



THE *Part one: the Catalina years* LONGEST HOP

Qantas & the Indian Ocean service, 1943-46

Australian aviation historian **BOB LIVINGSTONE** opens his two-part account of Qantas' extraordinary wartime non-stop air service over the vast expanse of the Indian Ocean, operated to connect Australia with Ceylon and ultimately India, thus re-establishing vital air links with the UK. Enter a tiny fleet of dangerously overloaded Catalina flying-boats . . .

THE REMARKABLE non-stop wartime air service operated by Qantas Empire Airways (QEA)¹ across the Indian Ocean began rather ignominiously. Although the average flight time over the Ceylon (now Sri Lanka)—Perth route was some 27hr, the aborted first service in July 1943 lasted only 7¼hr; the navigator realised three hours out that the two vital sextants had been left behind in the base safe, forcing a return to Koggala Lake on the south-eastern tip of Ceylon. It did not depart again for three days.

EARLY DAYS

The air connection between the UK and Australia, the Empire Air Mail Service (EAMS), had begun with First Class mail in 1934, and all-mail flying-boat operations began on July 28, 1938, with an Imperial Airways Short S.23 C-Class Empire flying-boat departing Southampton for Singapore, and a QEA S.23 departing westbound for the same destination from Sydney. British crews were responsible for all flights west of Singapore, Australians east of Singapore, while passengers remained on the same aircraft throughout.

Although war was declared by Britain on Germany in September 1939, it was not until Italy joined with Germany in June 1940, closing the Mediterranean sector, that the existing Empire Air Route was cut. Forming the first part of what would become known as “the Horseshoe Route”, the connection between the UK and Durban in South Africa, initially by ship, was now from Poole in Dorset to Lisbon in Portugal, before following the West African coast to Libreville in French Equatorial Africa (now Gabon); then roughly along the Equator to Lake Victoria in Uganda, thence to Mombasa on the Kenyan coast and down the East African coast to Durban.

The route then turned north again to Cairo in Egypt (with interruptions in mid-1941 owing to the North African campaigns and the Iraq uprising), then to Karachi in India, Singapore and Sydney. Until October 1941 crewing remained as before until QEA continued on to Karachi with a three-day extension, to provide some relief for the hard-worked BOAC crews whose numbers had been depleted by the war situation.² This made a full seven days of flying (crews normally “slipped” a service in Singapore), and QEA had

to ask the Royal Australian Air Force (RAAF) to release some of the company pilots who had been transferred to the Service earlier in the war.

The entry of Japan into the war in December 1941 created further route changes as the Japanese advanced. Singapore was bypassed and operated as a branch service from Batavia in the Dutch East Indies (now Jakarta in Indonesia) from January 6, 1942, and the route was finally cut altogether after a QEA Empire flying-boat made the last Singapore—Batavia—Darwin departure in the early hours of February 4 that year. This was after IAL Empire flying-boat G-AEUEH, named *Corio*, had been shot down with a QEA crew by Japanese Mitsubishi Zeroes just short of Koepang (now Kupang) on West Timor while attempting an evacuation flight from Darwin on January 30.

By March 1942, after Japanese bombing of both Darwin and Broome, all civil flying between Australia and the rest of the world, apart from the trans-Tasman service, was suspended, and Australian airlines and aircraft were absorbed into the business of defending Australia.

AUSTRALIA'S ISOLATION

An indication of the isolation of Australia at this point can be gauged by the fact that the vastness of the Pacific Ocean had deterred everyone from establishing a USA—Australia route since Sir Charles Kingsford Smith had made the first crossing in 1928 and the first eastward Pacific crossing by air in 1934. Attempts by Pan American to extend its USA—Hong Kong route to Australia

