

# An Electric Speed and Direction Indicator for Trans-Atlantic Planes

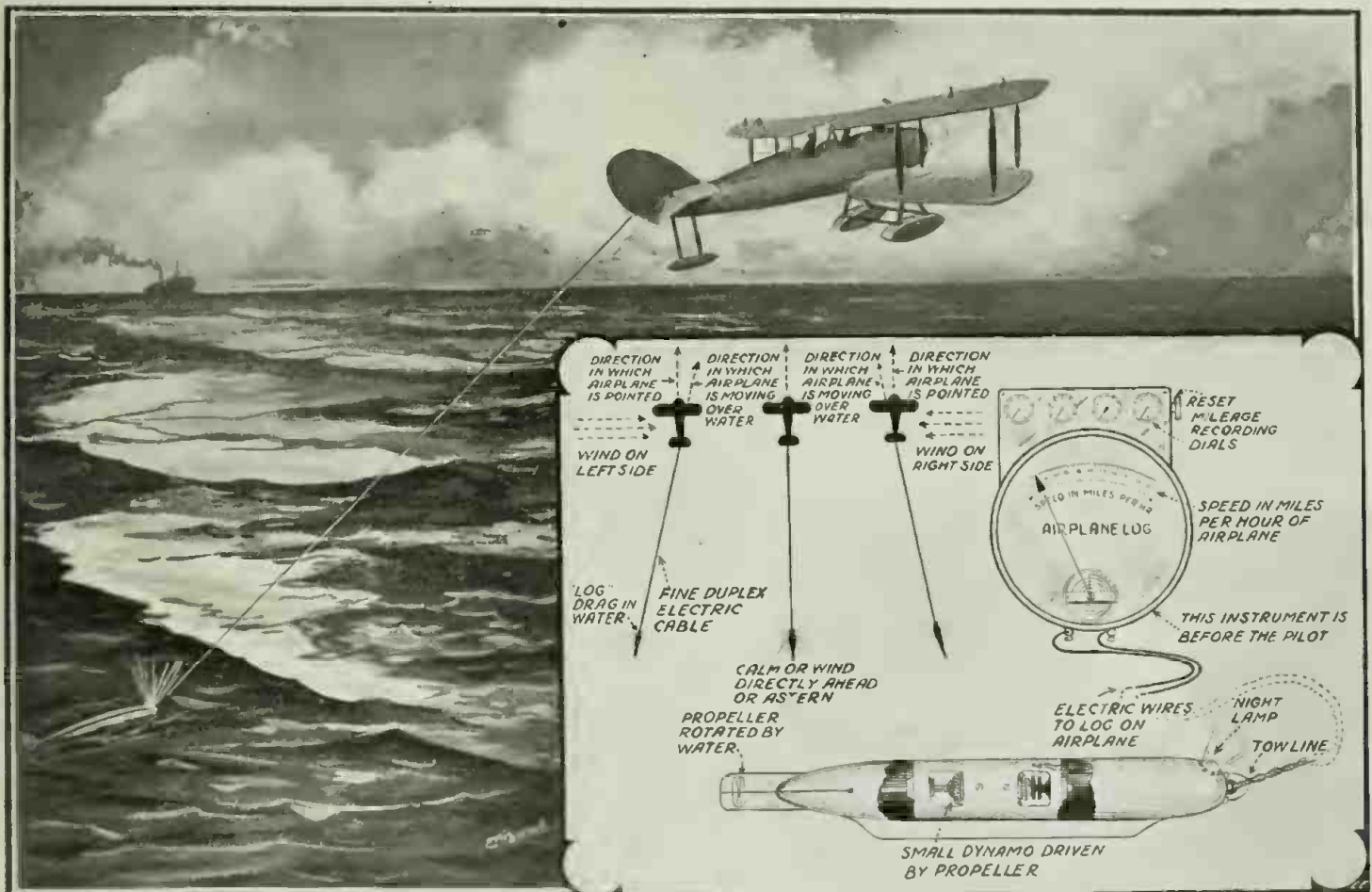
IT is easy enough to read of making a Trans-Atlantic aeroplane flight, but when it comes down to actually making such a trip, no one but an experienced aviator, or one who has studied the subject very closely, can imagine just what this means. In the first place, the layman thinks mostly in terms of horsepower and wing surface, and he argues: Given sufficient of these two quantities and a good pilot, there should be no trouble at all to fly across the Atlantic Ocean at its greatest breadth, of say three thousand miles or more. But he forgets one thing, and that is, that it is almost impossible for an aviator, no matter how experienced or well traveled he may be, to steer a course across such a vast expanse of water as the Atlantic Ocean, for he cannot check his route by any familiar or well-known land-marks; and even when using the latest scientific apparatus, such as the Sperry Synchronized Drift Set, which utilizes the wave movement or a succession of movements to warn the aviator how his machine is being drifted or forced sidewise from the desired

