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THE WORLD, THE AIR, AND THE FUTURE



**R.100 in her Shed**

*(Frontispiece)*

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THE, WORLD, THE AIR  
AND THE FUTURE

BY

COMMANDER

SIR CHARLES DENNISTOUN BURNEY

BART., C.M.G., R.N. (RETD.)



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TO  
MY WIFE

## PREFACE

IN presenting my first book to the public, I have various acknowledgments to make. A book that purports to deal with the whole problem of the air is necessarily dependent for its inception not only upon a theoretical analysis, but also upon practical experience of the technical difficulties involved in the construction of aircraft. I have therefore to acknowledge a debt of gratitude to all those who have assisted me in the construction of the R.100, the designing and building of which have been the corner-stone on which the structure of the book has been erected.

The construction of the R.100 was rendered possible primarily by the patriotic outlook of Sir Trevor Dawson, Sir Herbert Lawrence, and Mr. Douglas Vickers, Directors of the Board of Vickers Limited, who undertook the financial responsibility of an experiment upon a great scale; and also by the support given to the scheme by Lord Thomson and Sir Samuel Hoare, who were Secretaries of State for Air during the period in which the Airship programme was approved, adopted, and carried out.

During the design and construction stages, I have had the able assistance of Mr. J. E. Temple, who, as chief calculator, was responsible for the theoretical design; of Mr. B. N. Wallis who was responsible for the mechanical design, and who for the latter period as chief engineer was in charge of the construction at Howden; of Mr. N. S. Norway, who succeeded Mr. Temple as chief calculator; of Mr. J. Watson, the works manager; of Mr. A. E. Palmer, who was responsible for the engine and electrical installations; of Mr. W. Horrocks, the



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1. What do we mean by Internationalism? War the only alternative to an International as opposed to a National world order. What modern warfare means. Various forces working to-day in the direction of Internationalism.

2. The progress of civilisation on its material side a matter of improved communications.—The three means of communication—the Land, the Sea, and the Air, studied under their historico-metaphysical aspects. A synthetic, expanding, and universalising process always manifest. This process culminating in aviation. The air, the universal element, a symbol of the International principle.

3. Economic forces working towards Internationalism; political forces still pulling in a contrary direction. The economic position of the United States of America.

4. Practical ways in which the development of civil aviation will help to build up an International world order—A United States of Europe. The establishing of closer relations between Europe and America—The unification of the Atlantic peoples.

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	<p>The new Mooring Mast at Cardington, with the R.33 riding at the masthead. (Royal Air Force Official: Crown Copyright reserved. Reproduced by the courtesy of the Air Ministry.) The Mooring Mast is 200 feet high, with a covered way connecting the landing stage and airship. Lifts are provided for passengers and cargo, and mains carrying water, gas and fuel are constructed right to the masthead. It will be seen that the Airship has two small aeroplanes suspended from her.</p>	
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This Aeroplane was built by Messrs. the Armstrong-Whitworth Company to operate the "Silver Wing" Service de Luxe between Croydon and Paris. The passengers saloon has accommodation for 18 passengers. At the rear end of the saloon is a buffet, from which cold luncheons and liquid refreshments of all kinds are served. Communicating with the saloon at the forward end is the pilot's cockpit, and at the other end is lavatory accommodation. The aeroplane carries a crew of three, consisting of 1st Pilot and 2nd Pilot, and Saloon Steward.

Its total weight loaded is 8 tons and it can lift a useful load, including crew of  $2\frac{1}{2}$  tons. These aeroplanes are fitted with dual control and equipped with three Armstrong-Siddeley Air-Cooled Jaguar Engines, each developing 385 h.p. They can fly comfortably with any two engines; this fact also eliminates the possibility of a forced landing due to engine trouble. They have a cruising speed of 95 m.p.h. and a top speed of 120 m.p.h. The wings from tip to tip measure 90 feet, and the overall length of the aeroplane is 65 feet.

Passengers' luggage including heavy cabin trunks is accommodated in two luggage compartments situated behind the engine, and immediately in rear of the passenger saloon. The petrol used in the engines is carried in two large tanks situated near the centre

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of the top plane. These tanks have a total capacity of 250 gallons. The flight of 225 miles between Croydon and Paris takes an average 2½ hours.

These photographs are reproduced by the courtesy of Imperial Airways Limited.

### XXVIII. MODEL OF NEW 40-SEATER HANDLEY-PAGE

272

Model of the new 40-seater Handley-Page Aeroplane. "Flight" Photograph, reproduced by the courtesy of the Editor of "Flight."

This machine will be propelled by four motors totalling 2,000 h.p. and will have a maximum speed of 120 m.p.h. It is the largest aeroplane yet designed, and will be the first air liner with cabins of sufficient size to enable passengers to move about freely.

### XXIX. AUTOGIRO C.8 IN FLIGHT

280

Autogiro C.8. Mark II Type fitted with Lynx Engine. Reproduced by the courtesy of the Newcastle Aeroclub and the "North Mail."

#### *Description*

##### Weights—

Tare weight	2,650 lb.
Fuel capacity 40 gallons	95 "
Oil capacity 6½ gallons	63 "
Crew 2	320 "
Extra disposable load	148 "
	<u>2,476 lb.</u>

#### *Guaranteed Performance*

Maximum speed	108 m.p.h.
Cruising speed	90 "
Minimum speed level flight	25 "
Duration of flight, cruising	3 hours

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XXX. SUPERMARINE 'SOUTHAMPTON' TWIN-ENGINE FLYING BOAT

288

Supermarine "Southampton" twin-engine Flying Boat HB-6, fitted with Lorraine engines. Reproduced by the courtesy of the Supermarine Aviation Works Limited.

*Description*

This machine has a maximum speed sea level of 107.7 m.p.h. and a landing speed of 56 m.p.h. It has an estimated range of 680 miles and its total useful load, including fuel, is 5,290 lb.

If converted for use as a commercial machine the useful load could consist of:

Crew of two	360 lb.
W-T	150 "
Electrical gear	80 "
Instruments	40 "
Marine gear	70 "
Seating, etc.	50 "
Sundries	50 "
	<u>800 lb.</u>

And in addition any combination of passengers, freight and fuel, totalling 4,490 lb., as under.

Petrol Carried.	Approx. Duration. Miles.	Approx. Duration. Hours.	No. of passgrs. with baggage at 200 lb. each.
400	680	8	6
300	510	6	10
200	340	4	14

XXXI. 60-SEATER DORNIER FLYING BOAT

296

The 60-seater, three-decker Dornier Flying Boat recently completed at the works of the German Dornier Aircraft Company at Lake Constance. Reproduced by the courtesy of Pacific and Atlantic Photos Limited.

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### *Description*

The Dornier Flying Boat has twelve engines developing 6,000 horse-power, and its total weight fully laden is about 50 tons. Three decks provide for spacious saloons and sleeping accommodation for 60 passengers. This winged liner took two years to build, and has carried out its trial flights with success. It is by far the largest heavier-than-air craft that has been built up to the present time.

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