NOTES ON FLYING BOAT HULLS*

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BEFORE proceeding with these notes the writer wishes to apologise for their meagreness and the errors due to insufficient checking of figures given, as there has only been a little over two weeks to prepare the paper, which was originally intended for the autumn programme. It must also be understood that it is written entirely from the naval architect's point of view for the designers and constructors of the boats. The writer claims no special knowledge of aeronautics beyond the smattering acquired during his service with the Air Department, Admiralty, and the present Air Ministry, also he does not pretend to any great knowledge of mathematics, but has spent most of his life in seeking after lightness of construction in racing yachts, etc.

He has always found that careful tabulation of the data of each design made, and of all the successful competitors (when obtainable), not only simplifies decisions on the elements of future designs, but gradually enables one to evolve certain formulæ to assist the designer, both in comparison of the actual elements of existing vessels and the probable performance.

A New Design

When he first joined the Technical Department at the Admiralty, early in 1915, he had no experience whatever of flying boats, but for some years past had been making a careful study of the hydroplane boat, and he was much surprised when he saw the first Curtiss "America" (Fig. 1) Flying Boat at Felixstowe. Not only was she extraordinarily heavy and badly built, but in addition she was a very poor hydroplane, owing to the form of her tail and enormous wetted surface for her low power.

All who had to do with these boats will remember their great reluctance to leave the water, and it was entirely due to the skill and perseverance of the late Commander J. C. Porte, R.N.A.S., as he then was, that the flying boats were developed from this extremely crude beginning, into a large fleet of greatly improved boats, which kept up a continuous aerial patrol in the North Sea and elsewhere throughout the War.

As a naval architect, and especially as a student of light construction, it may be that the writer did not always see eye to eye with the Felixstowe designs, and especially the methods of construction, but considering that Commander Porte was a complete amateur, both as a naval architect and boat-builder, it is marvellous that he succeeded in developing the flying boat until the flying weight was increased some six times that of the original "America," and the whole world was convinced that flying boats were really practical machines, superior for many purposes to either the airship or ordinary aeroplane.

Although the writer's original work with the Admiralty

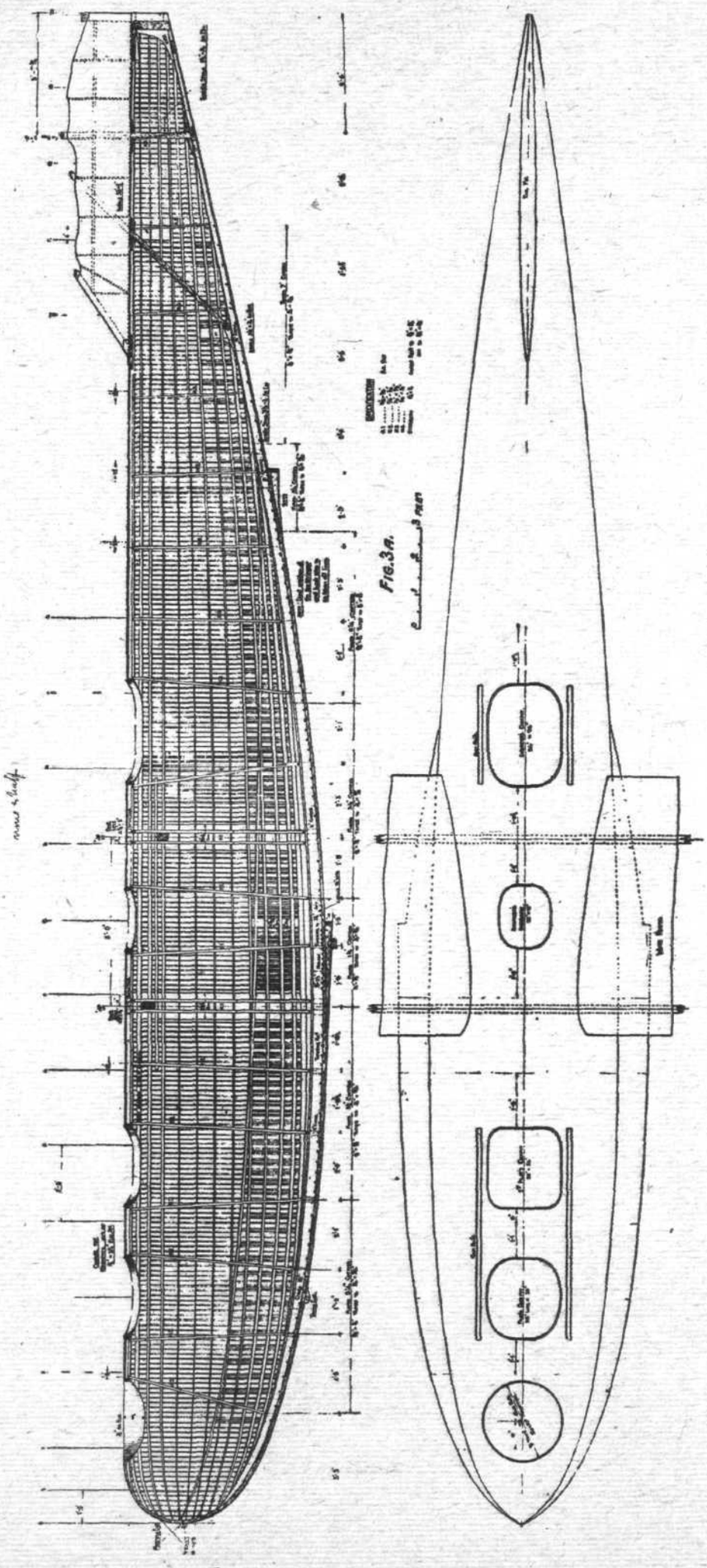

Fig. 3A

* Paper read before the Royal Aeronautical Society at the Royal Society of Arts, on May 12th.