and again—the wave crests might easily be very choppy, and have a more or less confused movement due to freakish air currents, and these would make it difficult indeed, if not impossible, for the pilot to accurately establish the true course of his flight in relation to the earth itself.

Therefore, inventors and aviators interested in such long flights as these have busied themselves with the devising of other schemes and methods which would make it possible in a Trans-Atlantic trip for the pilot to check up his course of flight with the greatest accuracy possible. What aviation engineers conceive to be one of the best solutions of this problem appears to be that recently suggested by Rear Admiral Bradley A. Fiske of New York. His proposition is illustrated herewith and involves the towing of a small floating body thru the water by an aeroplane. This plan kills three birds with one stone, for it, among other things, enables the distance covered in miles or kilometers to be recorded in the same manner as a ship's mechanical log; tallies the mileage covered

of his proposition specifies that for long flights over water, an aeroplane should be made to steer as straight a course as possible, not only laterally, but also vertically. Thus we come to what we may call the "aeroplane log."

This is illustrated in detail, as also in actual use by an aeroplane in flight, in the accompanying illustration. Among other things, as Admiral Fiske has pointed out, the most important information that the aerial pilot needs to know, is not only the length of the flight, but the *direction of flight*, and this latter all-important quantity can be easily found by simply towing or hauling thru the water a small torpedo-shaped object such as the "aeroplane log" here illustrated. This log would measure about one foot in length and has a diameter of about one inch, and is secured to one end of a long light steel wire—such as piano wire. Before going further it is well to point out at this juncture, that it is perfectly feasible to utilize an "electric log" for this purpose, and not necessarily a purely mechanical log, as seems to be



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The Crossing of the Atlantic Ocean by Aeroplane Is Not Such a Simple Task as it May Seem. Even for an Experienced Pilot. This Is so Because, Until the Invention of the "Aeroplane Log" by Admiral Fiske, There Was No Way of Establishing the "Direction of Flight." This Device Here Illustrated in Actual Use and in Detail, Not Only Shows the Direction of Flight but Integrates the Mileage Flown by the Plane.

course, he would be at a loss to utilize such an instrument whenever the visibility happened to be low, and particularly when low-flying clouds or mists were encountered, which would cut off his view of the underlying water. The same problem would confront him during night flying, especially when the moon happened to be obscured.

each day, and also it provides physical contact with the earth, and supplies a visible index of the exact influence of air currents in forcing the aeroplane laterally from its intended compass course, besides indicating the speed in miles per hour. By Admiral Fiske's plan, the aeroplane would fly about 100 feet above the water. The first part

the idea held by most of the aeronautical engineers who have discussed this idea in the technical press. As has been pointed out in several of the discussions concerning this method of indicating the direction of flight of an aeroplane and the mileage covered, there is the objection, altho slight,

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bottles, covering each with a glass plate. Test the action of the gas towards combustion, by thrusting a lighted splint into the flask.

