

AEROPLANES IN TROPICAL COUNTRIES

UNDER the above title a very interesting paper was read before the Royal Aeronautical Society on October 6 by Air-Commodore Brooke-Popham, Director of Research. The conclusions reached by the D. of R. were based upon observations and experience in Egypt and Mesopotamia. His general impression, the lecturer said, was that Mesopotamia was very nearly as much worse than Egypt, as regards climatic conditions, as Egypt is worse than England. The lecturer said that the chief troubles with aeroplanes in the East could be divided under the following headings: Timber shrinkage, Propellers, Tyres, Shock-absorbers, Petrol supply, and Hangars.

With regard to timber shrinkage, the Air-Commodore said he felt that this was a nuisance, but not a danger. The timber undoubtedly shrinks when it arrives in Egypt or at Baghdad. In the case of Egypt a limit is reached in about two months, and there is no evidence that the timber swells again during the cold weather. Apart from the drastic solution of sending out the components and building the machines in the country, the lecturer said he thought that, provided certain precautions were taken by the manufacturers, there should be no great difficulty in overcoming the troubles. Metal fittings, especially where they clip completely around a wood member, should be adjustable, and it is also advisable to send out the wings in an uncovered condition, as often the fabric has to be stripped off on arrival in order to tighten up the various wing fittings. So long as a machine is to fly merely in Egypt or Mesopotamia the lecturer thinks there is no necessity for all-metal construction, but he still believes that when machines fly constantly between London and Bombay it will be necessary to do away with wood in their structure. With regard to three-ply wood, the lecturer said that thin three-ply is inclined to blister and to come apart in the laminations. Thicker three-ply stands up fairly well, but causes a certain amount of trouble on new machines owing to shrinkage.

The trouble with propellers is due to two causes. Firstly, they have a tendency to split along the laminations or else actually cracking through the timber, generally at the boss. The difficulty can probably be overcome by using propellers having a slightly higher factor of safety than is necessary for England. The second source of trouble is damage to the leading edge by small stones or scrub. The remedy for this is obviously metal covering, but the metal must be strong, as thin brass quickly wears through. Also the metal strip should extend the whole length of the blade and not be confined to the tip. Metal propellers would afford a complete solution, but the lecturer sees no reason why wood propellers should be condemned, and thinks great improvement would be found if propellers were manufactured locally.

The difficulty with tyres seems to be deterioration of the tyre itself and of the valve, and punctures. The latter are caused by camel thorns, and can be eliminated only by a definitely puncture-proof tyre, such as the Rapson car tyre. This is, however, too heavy for aeroplanes. In the opinion of the lecturer, the right solution is to do away with the need for pneumatic tyres by improvements to the undercarriage. The valve trouble can probably be overcome by the use of all-metal valves, experiments with which are being carried out.

As regards rubber shock absorbers, these suffer to the same extent as tyres, and although a substitute, such as coiled wire, can be used, the lecturer said that here again he thought what was really wanted for work in the East was a form of under-

carriage which would do away with both pneumatic tyres and rubber shock absorbers.

On the question of petrol wastage, the lecturer pointed out that this seems to be chiefly due to the containers in use being too fragile, those containing 4 gallons being much weaker than the 2-gallon tin used in England. They should be of stout construction, and the screw stopper should be fitted with a really suitable washer. For preference it should also be covered with a soldered cap, just firm enough to be airtight, otherwise mechanics are apt to damage the tin in taking off the cap.

Hangars are another heavy source of expense, as the canvas covers are practically useless after one hot season. Experiments have been tried with regard to placing corrugated iron on the Bessoneau frameworks, and this seems to be quite successful, provided the framework is not pierced by bolts and nails.

The fabric on aeroplanes used to give trouble, but now this problem appears to have been solved by the use of the coloured varnish known as P.C. 12 in conjunction with the aluminium varnish known as V. 84 on top.

Tail skids wear badly, and the most effective remedy is to fit detachable shoes of hard steel. Tail trimming gears are apt to suffer from the effect of dust. Inspection holes should be provided with covers.

Concerning engines, the Air-Commodore said: "I could not find any trouble specially due to the climate, either in Egypt or Mesopotamia. Of course, for most machines an additional radiating surface is necessary; for instance, on the D.H. 9A the size of the standard radiator is 6.65 sq. ft., and an auxiliary radiator has to be fitted, having an area of 2.5 sq. ft. On the Bristol Fighter the standard sizes are 4.1 and 1.54 respectively. Fitting an auxiliary radiator is much preferable to merely enlarging the size of the standard radiator, because in the cold weather the radiating surface is too large with the extra radiator, and the latter can then be taken off, thus reducing the head resistance.

"There are one or two points about packing. First as regards engines, it seems very hard to prevent these getting rusty on their way out. It is no good, of course, trying to send out engines installed in the fuselage, at any rate in the case of tractor machines, partly because the fuselage is apt to get damaged, and also because it is very difficult to get a large case airtight. I believe engines going out to the East ought to be packed in a special dry room, so that the air that is actually enclosed inside the tin-lined and soldered case will not contain any moisture that might cause damage. One other point. Machines are generally sent out without their wheels, and in some cases a shock absorber is wound on the axle and machines sent out with it on. This is a mistake, as the machine is apt to get dragged along on the floor of the packing case, and so the shock absorber gets practically ruined and has to be replaced."

The lecturer then gave a most interesting description of the reasons for and the nature of the new cross-desert route from Cairo to Baghdad. To any manufacturer or potential user of the new air route, the Air-Commodore's remarks on this are of the greatest interest, but as, unfortunately, we cannot devote the space necessary to give this part of the paper in full, we would advise all interested to get a copy of the paper, or the copy of the Society's journal containing it, so as to have the benefit of a verbatim report. In years to come the route cannot fail to become one of tremendous importance, and the paper gives an excellent account of the route as it exists today.

P. & O. Revised Sailings Nullify Air-Post Saving

THE Postmaster-General announces that, in consequence of an alteration in the times of departure of the Peninsular and Oriental and Orient Packets from Marseilles and Toulon respectively, it will no longer be possible to post letters for India, Egypt, etc., and, in some weeks, Australia, by Air Mail to Paris on Friday with a view to overtaking the ordinary mail for those countries, which is closed in London on the previous evening. Since May 1 last, this connection has been missed on only one occasion. It was duly secured in the case of the mails for India, etc., which were despatched from London to Paris by air on Friday last, and these have been forwarded from Marseilles by the Peninsular and Oriental Packet "China."

The Coupe Michelin

SEVERAL attempts have been made by French and Italian pilots to improve upon the performance of M. Poiree on a Caudron C. 60. Pelletier d'Oisy made a try, but had

to give up at Toulouse. In Italy the conditions are more or less the same, except that Italian pilots are at liberty to choose a sea circuit for their attempt if they prefer.

The following attempts have been made by Italian competitors: Col. Armani on a B.R. had to give up after covering a little over half the total distance of 3,000 kilometres. Capt. Diziano crashed on Mount Gandino. Capt. Martinetti it appears has succeeded in completing the course, and, subject to homologation by the French Aero Club, he seems to have improved upon Poiree's performance, having covered the 3,000 kilometres in 35 hours, while Poiree took 37 h. 23 mins. Next!

Another! But it's not Aviation

In attempting to leap from a motor-car travelling at a high speed to an aeroplane flying close overhead, a young woman named Madeline Davis was killed at Long Beach on October 4. Miss Davis, who it is stated was an extremely pretty girl of 23, known as "the girl daredevil," was rehearsing the feat for a cinema play.