CORRESPONDENCE

ENEMY JET HISTORY

The pre-history as stated by Mr. Maguire (January 1948) is rather short but inaccurate. The correct appreciation of the possibilities of turbo-jets goes back to investigations of W. G. Noack, an eminent research engineer of the Brown-Boveri Co. A survey of his original investigations was contained in a paper read in May 1920 in Berlin. In this the pioneer effort of H. Coanda (Ducted Fan, 1910), the possibilities of the "Trompe Propulseur" of Mélot (thrust augmenter, 1916), and the jet-propelled wing were subjected to a critical investigation. Noack established that, at very high speeds and/or very high altitudes, jet propulsion by way of constant-pressure gas turbines could become practical. He devoted many years to the perfection of exhaust-driven gas turbine superchargers based on principles established simultaneously by Rateau and by the Royal Aircraft Factory. He and Chr. Lorenzen were responsible for the introduction of hollow, internally cooled, turbine blades.

Engineering authorities of the "Heereswaffenamt" later reviewed the position of jet propulsion in respect to thermal and propulsive efficiency. It was found that because of the admissible temperatures for turbine blades and combustion chamber, the thermal efficiencies would be necessarily poor, and the scheme could be considered only when the speed of flight exceeded 300 m.p.h. At about the same time, Crocco showed in a detailed investigation that speeds of the order of 800 m.p.h. might be assumed practical for direct thermal jet propulsion.

Early in 1930, the ducted radiator (an invention of H. Junkers, 1914) was subjected to theoretical investigation. At the same time, Oestrich of the German Research Laboratory D.V.L. proved in a brilliant survey that appreciable thrust could be expected by exhaust ejection at flying speeds and altitudes then predictable. Consequently, the Institute for Research on Propulsion, of the D.V.L. devoted special consideration to problems of thermal jet propulsion and to gas turbines. K. Leist recommended and experimented with internally cooled blades. The results of all this research work became so encouraging that thermal jet propulsion by way of gas turbines could no longer be disregarded by the authorities responsible for development. In addition, the patents of F. Whittle and of Alf Lysholm indicated clearly that outside Germany the merits of thermal jet propulsion were being recognised. Even the old gas turbine pioneer Hans Holzwarth became convinced that direct reaction drive for aircraft with gas turbines was "just around the corner."

Thus it was but a logical necessity that the engineers in the administration of the German Air Ministry responded.

In respect to the development of jet engines by the Heinkel Works, some credit ought to have been given to Max Hahn whose early designs (*vide* his patents) contained all the characteristics of the Heinkel turbo-jets with centrifugal compressor, annular combustion chamber and reverse flow. This design was actually the He.S3 jet engine.

It would have been fitting to give the correct name of an eminent aerodynamicist like Professor Albert *Betz* (instead of "Beitz") who has been for so long connected with the work done at Goettingen. Betz's work on aerofoil cascades and axial compressors goes back more than 25 years, and it has actually been his work (in connection with the practical experimenting at the D.V.L.) which created the basis for the adoption of axial-flow compressors for the German jet engines (*vide* his 1938 paper, translated as N.A.C.A. Techn. Memorandum No. 1073).

The reference to the scarcity of traces of Campini's earlier work appears of little justification: in January 1938 S. Campini communicated a detailed description of his work together with the underlying theory (*vide* "Sulla Teoria Analitica Del Moto-Propulsore Campini," L'Aerotecnica Vol. XVIII No. 1, Jan. 1938, p. 18; translated as N.A.C.A. Techn. Memorandum No. 1010). Actually, his studies of the subject of jet propulsion go back to 1929, and part of his investigations were published in 1930 (the omission of parts

of the paper seems to have been demanded by the Italian Air Ministry which had brought him into contact with the Caproni firm). Moreover, essential design features were given in patent specifications published before 1939.

I should like to add the critical remark that historic accounts of engineering development are not well based on interrogation reports compiled by teams who were professionally better equipped than linguistically. The mis-leading and contradictory impressions conveyed in many official reports on enemy progress are doubtless due to the interrogation of minor star performers whose faculty to speak English and whose eagerness to proffer information were obviously ill-matched by their professional abilities and by their modesty. In turn, this has led to some regrettable mistakes in selection.

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A SUGGESTION FOR EXCHANGING INFORMATION

Many thanks for the List of Members recently received. I am sure that there must be many others similar to myself that have been away from the "Old Country" for many years, that have browsed through it and have found references to old friends and acquaintances of former years that have brought many nostalgic memories.

Having resided for a few years in Iraq, Egypt and Malta during my service with the R.A.F. several years ago, I have contemplated writing to some of the listed members in such far away places, to institute an exchange of aeronautical chats, as, from my own experience, I know that it can be a very lonely life, and the mail is a great thing to look forward to.

After all, one of the objects of the Society is "to promote the Species of Knowledge which distinguishes the Profession of Aeronautics," and what better way is there of accomplishing such spread of knowledge than an exchange of information between a member such as myself in an often sub-arctic atmosphere and a member in China or New Zealand, of which countries I must confess I know nothing of flying conditions.

Such a correlation of information I am sure would be very educational, and possibly could be compiled into many good joint articles for the JOURNAL.

May I take the liberty of suggesting your devoting a small paragraph in the Monthly Notices or the JOURNAL sometime, to this idea and see if any other members would be interested in instituting this correspondence scheme.

It would, I am sure, be very helpful for potential pilots and aircraft designers to know more about the geographical and meteorological conditions in foreign lands and would incidentally improve that camaraderie that should, and does, exist between all those who are interested in air transport.

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