

beginning of things. Nobody is flying mails separately in special fast mailplanes, and so there is no rival to the combination aeroplane. It is safe to prophesy that history will repeat itself, and that once one of the rivals has started a special mail service, the other will be obliged to follow suit.

Tied up with this question is the other question of whether mail contracts or subsidies are the best form which public assistance can take. We do not dispute the contention that subsidies, when avoidable, are unhealthy things. It is only when they are inevitable that we approve of them. The mail contract, on the lines of the contracts given to shipping companies, has always seemed to us the best form of help because it is given for services rendered. In February last, Major Woods Humphery, general manager of Imperial Airways, wrote in *The Times*: "No 'mails only' service has as yet paid its way on the air mail surcharges, and no 'mails only' service has ever received subsidy at as low a rate on a comparable basis as has been possible for combined passenger and mail services." Since those words were published, the Tata Air Line Karachi-Bombay-Madras has begun to show a profit, and it is unsubsidised. It is a small concern, compared with Imperial Airways, but straws show which way the wind is blowing.

A mail contract, we conceive, should be a very profitable affair to the contractor. It should also be very rigorous in its terms, with heavy penalty clauses for delay. The K.L.M. does very well out of its arrangement with the Holland Post Office. It seems to us that the best policy which the British Government could now adopt is to offer a mail contract on the basis of flying day and night. The Air Ministry has already shown that its mind has turned in that direction, for it has already once ordered a special mailplane to be built. In the "Comet" we have the makings of a small fast mailplane ready to hand. Two services a week is not an impossible ideal for a start.

It has been calculated by Major Woods Humphery, in the article quoted above, that the weekly outward first-class mail from this country to Africa, India, and Australia is about $2\frac{1}{2}$ tons, while the same inward mail is only $2\frac{1}{2}$ tons. This creates a difficulty. Still, we hold that the Post Offices of the Empire should face this difficulty for the sake of the common good, and should offer terms which would satisfy the contractor. Such a contract is far easier to defend than is a direct subsidy. The greater facilities are likely to increase the amount of correspondence in both directions.

A Subsidy for Passengers?

Such a step would separate passengers from mails very definitely. The passenger machines would then require a subsidy, and, if the speed is to be increased in accordance with the demands now ringing in the Press, the subsidy would have to be greater than it is at present. This idea is not very attractive, but if the demand exists it will have to be met.

One thing the Australia Race has shown: The technical difficulties are the least insuperable, although it would be a serious mistake to argue that because Australia has been reached in three days, a regular air service could be operated to a similar schedule. A network of ground equipment will be necessary before that is a feasible proposition, and unfortunately Great Britain is not her own master in these things. The routes to Australia and South Africa, particularly the former, lies over countries the consent and co-operation of which have first to be obtained. And it is not as easy as might be imagined to persuade other nations that it would be in their interests to provide ground organisation for a British air route. That problem is political rather than technical. It is the fashion in many quarters to hold up the United States as an example of what air routes can be. We yield to no one in our admiration for the American network of air routes, but the United States are in a very different

position in that they, and they alone, have the power to draft and enforce regulations. They pay the piper and they call the tune.

Technical Considerations

That America has produced, in the Douglas D.C.2, an aeroplane of exceptional merits no one would dream of denying. British designers who visited Mildenhall were loud in their praises of the clean aerodynamic design, and the remarkably fine workmanship. It is, however, worth remembering that when the Douglas company got the contract for building these machines, a batch of sixty was ordered straightaway. British aircraft constructors have mostly had to be satisfied with orders for two's and three's. That inevitably means that there is no income out of which experiment can be paid. There is no knowing how much the Douglas company expended on experiment, on jigs and on tooling. It must have been a very large sum indeed, and far beyond what any British constructor could have undertaken unless he were prepared to head straight for Carey Street.

Comparisons between the "Comet" and the Douglas have been freely made during the last week, although the two machines were designed for such totally different purposes that they are not comparable. The one was designed for very fast passenger transport, and achieves that aim in a very admirable manner; the other was designed to win the Australia race, and did so handsomely. Each represents a high-water mark in its own class. But to blame the "Comet" for not being a "flying hotel," as some sections of the Press have virtually done, is merely ridiculous.

Efficiency

If it comes to a question of sheer efficiency, the "Comet" is probably ahead of the Douglas. With engines totalling but 460 h.p. it carries two people and fuel for about 3,000 miles non-stop, and that at a speed of 230 m.p.h. The Douglas in the race carried seven people, and its range was in the neighbourhood of 1,000 miles. It has a top speed of about 210 m.p.h. for a power expenditure of approximately 1,400 b.h.p. It was fully equipped for carrying eleven more passengers, it is true, but it did not carry them, although we believe it did carry a very substantial mail load.

To get a better idea of what the "Comet" would do if converted, as it easily could be, into a "useful" machine, let us assume that it is to be used as a mailplane. By fitting smaller fuel tanks, which would reduce the range to about 1,000 miles instead of the 3,000 miles or so, space would become available for mails, and the mail load which could be carried would be 1,200lb. approximately. This would still enable two pilots to be carried, and also wireless equipment. It is estimated that the "Comet" with this load would cruise at more than 220 m.p.h. It is readily seen that such a mailplane would be a very efficient one, and that it might have its applications on a good many routes.

Incidentally, the structural efficiency of the "Comet" appears to be as high as the aerodynamic. For a tare weight of 3,033lb., the maximum permissible gross weight is 5,550lb., giving a ratio of gross to tare weight of 1.83. This is well above the average figure, and means that the machine carries as disposable load 83 per cent. of its own weight. In view of the fact that the machine is a cantilever monoplane, and one with a very thin wing at that, giving low profile drag, this figure must be regarded as truly remarkable. In this connection it may be pointed out that the Douglas D.C.2 has a gross weight of 18,080lb. and a tare weight of 12,200lb. This gives a ratio of gross to tare weight of 1.48 only. In other words, the Douglas carries but 48 per cent. of its own weight as disposable load. In fairness it should be pointed out that the tare weight includes very elaborate cabin furnishings, and a remarkably complete outfit of navigational and other