**EXPERIMENT NO. 146.**

Prepare a hydrogen generator and cause the hydrogen to be liberated by permitting hydrochloric acid to act upon zinc. Use only a small quantity of zinc and have some water in the flask, then introduce the acid in small quantity thru the thistle tube.

Instead of collecting it under water as we did in our experiments with hydrogen (December, 1916, Lesson) bend a delivery tube as shown in Fig. 135, with a small opening at the end and reaching nearly to the bottom of a large bottle. When hydrogen is escaping quite freely, test it for air by applying a lighted splint, and when all the air is expelled, ignite the hydrogen at the capillary.

*(To be continued)*

**WHY NOT ELECTRICITY FROM THE OCEAN?**

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To those who have not experimented with a float mounted on such a body of water as to give it appreciable power whenever waves were produced, such as on rivers, lakes, or perhaps on the ocean shore, it is probably a little difficult to perceive that such a power plant as this will develop any really appreciable amount of energy. The reader may form a good idea as to just how much power even a small wave will give by an instance which the author noted not long ago. In this case, the float (on the shore) measured about ten by twenty feet and was used as a launch landing on a river a mile wide. Whenever one of the steamboats plying this river past at a distance of half a mile, i.e., in midstream, the waves created from the side-wheels of the boat were sufficient, when they reached the shore, to oscillate the float (on which rested one end of a fairly long and heavy gang plank) with surprising power, and to give an idea of just how powerful this action was, it can be stated that with four people, weighing about six hundred pounds in the aggregate, the float was thrown rapidly up and down on its guide poles a distance of about four feet, much as if it had been merely an egg shell resting on the water. By comparison it is easy to see that the ocean waves, which are much more powerful on the average, would exert an infinitely greater power. In the case of the float just cited, the work expended by the waves amounted to 2,400 foot-pounds or considerable over one foot-ton. The float was capable of lifting a much greater weight than that mentioned, but this will serve as a practical example to show the great power possess by a moving body of water.

For further details see Transactions of the American Society Mechanical Engineers, XIII, 438 and Kent's Mechanical Engineer's Handbook, 1916 Edition. Also see article entitled "Electric Power from Ocean Waves" in the February, 1917, issue of this journal.

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that the floating log being pulled thru the water would have to be periodically hauled aboard the aeroplane so as to read its dials. Several minutes would be consumed undoubtedly in hauling up the log and taking its reading, and some authorities have mentioned that this might cause an error as great as two per cent, owing to the time during which the log was out of the water, and the exact distance flown over would not then be recorded by the mechanism.

The drawing herewith shows the simple arrangement of electrical apparatus in-

# How a Failure at Sixty Won Sudden Success

*From Poverty to \$40,000 a Year—*

*A Lesson for Old and Young Alike*

**By R. D. RAINES**

**T**HE old-time millionaire "made his pile" by squeezing the pennies, by overwork and self-denial. A much bigger army of men today are piling up millions without denying themselves the comforts and little luxuries of life—by giving up poor jobs for better ones, by preserving their health and strength, and by retaining their manhood and independence all through the struggle. There is a new secret and one well worth learning.

Our story is about one who learned it—an old man who got hold of some of these young ideas. If you could have met him in the summer of 1915 you would have pitied him. For forty years he had been true to the old creed—hard work, long hours, patience, faithfulness and economy. By dint of scrimping and scraping he would save a few dollars only to have them swept away by a season of illness in his family. And his reward? It came at sixty, when he was thrown out of employment onto the scrap-heap. His old-fashioned rules for winning success had failed to work. "What was wrong with them or with him?" He reviewed, one by one, the careers of some of his old business associates who had prospered. A suspicion entered his mind. He turned his attention to several young men who were forging rapidly to the front. Suspicion became conviction. In one respect all those men were identically alike. The climbing youngsters and the prosperous oldsters were strong-willed fellows of determined purpose. It was almost amusing the way he and others of his kind scurried to get out of the way of these men whenever they set out to accomplish any purpose. Slowly the full truth came to him. Success was not a matter of age. It was not luck. It was not even a matter of opportunity. It was simply a question of dominating will power—determination that brooks no interference, commands respect, and easily leaps all obstacles. Somewhere lying dormant within him like an unused muscle, he too possessed a will. He knew it. He would uncover it. He would exercise and train it and put it to work.