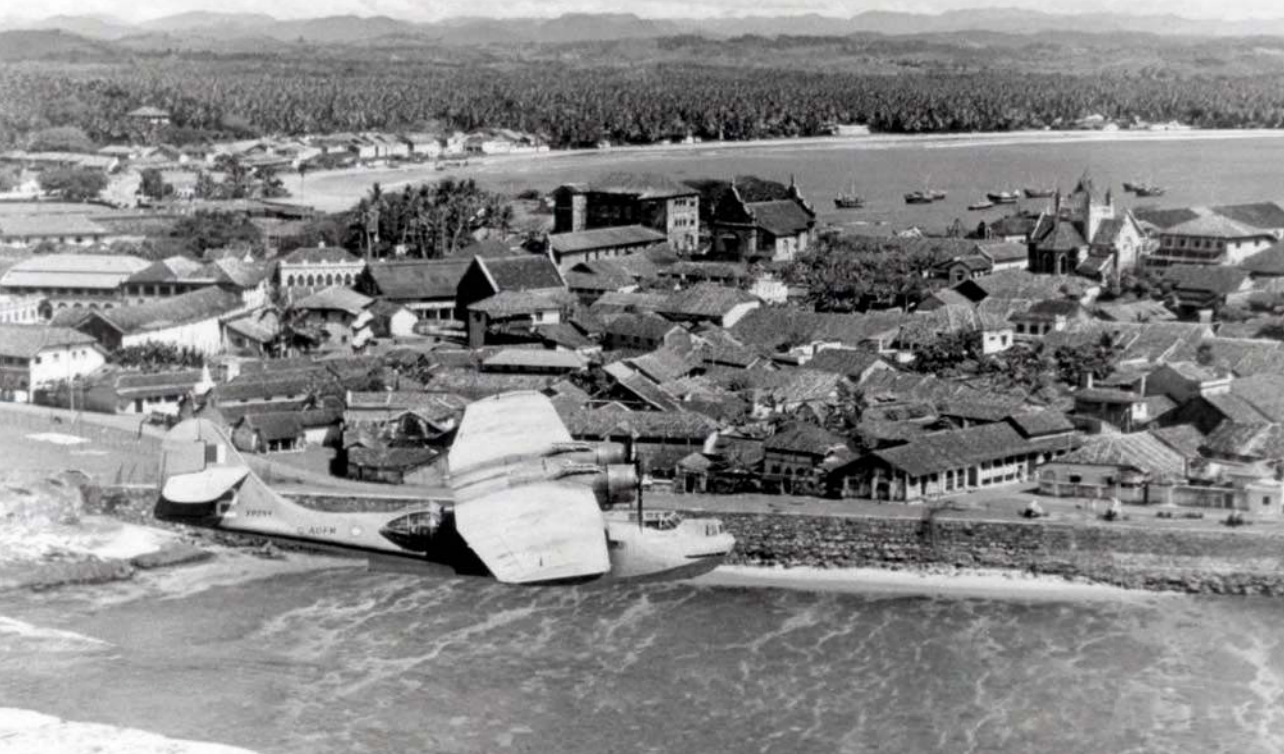
OPPOSITE PAGE A detail from the certificate awarded to those travelling on what came to be known as the “Double Sunrise” service between Perth and Ceylon, who experienced two sunrises on each flight. The text reads: “This is to certify that (name) has spent more than 24 hours continuously in the air on a regular air service, thus entitling him to membership of the rare and Secret Order of the Double Sunrise”. VIAAUTHOR

BELOW Consolidated Catalina IB FP244 (c/n 831) was one of a batch of 225 delivered between July 1942 and February 1943. Never allocated to an RAF squadron, it went to BOAC on October 27, 1942, with the British civil registration G-AGFM. It is seen here at Koggala Lake on the southern tip of Ceylon. VIAAUTHOR

via New Zealand using Boeing 314 Clippers and other flying-boats were initially frustrated by the loss of a Sikorsky S-42 and a lack of co-operation from the American government.

Australia was only temporarily linked to the USA across the Pacific in 1941 by the Tasman Empire Airways Ltd (TEAL) trans-Tasman service connection with the Pan Am Clipper in Auckland, New Zealand; and when QEA was given a taste for long-range flying-boat operations by ferrying the first 18 RAAF Consolidated Catalinas from San Diego, California, to Sydney, discovering that, with careful power management, it was possible to fly the 3,137 miles (5,050km) from Canton Island in the South Pacific to Sydney non-stop.³

The USAAF presence in the southern Pacific had begun with the intention of reinforcing the Philippines with Boeing B-17s and repossessed British-contract Consolidated Liberator IIs⁴ of the





ABOVE Consolidated Model 28-3 NC777, named Guba (actually Guba II), at Rose Bay, Sydney, before its epic flight from Western Australia across the Indian Ocean to Kenya in June 1939. The flying-boat, which later served with BOAC as G-AGBJ Guba, then flew on to the USA to complete the first circumnavigation of the globe by seaplane.

