

capital expenditure necessary to equip the mooring mast stations with efficient rather than cheap hydrogen plants, so that the gas could be made at about the same price as is possible in England today, the relative figures would be changed to:—Liner, 1; airship, 2·3.

The higher speed of the airship makes a further adjustment permissible. On this hypothetical 2,000-mile journey, while in the liner catering expenses for four days must be considered, in the airship they will be halved; so, if in both cases 30s. a head a day is regarded as the transport companies' costs, the relative figures become:—Liner, 1; airship, 1·2.

Let us now turn to some less satisfactory features. Our designers have gone a long way towards producing an efficient airship structure, but there has not been a corresponding advance in methods of propulsion. R 100 has had to be equipped with petrol-burning aeroplane engines. R 101 has the ideal type of prime mover in the compression ignition engine, but this is at present so heavy as to have seriously penalised the performance of an otherwise efficient vessel. It is due to tardy engine development that one ship has less safety than is desirable (all fires in British airships, with two possible exceptions, have arisen from petrol), and the other less performance than might be expected.

Regrettable, too, is the lack of progress with regard to the material of which gasbags are made. Today, much as was done 15 years ago, goldbeaters' skin is fastened by a flexible adhesive to a good Egyptian cotton cloth. Process methods and the nature of the adhesive have certainly changed, but in the manufacture of the gasbags for the two airships over 2,500,000 skins have had to be handled repeatedly. The outer cover has made perhaps even less advance.

Atmospheric Risks

Navigation and the effect of atmospheric electricity are questions which raise doubts only to be set at rest by experience. Airship navigation, when land, sea, sun, or stars are visible, permits of a precision not greatly inferior to that of ocean-going vessels. Even when visibility is nil, and certainly during daylight hours, directional wireless will often allow of the same exactitude. At least two forms of atmospheric electricity have to be considered—the brush discharge type and lightning. The former, as a result of experience, is held not to be a source of danger; as to the latter, though the same view is taken, confidence is not so great.

Two Zeppelins have been destroyed in thunderstorms, but more airships have been struck by lightning and survived. Dr. Eckener, the most experienced of pilots, has been in airships on many occasions when they were directly struck, yet he suffered no harm. If a ship is discharging gas when the flash occurs, as is known to have been the case in one disaster, the danger is great, for the spark may ignite the hydrogen-air mixture surrounding certain portions of the ship. If no escape of gas is taking place, a condition corresponding with Dr. Eckener's experience, there is nothing combustible external to the ship, and the electrical energy passes through the metal structure of the hull.

In concluding this review of a finely-conceived experiment one would like to congratulate its authors on the measure of success so far attained. Their work has not infrequently been assailed, but it has been described by the author of the James Forrest Lecture before the Institution of Civil Engineers as the outstanding achievement of aeronautical engineering since 1914.

TAXI!

A Few Notes on the N.F.S. Air Taxi Service

AS most of our readers know, National Flying Services, Ltd., have, for some time past, operated an air taxi service, whereby machines may be chartered at a moment's notice for a journey to practically any destination. The following notes regarding the scope of this service may, however, be of interest.

Stations.—N.F.S. air taxis are now stationed at London (Hanworth), Leeds, Hull, Reading, Nottingham, Blackpool, Scarborough, and, temporarily, Swansea.

Aircraft.—The type of aeroplane most used for air taxi work is the Desoutter cabin monoplane, which carries two passengers and is capable of a cruising speed of 95 miles an hour. Eleven of these machines have been taken into service, nine of which are in active operation and two are kept in reserve.

Total Fleet.—The total fleet of aircraft available at the stations of National Flying Services numbers 55 machines, and all these can be called upon for urgent taxi missions. In addition to the two-passenger Desoutters, the fleet includes Moths, Bluebirds and Spartans, which are single-passenger machines of the conventional light aeroplane class.

An eight-passenger machine is available for the transport of large parties, and is at present stationed at Hull. This is a D.H. 61, similar to the aircraft used on the Australian air lines.

Holiday Tours.—In addition to the hire of air taxis for urgent journeys, many people are now chartering machines for holiday flights, especially for trips to Le Touquet, Dinard and Biarritz. Short sight-seeing trips are also proving an attraction. For example, a flight for two people from Hanworth to Windsor Castle and back is obtainable for £1 per head, including transport to and from Trafalgar Square.

Range of Service.—Air taxis can be hired to fly to practically any destination, and have already been chartered for journeys to practically every important centre of England and also to most of the big cities on the Continent. Among the towns visited on these flights are Bath, Bristol, Berlin, Biarritz, Brighton, Cardiff, Camborne (Devon), Canterbury, Cowes, Deauville, Dinard, Edinburgh, Eastbourne, Exeter, Glasgow, Hitchin, Hull, Leeds, Luton, Le Touquet, Liverpool, Manchester, Norwich, Northampton, Oxford, Ostend, Paris, Penzance, Selsea, Southampton, Torquay, Teignmouth, Uttoxeter, Wolverhampton and Yeovil.

The Latest Example.—An example of the value of an air taxi organisation with branches in all parts of the country is furnished by a booking which was received recently. A Dutch business man arrived at Harwich at 6 a.m. An air taxi met him and flew him to Hull, where he transacted his business, and afterwards flew back to Harwich in time to catch the return boat to Holland that night.

THE WESTLAND "WESSEX": A new version of the Westland IV Limousine, a six-seater commercial cabin monoplane fitted with three Armstrong-Siddeley "Genet-Majors." Four of these machines have been ordered by "Sabena," the premier air line operating in Belgium and the Belgian Congo. On July 2, M. Cocquyt, of "Sabena," took delivery of the first machine, and before flying it to Belgium he made a series of test flights, with which he expressed himself extremely satisfied. Incidentally, the marking "P-" is the "trade" number allotted to the Westland Aircraft Works for aircraft which have not yet received their full registration letters.

BRITISH AIRCRAFT FOR BELGIUM

