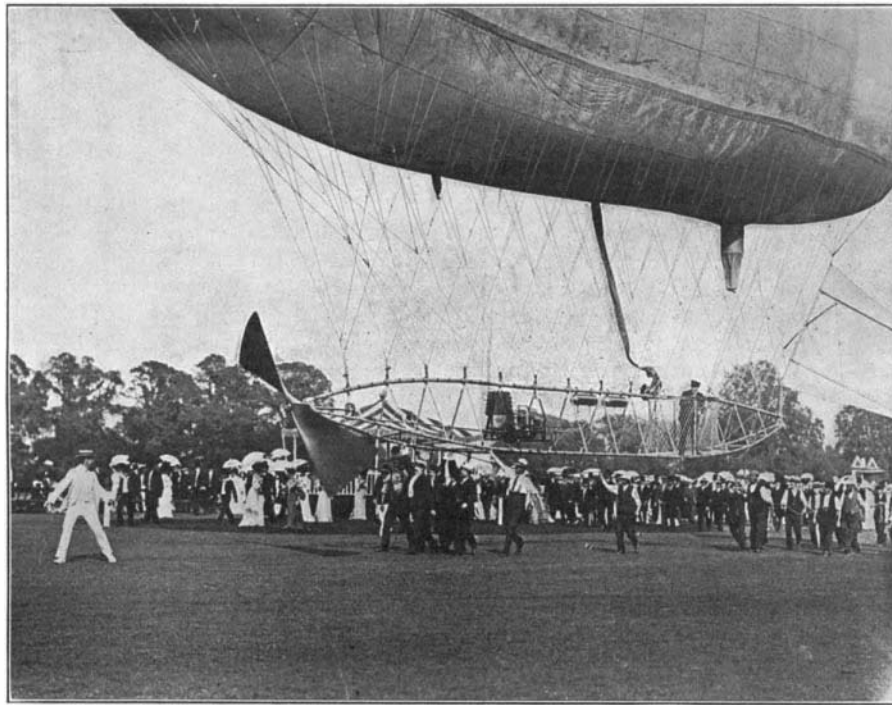
than are dreamed of in our philosophy. In the first finished race, sailed on August 22, over the windward and leeward course, the yachts started at opposite ends of the line, the "Shamrock" 4 seconds in the lead at the easterly end and "Reliance" crossing near the committee boat at the westerly end of the line. The wind was blowing steadily with a strength of from 10 to 15 knots and there was quite a little sea running which, as the event proved, came very near to the undoing of "Reliance" in the 15-mile beat to windward. As will be seen from the accompanying photograph of the start, both yachts were on the starboard tack, with the full length of the line separating them. It was well known that both boats were supposed to be at their very best in windward work, and it was felt that the first half hour's sailing would, barring accidents, determine the result of the race. "Reliance," with her extra sail spread, including her giant club topsail, of 2,300 square feet, was expected to have no difficulty in pulling away from "Shamrock" when running home under spinnakers, provided she could round the mark sufficiently far ahead to get a clear wind. On the other hand, if "Shamrock" should round the outer mark in the lead, or within a minute of "Reliance," it was believed that she might blanket the leading boat sufficiently to save her time allowance of 1 minute and 57 seconds. The yachts had not gone more than a mile on their way before it was seen that "Shamrock" was footing as fast and pointing considerably higher than "Reliance," the sweeter and rounder hull of the challenger taking more kindly to the seas than did the flatter and longer hull of "Reliance." Although neither boat could draw away from the other, "Shamrock" ate up steadily toward "Reliance" until her back wind (that is, the rebound of the wind from her sails) was bothering the American yacht, and, in order to avoid dropping into the wake of "Shamrock," "Reliance" was thrown sharply around on the port tack. Here occurred the first mistake—that is, according to American ideas of boat sailing—of the race, for, instead of coming around sharply on the weather quarter of "Reliance," "Shamrock" was kept on the starboard tack for two minutes before she came about, at which time the American boat had pulled out from her uncomfortable position. What was of greater importance was that "Reliance" was now about half a mile further to the westward, and when the invariable westering of the wind took place, which it did to the extent of a couple of points, "Reliance" was thereby placed a couple of minutes to windward, an advantage which she improved still further before she turned the mark, 3 minutes and 17 seconds in the lead. Between 5 and 6 minutes more was added to the lead of the American boat down the wind, and she finished a winner by the comfortable margin of 7 minutes and 3 seconds in a race which was sailed in the fastest time ever made over the windward and leeward course in the history of the America cup contest.

