

port and using public transport at the other end; (2) feeder services would be profitable to operators.

This would seem to be a very debatable point and would depend a great deal on the type of aircraft used and the utilisation which could be obtained from it.

I think that at one time an operator provided a Manchester to Newcastle service but this failed to attract enough passengers and was withdrawn, although the trains on this route load well.

The solution to the problem is to get ahead with the proposed extension to Runway 15/33 at Leeds/Bradford so the airlines can offer a more comprehensive selection of European services with modern jet aircraft.

Shipley, Yorks

BRIAN WHITAKER

"Whatever Happened to Old . . .?"

SIR,—I was indeed most interested to see your photograph of some members of the 1937 Cambridge University Air Squadron in your issue of November 2, together with Viscount Hanworth's letter. I had not seen its reproduction in "Straight and Level" in your issue of August 3. I still have similar excellent *Flight* photographs.

Like Hanworth, I transferred my allegiance to another Service (Royal Navy, Air Branch), but temporarily, subsequently becoming closely connected with the Royal Air Force again—in recent years on matters concerned with development of the Hawker Harrier, by coincidence the subject of an article in your November 2 issue.

London WC 2

W. B. LEWIS

[Mr Lewis is Assistant Director of RAF Aircraft Development (Harrier), Ministry of Technology.—Ed]

Early Swing-wingers

SIR,—Your statement (page 666, October 26) that the Mirage G is the fourth type of swing-wing aircraft [in addition to the F-111, Sukhoi and Mikoyan] to fly is surely a little bit off.

To my recollection, at least two other types, both American, flew in the middle fifties, one being very successful and used as a "chase plane" at, I think, Edwards AFB for several years subsequently. Both were gloveless (an interesting point, in view of the subsequent use of a glove on the F.111—a choice made from air, rather than tunnel, experience?), one having its wings pivoted about a fixed point, the other having a pivot which moved forward during the sweep.

If you really wish, I could turn up dates and other details.

The University,
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P. H. TANNER,
Lecturer in Fluid Mechanics,
James Watt Engineering Laboratories

[Our correspondent is right. Presumably the types he has in mind are the Bell X-5 (1951) and the Grumman Jaguar (1953); and there was also the Short SB.5 of 1952.—Ed.]

Dragon Still Breathing

SIR,—We were disappointed that you failed to include our DH 84 Dragon in your Airliner Census (*Flight*, October 26). We feel that this aircraft is well worthy of inclusion as it is still carrying out public transport operations 32 years after construction and is virtually irreplaceable for the work on which it is employed by our company. This mostly consists of scenic flights up and down the country during the summer months, requiring the aircraft to operate from anything ranging from small grass fields to military jet stations. The aircraft also carries out many parachuting displays at various functions and shows, has taken part in a number of recent films, and is often used on charter flights.

During the shipping strike last year it flew three return trips daily between Liverpool and Belfast for two weeks, carrying a variety of loads ranging from newspapers to linen and cosmetics. On completion of this work the aircraft positioned to Wick to carry 12 tons of yeast to Kirkwall. This was accomplished in just over a day and had something of the pioneering spirit of the days of



DH 84 Dragon G-ADDI (see accompanying letter)

Capt Fresson and Highland Airways about it. The 20min flight joining Wick and Kirkwall became a race between us and the usual sea fog and towards the end of the day we were down to about 20ft above the waves and were extremely glad to see Duncansby Head looming up—another 10min and we would be on the ground at Wick. We must admit that we were not ready for the deafening noise of the fog horn as we shot past Duncansby Head! On another leg, a BEA Herald, also en route for Wick, suddenly appeared on our starboard side between us and the cliffs, a lot of wing-wagging ensuing.

We could go on with stories and amusing incidents which have occurred since we acquired the aircraft in 1962 but feel that it would take up a great deal of space. However, we enclose four photographs [one is reproduced above—Ed].

Sywell, Northants

C. ROBERTS,

Chrisair Aviation Services

Back (or Forward) to the Flying-boat?

SIR,—To mention flying-boats is to evoke nostalgic emotions in many older hearts. I am not trying to do that because it gets one nowhere. But I have been having a deep think about the way aviation is going.

Land-based aircraft are getting beyond themselves, it seems. Pending the commercial development of large VTOL aircraft, we have the continual extension of airports and their runways, and on these airports we have an endless record of undercarriage failures and tyres bursting. Around the airports, in the thickly populated areas, we have the unceasing noise day and night.

Who was it that decided that post-war civil aviation should be land-based? I cannot give a famous name to him. Perhaps it came from a government committee here or in Washington. I guess that the decision was influenced 25 years ago by the existence of so many military airfields with concrete runways, and by the large numbers of surplus American transports—Dakotas and all those others—which were cheap. At that time we in Europe, bled dry by intense local war, had to lean in our weakness on American shoulders.

The thing has gathered momentum until now we seem to be set on an endless course of longer, thicker, and wider runways, closer spacing of aircraft movements, and unceasing noise. Unless the accident rate is drastically reduced we shall have many more overshoots, undershoots, and sideways run-offs. In the last six years, six large aircraft have been destroyed and 166 people have lost their lives in over-runs alone.

Much of this trouble would disappear if we had water-based aircraft. It is true that the flying-boat record is not clean. Apart from in-flight troubles (which can happen to any type of aircraft) there are reports of impacts with flotsam and jetsam, and the like. Wing-tip floats bent off just as undercarriages do today.

The old tradition of flying-boats was killed for these reasons and because, with the technology then available, they were uneconomic. Propeller tip clearances above the water made deep hulls necessary, with their consequent high drag. The hydrodynamic form (chines and steps) militated against the aerodynamic form.

But we now have new technologies and could perhaps design water-borne aircraft without these handicaps. Propellers have gone, and with them the need for deep hulls. Suitably controlled air cushioning could remove the need for chines and steps, and lift the aircraft over the floating debris. I am not suggesting anything as naïve as the fitting of wings to an SR.N6. Perhaps the new type of marine aircraft might take the form of a catamaran