THE AERIAL MERCANTILE MARINE

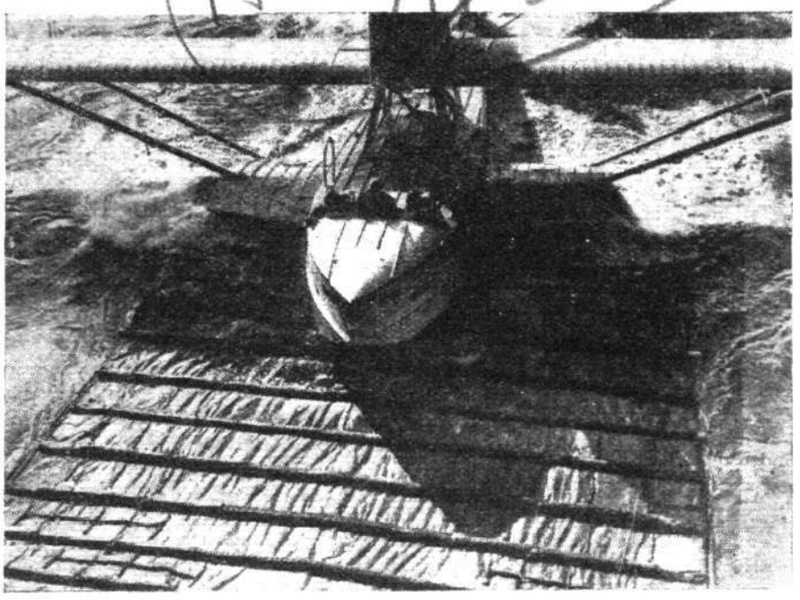
von Gronau, with a crew of three, and was along a course set to include the Faroes-Reykjavik - Ivigtut - Cartwright - Queensport - Halifax - New York.

These early flights, extended and expanded by later efforts, laid the groundwork for the survey flights across the North Atlantic in 1937 by the brilliant Short Empire flying boats and the Sikorsky S 42 Clippers preparatory to the introduction of a regular service.

As well as Great Britain and America, other countries displayed a keen interest in the problems of long-distance oceanic aerial transport; notably Germany who, as was to be expected, tackled the problem with characteristic ingenuity. The situation confronting the D L.H. (Deutsche Luft Hansa) included lack of suitable bases and airports of requisite size and convenient location to permit the use of the large heavily loaded landplanes which would have been required. Neither did D.L.H. have any flying equipment capable of making (at that time) a non-stop crossing of any great stretch of water, with mentionable payload. So the use of depot ships was resorted to. The story of the operation of these depot ships, co-operating so brilliantly with their winged charges, is an air transport epic in itself. Dornier Wals, 18s and 26s, and later the crude and clumsy Blohm und Voss Ha 139 seaplanes were used over a period of time from February 4th, 1934 (when a regular fortnightly mail service was commenced). It is worth remembering that the first weekly mail service started on this run in September, 1934 (Ref. 2).

France also undertook experimental flights, mostly over the South Atlantic, using Latécoère, Blériot and Liore-et-Olivier flying boats. In the main, however, only mail services were operated.

To ignore the achievements in spanning the Pacific and other great expanses of sea would be an injustice to the memory of those farseeing pioneers, Kingsford Smith, Charles Ulm, and many other gallant figures. Suffice it to say that these efforts, made for the most part in land machines, paved the way (if that is figuratively correct!) for the services operated—until December 7th last and spasmodically since—by flying boats of Short Bros. design, and the Martin, Sikorsky and Boeing Clippers. These routes, although of great length, did not involve quite the same dangers as the Atlantic crossing. There were more suitable bases along the routes, the meteorological conditions were more favourable, and the run in general was less hazardous.



A Dornier Wal flying boat on the landing apron of the mother ship *Westfalen*. The machines were catapulted off the deck.

From all these experimental, probing, survey flights, long-distance air transport, nowadays chiefly by marine aircraft, has progressed so far that it is now the accepted means of travel for high-ranking executives, Governmental heads, and all employed upon vital, urgent missions.