7th and 19th Bomb Groups (BGs) under *Project X*, which departed the USA on December 20, 1941. The rapid speed of the Japanese advance, however, caused the route to be changed via South America, across the South Atlantic to Africa, then on to India. Too late by then to help the Philippines, the bombers were diverted to Java in the Dutch East Indies. A further eight aircraft departed the USA in January 1942, using a new southern Pacific route around Japanese-held areas, for Australia and north to Java. The remnants of this force were ultimately evacuated to Australia in early March 1942.

In April 1942 Consairway, Consolidated's USAAF Air Transport Command-contracted civil airline, began a transpacific service to Australia with LB-30 bombers converted for passenger and freight services, following the southern route used by the RAAF Catalinas. This became the only air bridge between Australia and the UK — across the Pacific to the American west coast, across the breadth of the USA, then from the east coast across the Atlantic.

THE INDIAN OCEAN ROUTE

This state of affairs had been foreseen by some. In early 1939 Capt P.G. "Bill" Taylor, famous for his flights as pilot and navigator with Sir Charles Kingsford Smith, made submissions to the Australian government, in which he stressed "the need for a reserve air route across the Indian Ocean which could be used to maintain air communication with the United Kingdom in the

event of the Singapore route being cut by war".⁵

Taylor's reputation was such that the Australian government chartered American zoologist and philanthropist Richard Archbold's Consolidated Model 28-3 (essentially a civilian PB5Y-2 Catalina) NC777, named *Guba* (also known as *Guba II*), which Archbold had used during 1938–39 for an expedition to New Guinea. On June 4, 1939, Taylor, Archbold and their crew of pilot, navigator, radio operator and two engineers, set off from Port Hedland on the north-western coast of Western Australia for the Cocos (aka Keeling) Islands, an Australian-governed archipelago roughly halfway between Australia and Ceylon. However, even with two highly experienced air navigators aboard, they failed to find the island group and were forced to divert to Batavia.

Guba departed Batavia a few days later and, having located the Cocos Islands, alighted in a lagoon, where the group remained for a week, surveying the region for future flying-boat and land-based aircraft operations, later of use to the Royal Navy and RAF when selecting Indian Ocean bases. Further stops were made at Diego Garcia, just south of the Equator, and Mahé in the Seychelles before *Guba* finally alighted at Mombasa on June 21, having covered some 9,000 miles (14,500km) in a total of 80 flying hours.

This was the only time an Indian Ocean route was used until July 1943, when QEA was able to begin scheduled services across the Indian Ocean linking Australia with Ceylon, and from there connecting with the BOAC service at Karachi



ABOVE Catalina G-AGFM Altair Star rises on to the step during take-off from Koggala Lake. The RAF's Catalina IBs, powered by a pair of Pratt & Whitney R-1830-92 Twin Wasp air-cooled radial engines, were supplied against Lend-Lease requisitions, as were the two IVAs and sole IVB also used on Qantas's wartime Indian Ocean service.

on to the UK. The service was an extension of BOAC's UK—India route.

The first non-stop Indian Ocean crossings were made in June 1942 from Exmouth Gulf in north-western Western Australia to Trincomalee on Ceylon's north-east coast by two Dutch Catalinas which had escaped from Java the previous month.⁶ Three more return flights by Catalinas of No 321 Sqn, formed at Trincomalee in August 1942 with Royal Netherlands Naval Air Service personnel who had escaped to Ceylon from the Dutch East Indies, were made between Australia and Ceylon, the last in May 1943, non-stop from Perth to China Bay, Trincomalee, in 28½ hr.

In May and June 1943 seven proving flights were made by crews of No 222 Group RAF, from Koggala Lake to Perth using the first two Lend-Lease Catalinas allocated to Qantas, the final flight being the delivery of Catalina IB G-AGFM/FP244 under the command of Sqn Ldr Rumbold.

