CORRESPONDENCE.

To the Editor of the JOURNAL OF THE ROYAL AERONAUTICAL SOCIETY.

DEAR SIR,—In the May issue of the Journal of the R.Ae.S. I read with great interest the lecture given by Mr. E. T. Jones on Flight Testing Methods.

To the congratulations he received from others I would like to add my own. I was particularly interested in the lecturer's reply to Mr. Lipscombe's remarks.

He is reported to have said that he did not like "this flying-boat business," and, "if he were to differentiate he might say something which would tell against the flying-boat and he did not wish to do that."

It seems to me that those words rather confirm Mr. Lipscombe's fears.

If there is anything to say against the flying-boat surely it should be said and the subject Aeroplanes versus Flying-Boats be ventilated.

In my opinion the aeroplane is not against the flying-boat nor is the flying-boat against the aeroplane.

Each type of aircraft can be of use where the other can not in certain circumstances.

The great continents with their teeming populations and excellent aerodromes will provide a greater field for aeroplane production than the oceans, seas, lakes and sheltered waters will provide for flying-boat production.

Those who have experience only of aeroplane design and construction need not fear that money spent by the Government on flying-boat development will take the gilt off their gingerbread.

We know that aeroplanes can be designed to offer less head-resistance than flying-boats as designed to-day.

We know that it is more convenient to step into an aeroplane on the aerodrome than it is to board a flying-boat anchored some distance from the shore when the water is rough.

We know that multi-engined aeroplanes can fly with great safety from, say, an aerodrome in America to an aerodrome in Europe and cross the oceans in many directions, but in a forced landing at sea I, and many others, would prefer to be in a flying-boat, even though the boarding had been more difficult and the speed of transit a few miles slower.

Aeroplanes can be made to float in the event of a forced landing at sea, but they cannot take off again.

In a moderate sea, such as generally prevails in the South Atlantic, the flying-boat can alight and conserve its petrol, listen for submarines, watch for smoke on the horizon which might come from an enemy ship. It can pick up ship-wrecked persons, so well demonstrated during this war and the last war. It can be flown over land with the same degree of safety as an aeroplane flown over sea and the aerodromes it uses cannot be pitted with bomb craters and so rendered useless for many days.

Where there is sheltered water flying-boats can be used whilst landing grounds are temporarilly unfit for use.

The flying-boat can be developed to far greater carrying capacity than can the aeroplane. It promises to be the great freight carrier over the oceans. Not to take a step too far, consider the problems involved in designing and building a flying-boat of one hundred tons airborne weight and an aeroplane of the same carrying power. The chassis of the aeroplane under present designing methods would be very heavy indeed, and take a toll upon the paying load.

https://doi.org/10.1017/S0368393100119960 Published online by Cambridge University Press

I do not assume that this handicap will stand much in the way of the building of heavier aeroplanes than are now flying. The use of electron metals in a caterpillar landing chassis and other methods and materials may aid to solve the problem.

In the design of large flying-boats that problem of design and complication of structure does not exist. The flying-boat lives and as it lives it grows. It will be the " Queen Mary " of the air.

We must not be pessimistic about the future of the flying-boat. If we neglect its fullest possible development we shall be left behind by other nations who will develop it.

After the war, 1914-1918, official technical opinion held the view that no aeroplane or flying-boat above 10,000 lbs. all up weight would prove advantageous in performance. Short's built the " Sarafand," 75,000 lbs. It was, when produced, the fastest flying-boat in the world. It paved the way, not only for the " Empire Flying-Boat " and the " Sunderland," but for the giant aeroplanes which are being used to-day.

There will only be danger of neglecting flying-boat development if official technical opinion decides that the aeroplane can fulfil all the requirements of air transport.

OSWALD SHORT, F.R.Ae.S.

STRUCTURAL FEATURES OF GERMAN AIRCRAFT.

To the Editor of the JOURNAL OF THE ROYAL AERONAUTICAL SOCIETY.

SIR,—Though I do not wish to belittle the pioneering effort of the late Professor Hugo Junkers and his very able associates up to 1918, it would neither seem justified, nor fair, to attribute to his efforts such a value as the authors do.

Those familiar with the metal structures of the Zeppelin airships of the period and with the early work of Dr. Claude Dornier (by upbringing a structural engineer, and originally, a promoter of steel strip construction) will agree that without the prior pioneering efforts of Dornier and the Zeppelin engineers (Jaray, for instance) and without the workshop experience borrowed from the Zeppelin people, Professor Junkers would have failed during the period under consideration..

Incidentally, the tubular construction of cantilever wings has originated less from structural considerations than from the endeavour to make the wing structure safe against hits from bullets and splinters. In this connection, the names of Professor G. Madelung and Reuter should be mentioned. This bullet-proof tubular structure was found to be practical and was hence incorporated into transport aeroplanes.

Dornier designed and constructed all-metal aeroplanes with cantilever wings which had, as well as in their fuselages, completely stressed skin structures as far back as 1916/17 (Do. D.I. single-seater fighter, for instance). This was at a time when Junkers had failed in his attempt at stressed skin design, and had to change over to a partly stressed corrugated skin covering a tubular frame work, and to the use of aluminium light alloy.

The view that metal might be considered preferable to wood as a basic material can scarcely be considered a discovery of Professor Junkers. There have been many earlier attempts at all-metal aeroplanes, not only in Germany, but also in this country and in France. An aeroplane which was (including the wing covering) completely built of aluminium alloy, with the sole exception of the airscrew and the seat cushions) was exhibited and actually flew in 1912; its fuselage was a completely stressed skin structure. Dornier never considered wood, and he began to construct aeroplanes several years before Junkers did.

Nor are cantilever wings the invention of Junkers. Levavasseur, the famous designer of the " Antoinette " monoplanes, had, in 1911, constructed a low-wing monoplane with cantilever wings and a trousered undercarriage; it had a three-spar wing structure. Several other attempts, among them Coanda and Baumann, were made years before Professor Junkers appeared on the scene. In one instance, petrol tanks were mounted inside the structure of a cantilever wing, an anticipation of Junkers's famous patent of 1911.

A. Rohrbach, a former assistant of Dornier and a collaborator of the late Professor Alexander Baumann, also designed and constructed all-metal aeroplanes which in layout and structure showed very modern design features, including stressed skin details; this dates as far back as 1917.

In connection with the earliest aeronautical studies of Professor Junkers, the influence of Professor Hans Reissner (New York) should not be forgotten. It was Reissner, the founder of the science of aircraft statics in Germany, who incorporated in the 1910 design of his " tail-first " monoplane a wing which had a skin of corrugated light alloy sheet (acc. to the German Patent Spec. No. 222,226 of 1909, which contains also the basis for the original attempts of Junkers at a stressed skin structure, as mentioned by the authors). This wing was constructed during 1910/11 in the workshop of Professor Junkers, and subjected to proof loads prior to the flying tests. Also the so-called Junkers wind-tunnel at Aix-la-Chapelle was mainly based upon the design of Professor Reissner (whom the industrious Junkers propaganda has scarcely ever mentioned).

With regard to pioneering work in German aeronautics, the merits of Professor Hans Reissner as an experimenter and as a theoretical investigator, and of Dr. Claude Dornier as an aircraft designer deserve more mention, since the propaganda of the Junkers works seems to have achieved its aim in boosting the valuable achievements and tenacity of the late Professor Junkers beyond all proportion to the actual facts (which, however, can easily be verified).

I am, Sir, Yours faithfully,

A. R. Weyl, A.F.R.Ae.S.