For a long time he had believed he could make a success in a certain line of manufacturing. He had some new ideas about it. But he had never been bold enough to even mention his thoughts to others. Now he sought out some business friends. Instead of begging a small loan with which to pay his rent, he presented and explained his plans for launching a business of his own. His friends' first response was to smile. But as they listened they were struck by a new note in the old man's voice, a new self-confident poise in his bearing; his tone was magnetic, compelling; his argument sound and convincing. This gentleman was not to be denied. In two days he raised \$600 capital for his plant. Three days later his little factory was in operation. In three months he repaid every penny of the loan and at the end of one year his books showed profits of \$20,000, and his second year's operations promise \$35,000 to \$40,000 more.

A better understanding of the tremendous power of the human will as a force in business and in fortune building may be had by

studying the successes of any of our big money makers.

Interesting and inspiring are several cases that have come to my personal attention, because the same methods are open to us all no matter how young or old we may be. One is that of a man who was \$6,000 in debt three years ago. Since then he has accumulated \$200,000 without speculating and today is earning \$1,000 a week. He is only one of many who frankly credit their good fortune to Prof. Frank Channing Haddock and his very remarkable book, "Power of Will." Another is a young man who worked in a big factory. One day he met Mr. W. M. Taylor, the noted efficiency expert, who advised him to read "Power of Will." He did so, applied himself to the training of his will, and in less than one year his salary was increased to more than eight times what he had been earning.

Then there is the case of C. D. Van Vechten, General Agent of the Northwestern Life Insurance Company. After his first examination of Prof. Haddock's methods and lessons in will power development, as published in "Power of Will," he told the author that they would be worth \$3,000 to \$30,000 to him.

Another man, Dr. H. D. Ferguson, residing in Hot Springs, Ark., increased his earnings from \$40 a week to \$150 a week in a remarkably short space of time after he began the study of will training. Will power training by Haddock's system has enabled thousands to conquer drink and other vices almost overnight; has helped overcome sickness and nervousness—has transformed unhappy, anxious, discontented people into dominating personalities filled with the joy of living.

In this new book Prof. Haddock, whose name ranks with Bergson, James, and Royce in the scientific world, has given to the world for the first time a practical, simple system of rules and exercise for will power training that has completely revolutionized the lives of thousands of people. For the will is just as susceptible to exercise and training as any muscle of the body. "Power of Will" is being distributed by the Pelton Publishing Co. of Meriden, Conn. Any reader who cares to examine the book may do so without sending any money. If, after five days, you do not feel that this book is worth the \$3 asked for it, return it and you will owe nothing. Some few doubters will scoff at the idea of will power being the key to wealth and achievement. But intelligent men and women will investigate for themselves by sending for the book at the publisher's risk.

Among the 250,000 owners who have read, used, and praised "Power of Will" are such prominent men as Supreme Court Justice Parker; Wu Ting Fang, ex-U. S. Chinese Ambassador; Lieut. Gov. McKelvie of Nebraska; Assistant Postmaster-General Britt; General Manager Christeson of Wells-Fargo Express Co.; E. St. Elmo Lewis; Governor Arthur Capper of Kansas and thousands of others equally prominent. As a first step in will training, act on your present impulse to write a letter or address this coupon to the Pelton Publishing Company, 30-S Wilcox Block, Meriden, Conn., and the book will come by return mail. This one act may mean the turning point of your life. Do not hesitate.

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