The second finished race was sailed over a 30-mile course of 10 miles to the leg. The wind varied in strength from 6 to as high as 15 knots in the stronger puffs, and the sea was considerably smoother than it was in the first race. The skipper of "Shamrock III." elected to avail himself of the full handicap, but by miscalculation he crossed 19 seconds later than the

limit and was handicapped accordingly. In the beat to the outer mark the breeze freshened until the lee rails of the yacht were well awash, and in the smoother condition of the sea "Reliance" was not knocked off her course so badly as in the previous

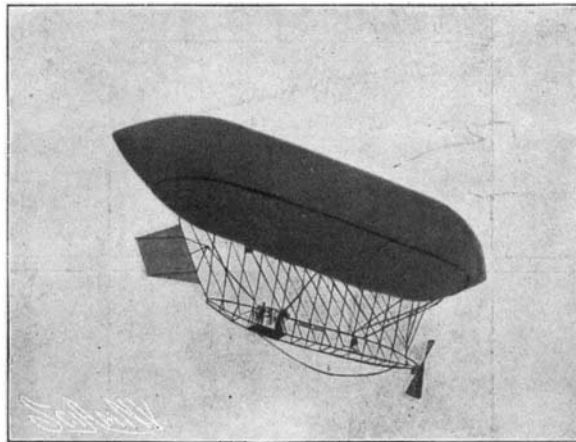
boats made a magnificent marine spectacle as they rolled down until there was several feet of water on their decks. "Reliance" in particular presented a wonderful and striking marine picture. The water would roll over her lee bow, sweep in seething surges along her deck, and go boiling over the taffrail to add its white smother to that that came surging up from under her counter. On this leg she was carrying a little more canvas than she liked, having sent up at the start of the race when the breeze was lighter, her largest club topsail, whose sprit towers some 35 feet above her topmast truck. "Shamrock" appeared to be the stiffer boat at this angle of heel and carried a small jib topsail throughout the leg. She hung on doggedly to "Reliance," losing only 45 seconds on the 10-knot reach. At the close of the race the excitement was intense, as it became doubtful whether "Reliance" could save her time allowance of 1 minute and 57 seconds plus the difference between the two yachts at starting. This, however, she did and crossed the line with 1 minute and 19 seconds to spare. The race was one of the most picturesque and exciting that has ever been seen on the famous Sandy Hook course.

Two days later the yachts attempted to sail the third race which was expected to be final and conclusive. The wind was light and the sea perfectly smooth, conditions under which "Reliance" has done her very best work. Going over the line with a lead of nearly a minute the defending yacht both outpointed and outfooted the "Shamrock" and secured a commanding lead of 12 minutes and 31 seconds at the outer mark. On the run home the falling wind and head tide prevented the finish of the race, although "Reliance" was within 5 or 6 minutes of the line boat when the time limit expired.



Frame of the Airship, Showing the Motor, Tractor, and Propeller.

race and began to pull out slightly on the challenging boat. At the outer mark "Reliance" was 2 minutes and 32 seconds in the lead, having gained on the first leg of 10 miles 49 seconds in actual time. If we compare this with the gain of 3 minutes and 21 seconds in the 15-mile beat of Saturday's race, it will be evident how much the shift of the wind must have helped the leading boat on that occasion. On the second leg



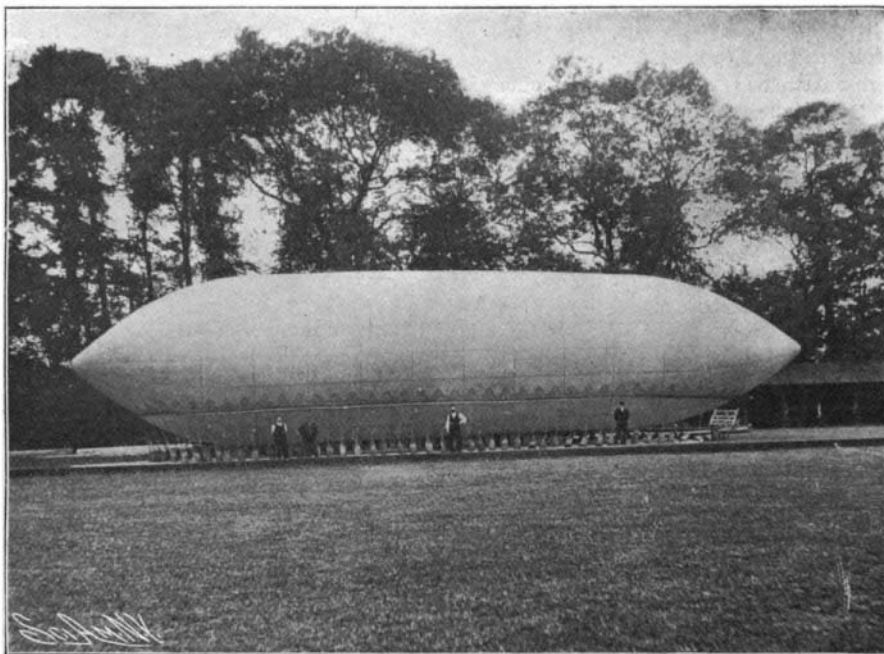
The Airship in Flight.

