COMMERCIAL AIRCRAFT DISCUSSED

Points of Interest from the Discussion on Capt. De Havilland's Recent Paper

THE discussion which followed the paper on commercial aircraft which was read by Capt. De Havilland before the Royal Aeronautical Society on April 15 (and given in *Flight* last week) produced some views somewhat widely divergent from those of the lecturer, but on the whole did not in any way alter the general position.

Major F. M. Green suggested that, according to his interpretation of Capt De Havilland's paper, the "Comet" would show a better ton-mile per gallon figure if it were cruised at 10 m.p.h slower whereas according to his (Major Green's) theories, it could profitably be cruised at an even higher speed

Mr. Stanley Evans of Heston Aircraft, Ltd., did not think that Capt. De Havilland was justified in saying that there was more commercial and unsubsidised flying in England than in any other country. Also he did not think that the rapid and recent development in American aircraft design could be attributed to any great extent to the extensive mail contracts and other forms of subsidy which they had received. He felt that we had a very great deal to learn from American practice.

Night Flying

Mr Nigel Norman pointed out that the extensive use of night flying by permitting a larger number of flying hours and therefore ton-miles to be achieved by operators, would enable them to pay more for their aeroplanes in the first place, and therefore to get better aircraft He asked what extension in range would result if, as Capt. De Havilland suggested, the present take-off requirements were abandoned and the existing class "A" minimum runway, that is, 1,000 yards, were doubled.

Dr. Watts, of The Airscrew Co., Ltd , did not think that people were justified in somewhat sweepingly saying that any aeroplane would be improved by the substitution of variable-pitch for fixed-pitch airscrews. Each case must, he felt, be judged on its merits. Furthermore, he felt that people were somewhat too prone to say that the blades of a fixed-pitch airscrew were stalled during the take-off, and he felt that variable-pitch airscrews did not really become necessary until the pitch became something like one and a third times the diameter. He also remarked on the weight of variable-pitch airscrews—weight, which he said, could better be used for passengers.

Capt. F. S Barnwell, of The Bristol Aeroplane Co., suggested that there was no great gain when cruising by using a variable-pitch airscrew He looked upon it as rather an unpleasant necessity. He thought that in the larger sizes a high-wing monoplane was better than a low-wing, both for efficiency and from the point of view of the passengers.

Ton-Miles

Major R. H Mayo thought that Capt De Havilland could in achievement justifiably be called "the grand old man of British aviation," although everybody would understand that he really was one of the youngest. Concerning the question of ton-miles as a criterion of a machine, Major Mayo pointed out that with certain ground organisation it is not always possible to fit in services so that the maximum number of ton-miles per gallon can be used.

Mr. F. M. Thomas (who is designing Hamilton variable-pitch airscrews at De Havillands) thought that the question of stalled blades was a very complex one which had to be considered very carefully for each individual machine. He pointed out that although variable-pitch airscrews were certainly far too heavy, there was no question of sacrificing load capacity due to their use, as they were in themselves a means whereby a larger load than before could be got off the ground in the same machine.

Mr. F. Duncanson of the Blackburn Aeroplane Co , agreed that we had a lot to learn from American principles, and thought that the increased aerodynamic cleanliness of modern aeroplanes was also a means whereby higher ton-mile per gallon figures were being achieved.

Mr. F. Radcliffe, of Airspeed (1934), Ltd., asked for better ground organisation, particularly in the matter of getting passengers to and from aerodromes when on the ground. He also thought that too much emphasis was laid by Capt. De Havilland on the question of windows and a view for passengers, as he thought that with machines flying at 10,000 ft. the view would be of no consequence.

Mr. C. C. Walker (chief engineer of the De Havilland Aircraft Co.), answering some of the queries, said in reply to Capt. Barnwell that the curves were derived from the result of full tests and carried out by the N.A.C.A. In reply to Dr. Watts, concerning the horizontality of the F.P. curve in Fig. 8 of the paper, he said that the curves were prepared from data derived from N.A.C.A reports. Answering Major Mayo, he did not agree that the span as used in Fig. 2 as a measure of frontal area was incorrect, as he thought span affected the questions wrapped up with frontal area more than any other factor. In reply to Mr. Duncanson he said that the equivalent monoplane span used in Fig. 1 in the case of the biplanes was approximately the span of the top plane, plus one-eighth of the span of the bottom plane.

Capt. De Havilland, continuing the replies, did not agree with Major Green, as he thought that high landing speeds were quite all right. All the De Havilland test pilots had flown the "Comet" with its wing-loading of 26lb. per sq. ft., and all of them had found it quite easy. In reply to Mr. Stanley Evans, he still maintained that there was a very great deal of private and commercial aviation in this country which was unsubsidised, and also that the progress in the United States was very largely due to the large contracts they had received from the Post Office which gave their machines so much work that they were able to use the type of aircraft which they wanted.

Ideal Aerodromes

He agreed with Mr. Nigel Norman about the need for night flying and good aerodromes, and thought that what was wanted in the first place was not so much more aerodromes, but better aerodromes. Four miles of arterial road laid out in the correct manner would, he said, give them the best aerodrome they had in the country. With regard to Dr. Watts' remarks, he said that their experience showed that the "Dragon Six" travelled sufficiently fast to make the question of stalled blades with fixed-pitch propellers begin to look serious. He did not agree with Capt Barnwell that there was no advantage at cruising speed with variable-pitch airscrews, as the advantage lay in the fact that the cruising r.p.m. could be chosen beforehand.

Answering a query by Mr Radcliffe, he said that investigations undertaken during the design of the "Comet" showed that supercharging the engines did not pay when long range was wanted unless extra power could be used for the take-off. He certainly did not agree that windows were not wanted, particularly when flying abroad, where the visibility was usually good.

Col. Moore-Brabazon, who was in the chair, reminded the audience that it was twelve years since they had had the pleasure of hearing Capt. De Havilland, and he hoped that it would not be so long before they heard him again.

Empire Air Day : Civil Aerodromes Open to the Public

Apart from the Service aerodromes which, as detailed in *Flight* of April 11, will be open to the public on Empire Air Day, May 25, practically all the civil aerodromes in the country are making special arrangements to entertain the public. In many cases joy-riding will be offered at reduced rates, especially so to those wishing to make their first flights—but the Air League does not tell us how it will be determined that these people have never flown before!

The following have signified their intention of co-operating:—

Heston (features will include four-shilling flights by Capt. Birkett in a Short "Scion" loaned by the makers), Hanworth, Croydon (50 per cent. reduction on ordinary fares offered to "first-flighters" by Provincial Airways, Ltd.; this will also apply to their provincial ports of call—Plymouth, Southampton, Portsmouth Torquay and Hull), Brooklands (Hawker Co. co-operating), Reading (Phillips and Powis works open), Bristol (possibly a race for S.B.A.C. Challenge Trophy), Whitchurch (Gloster Co.'s aerodrome will probably be open), Southampton, Portsmouth, Canterbury, Lympne, Tunbridge Wells, Manchester, Liverpool (2s. 6d. flights), Leicester, Newcastle (Cramlington), Norwich, Nottingham (2s. 6d. flights), Witney, (3s. first flights), Redhill, Ipswich, Leeds and Bradford (Yeadon), Brough, Doncaster (Crilly Airways, Ltd. offering 10 per cent. reduction for first flights), Leamington, Inverness (2s. 6d. flights in Highland Airways "Dragon.").