The Type of Aircraft Used

Most types of aircraft have been used for long-distance oceanic work, some designed for the job, others being conversions. Thus, biplane and monoplane landplanes with one, two, three and four engines; seaplanes, most notably the *Mercury* (upper components of the Short-Mayo composite aircraft) and the Blohm und Voss Ha 139 or D.L.H.; monoplane and biplane flying boats with various power

DATA OF TYPICAL LONG-RANGE FLYING BOATS

Flying Boat	Type	Span Feet	L'gth Feet	Height Feet	Wing Area sq. ft.	Total h.p.	Engines Make No. and h.p.	Weight Empty lb.	Weight All-Up lb.	Wing Loading lb./sq.ft.	Power Loading lb./h.p	Max. Speed m.p.h.	Cruise Speed m.p.h.	Lateral Stability Aid	Range Miles
Curtiss N.C. ...	Biplane	126 top 94 bot	68.25	—	2,380	1,600	Liberty 4×350	15,874	28,000	11.7	17.6	81	73	Wing-tip Floats	1,450
Dornier Do-X. 1 a	Monoplane	157.5	131.4	29.6	4,885	7,200	Curtiss Conqueror 12×600	68,800	123,200	25.3	17.10	130	105	Sponsons	—
Potez-Scan 161 ...	Monoplane	150.8	106	27.3	2,810	6,000	Hispano-Suiza 6×1,000	50,300	94,900	33.70	15.81	220	134	Wing-tip Floats retract into engine nacelles.	3,730
Boeing 314-A ...	Monoplane	152	106	28.3	2,867	6,600	Wright-Cyclone 4×1,650	55,550	88,000	33.50	13.33	210	188	Sponsons	4,000
Boeing 314 ...	Monoplane	157.4	131.3	28.3	2,867	6,000	Wright-Cyclone 4×1,500	48,727	82,000	28.80	13.75	200	164	Sponsons	3,600
Latécoère 521 ...	Monoplane	161.75	103.75	29.6	3,550	5,160	Hispano-Suiza 12YBRS. 6×640	43,454	81,500	22.9	15.79	161	125	Combined sponsons and Wing Floats	2,812
Short Bros. *Golden Hind*	Monoplane	134.3	103.15	37.65	2,160	5,500	Bristol Hercules VI 4×1,375	37,700	73,500	34	13.3	209	180	Wing-tip Floats	3,200
Glenn Martin 157-C	Monoplane	157	91.8	24.5	2,300	4,800	Wright-Cyclone 4×1,200	34,600	70,000	30.4	14.6	182	140	Sponsons	3,100
Glenn Martin 130...	Monoplane	130	90.10	24.7	2,315	3,200	Twin Wasp R1,830.S.1.A.G.	23,100	51,000	22.0	15.9	180	155	Sponsons	2,100
Vought-Sikorsky V-44A *Excalibur*	Monoplane	124	79.25	27.6	—	4,800	P. & W.R.-1830-S.1.C.3-G. 4×1,200	30,200	57,500	—	—	—	150	Wing-tip Floats	3,800
Short Bros. Special "C" Class	Monoplane	114	88	31.10	1,500	3,200	Persens XIIC 4×800	27,340	53,000*	35.37	16.20	200	164	Wing-tip Floats	3,400
Latécoère 300 *Croix-du-Sud*	Monoplane	145	85	21.40	2,800	2,560	Hispano-Suiza 12YBRS. 4×640	26,670	52,600	18.80	20.5	130	111	Sponsons	2,980
Latécoère 30-1 ...	Monoplane	144.11	84.7	20.11	3,292	2,600	Hispano-Suiza 12 Nbr. 4×650	24,900	50,600	15.4	19.5	130	110	Sponsons	2,980
Blériot 5190 Santos-Dumont	Monoplane	141.0	85.3	—	2,389	2,600	Hispano-Suiza 12 Nbr. 4×650	24,040	49,500	20.70	19.0	136	110	Inboard Floats	2,000
Dornier Do-26 ...	Monoplane	98.5	80.3	22.5	1,292	2,400	Jumo 205 4×600	22,487	44,092	32.91	18.29	208	192	Retractable Wing Floats	5,000
Sikorsky S-42 Clipper.	Monoplane	114.2	67.8	17.40	1,330	2,800	P. & W. Hornet S.5.D.-16 4×700	21,945	38,000	28.60	13.60	188	170	Wing-tip Floats	3,000

* Flight refuelled.