"Reliance" was expected to pull rapidly away from the English boat, chiefly because her easy lines and her great water-line length when heeled, should theoretically make her much faster on a reach than the shorter and deeper English boat. As it was, however, she only gained 1 minute and 23 seconds in the 10 miles of broad reaching. The last leg to the home mark was a close reach, and in the freshening wind the two

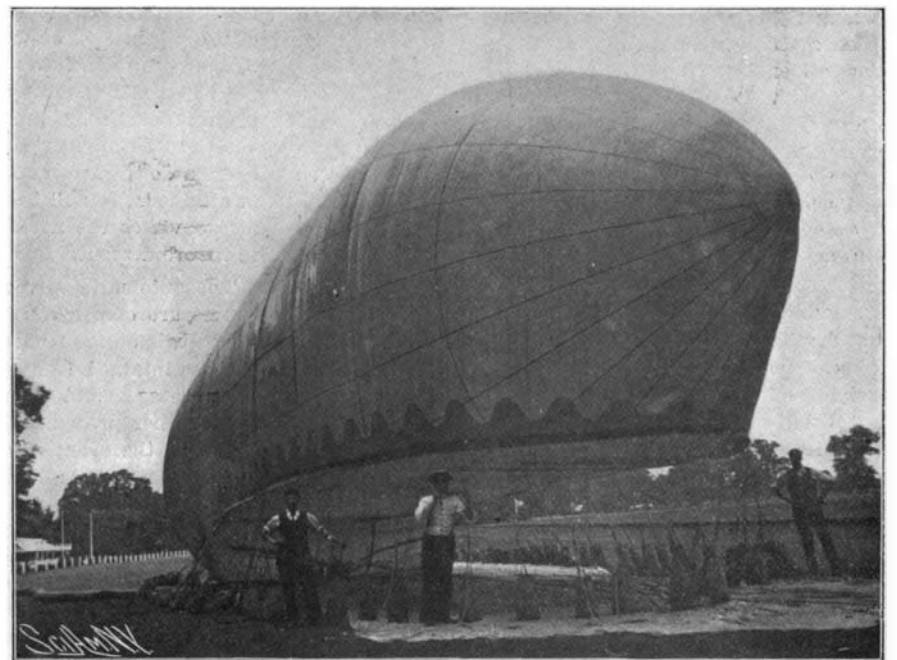
THE SPENCER AIRSHIP FOR 1903.

BY FREDERICK A. TALBOT.

The Spencer airship of 1903 is built on similar lines to that which proved so successful last year, with many improvements, which suggested themselves from time to time, during the experiments, embodied. It consists of the balloon or gas bag, with the deck or keel suspended below. The gas bag measures 87 feet in length from tip to tip, while its greatest diameter is 21 feet 9 inches, as compared with the 75 feet length by 20 feet diameter of the first vessel. It is in the same "fusiform" shape, to quote the inventors' description, which is the most successful design for a solid which it is desired to pass easily through a liquid. In this design the nose of the balloon is somewhat blunt, the contour of the vessel curving rather rapidly from the nose or bow of the balloon for a distance of one-third its entire length—29 feet—at which point is its maximum diameter of 21 feet 9 inches. The curve then decreases slightly during the next third of its length, at which point the diameter is 20 feet 3 inches; thence the taper is rather rapid during the last 29 feet to the end. From this design it will be seen that at no two points is the diameter of the gas vessel the same. The capacity of the balloon, which is made of varnished silk, is 24,000 cubic feet, which with coal gas will give it a lifting power of 960 pounds, while when inflated with pure hydrogen the lifting power will be 1,680



Broadside View of the Spencer Airship. The Gas-bag Gradually Tapers so that the Greatest Diameter is to be Found Near the End.



End View of the Airship, Showing the Belt from which the Framework Carrying the Deck is Suspended. The Gas-bag is Flat at the Bottom.

THE SPENCER AIRSHIP FOR 1903.