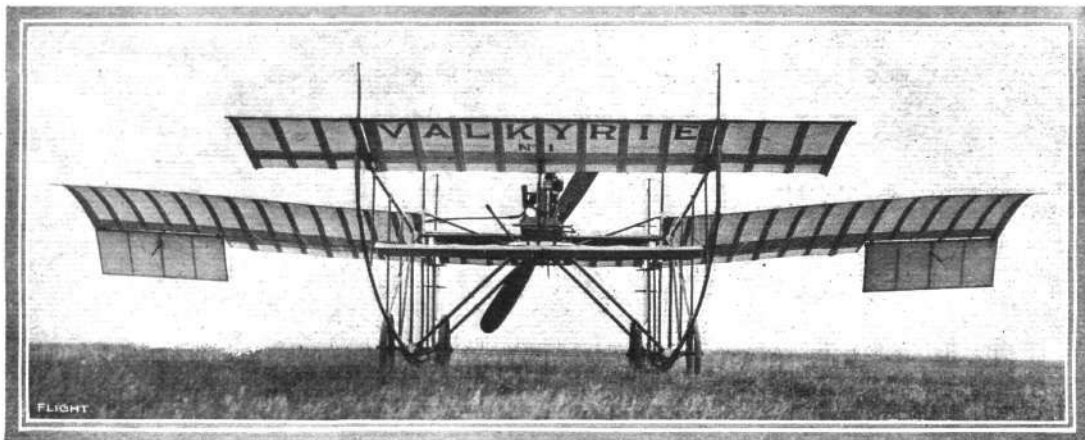


## THE VALKYRIE AEROPLANE.

It is always instructive to watch the progress of a machine, no matter in what field of operations, that differs from the accepted practice in certain easily recognised characteristics of design. Thus, for example, "Valkyrie I"—the product of the Aeronautical Syndicate—has as its particular characteristic the peculiarity of flying tail first. As an expressive phrase this defines exactly what the machine would appear to be doing in the eyes of the average observer whose acquaintance with aviation was limited to his

planes are set at a lesser angle of incidence to the axis of the propeller than the leading plane; which principle is observed in respect to the after surfaces of all machines. Of the theory of the dihedral angle itself there has been so much discussion in *FLIGHT* that we scarcely feel called upon to do more in the present instance than refer our readers to such pages as, Vol. I, p. 662; Vol. II, pp. 56, 82, 98, 222, 244, 261.

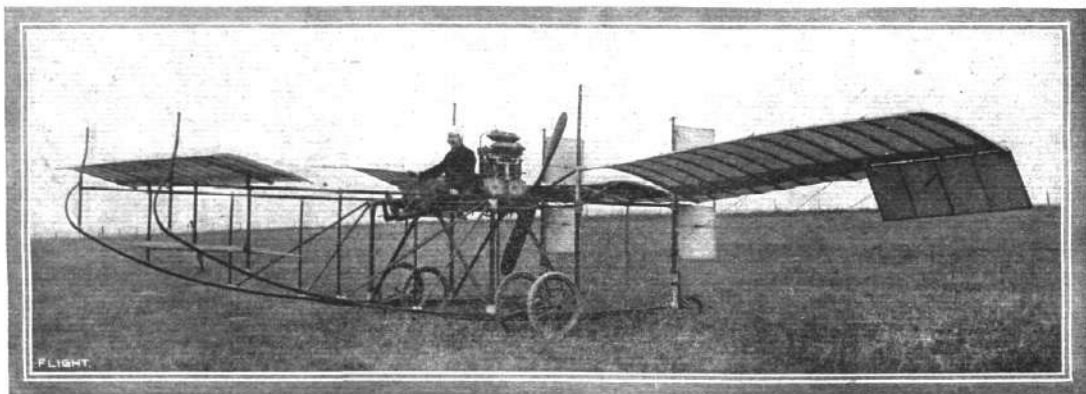
It is important to bear in mind in order to avoid any possible



"VALKYRIE I" SEEN FROM IN FRONT.—The plane on which the name is written is a fixed leading plane; beneath it is a small elevator.

attendance at a few flight meetings where machines of orthodox type were alone to be seen in the air. On the other hand, it is undesirable to use the expression seriously as a technical description for the very obvious reason that the tail of anything must be behind. Moreover we are, in a sense, on the horns of a dilemma in respect to the Valkyrie, in deciding whether the main planes themselves should be considered as a tail or of stating quite plainly that the machine possesses no tail at all.

confusion when looking at the accompanying illustrations of the machine, that the large leading plane in front is a fixed plane; that is to say, it is not in any way under the control of the pilot when in flight. On the other hand, it is, for convenience, so mounted that its angle of incidence can be varied for experimental purposes, and in particular for compensating any considerable difference in the load supported. Beneath the leading planes, but a little to the rear, is the elevator proper, which is a much smaller plane of scarcely



"VALKYRIE I"—General view of the Aeronautical Syndicate's monoplane, photographs of which machine in flight appeared in our last issue.

In the ordinary use of the term, "Valkyrie I" is a tailless monoplane fitted with a leading plane in front of the main planes, but there are scientific reasons for regarding the main planes themselves as performing the function of a tail in respect to the leading plane. The same principle has been much discussed, for instance, in connection with the well-known Clarke model flyers, which also have as a characteristic feature the presence of a leading plane and the absence of a tail. Their longitudinal stability, and also, presumably, that of the Valkyrie, is due to the dihedral angle formed by the leading plane in respect to the main planes. The main

more than half the span of the leading plane. The operation of this elevator is effected by wires from a universally-pivoted lever mounted in the same fashion as the corresponding member of control on the modern Farman biplane. This same lever, when moved sideways, controls the machine laterally by deflecting the balancers that are hinged to the trailing edges of the main planes, at the extremities. A pivoted foot-rest in front of the pilot controls a pair of interconnected rudders that are also located on the trailing edge of the main planes.

The presence of these rudders close up to the main planes is