ESTABLISHING AN INDIAN OCEAN SERVICE

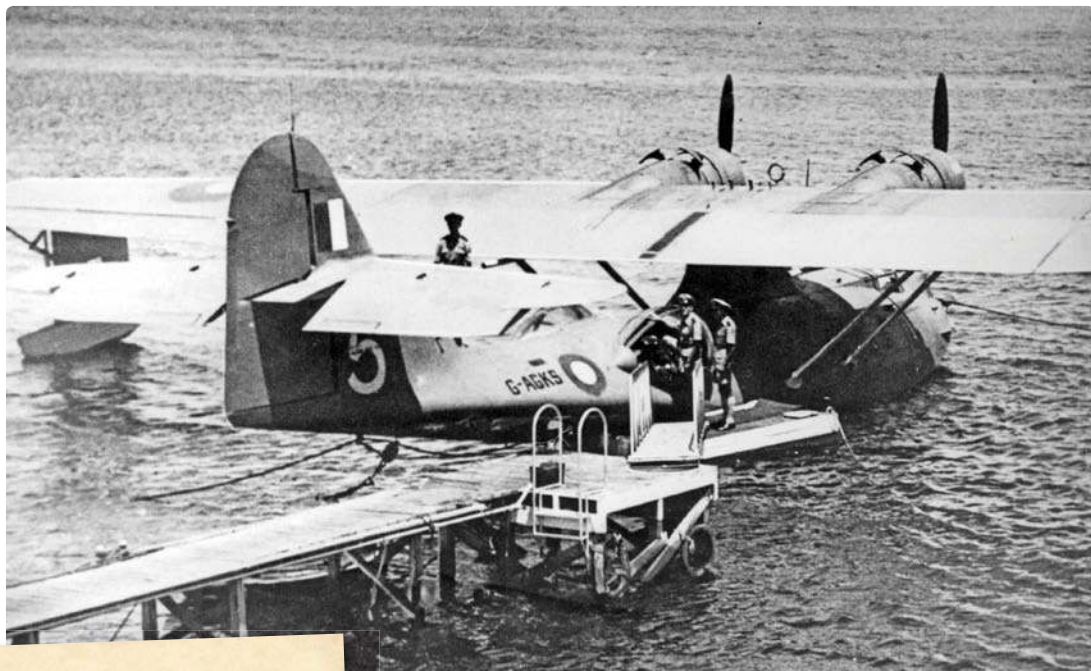
Meanwhile, on April 22, 1943, Sir William Hildred, the British Director General of Civil Aviation, advised Wilmot Hudson Fysh, Managing Director of Qantas, that BOAC had been directed to manage a civil Catalina service across the Indian Ocean, and that Qantas would be contracted as the operating agent. Four Lend-Lease RAF Catalinas would be supplied. Captain W.H. "Bill" Crowther of Qantas, an experienced Empire flying-boat captain, was appointed to head the Qantas Western Operations Division,

established on the Swan River at Nedlands, Perth.

Qantas crews, most with extensive experience on Empire flying-boats, received type conversion to the Catalina from the RAAF at Rathmines, north of Sydney, and all were made members of the RAAF Reserve, although they continued to wear their Qantas uniforms. The first of the converted crews flew on the RAF's 1943 proving flights for familiarisation, and Senior Route Captain Russell B. Tapp, First Officer Rex Senior and an all-Qantas crew returned the RAF delivery crew to Ceylon in G-AGFM on June 29, 1943, departing for Perth as the first scheduled flight, 1Q-1, on July 10. It was a difficult flight, with adverse winds coming close to forcing a diversion, and all but the pilots being afflicted with food poisoning and unable to function. Two crews, led by Tapp and Lew Ambrose with assistance from Bill Crowther, carried the service until late August 1943, when additional crews arrived.

Bill Crowther suggested that each Catalina be named after one of the stars by which they were navigated — Altair, Vega, Rigel, Antares and Spica — but despite this, and each carrying a fleet number on the tail, crews referred to them by their British registrations. The small servicing dinghy was christened *Twinkle Star*.

Fysh, who was in the UK when the service was announced, returned to Australia on the eighth eastbound Indian Ocean service aboard G-AGFL/FP221, *Vega Star*, on what was to be the longest flight of the service, owing to a 12kt-average headwind, recorded in Crowther's logbook as



***Flying
in
Wartime***



ABOVE Built at Vancouver by Boeing Aircraft of Canada as part of the Mutual Aid Scheme, Catalina IVB JX287 went straight into BOAC service in March 1944 as G-AGKS, and that May became the last example to join the "Double Sunrise" fleet.

LEFT The cover of a pamphlet issued by QEA to keep the public apprised of the company's contribution to the war effort. Part of the back cover reads: "Since the outbreak of hostilities the company's staff has increased by over 400 per cent; flying personnel number over 100, including 70 pilots . . .".

RIGHT Captain W.H. "Bill" Crowther flew the final Short Empire flying-boat service out of Singapore on February 4, 1942, and was appointed head of the Qantas Western Operations Division in 1943.



BELOW Bearing its fleet number, "3", below the tailplane, Catalina IVA G-AGID Rigel Star is prepared for its next Indian Ocean crossing at Nedlands, Perth. Originally given the RAF serial JX575, this San Diego-built example was transferred straight to BOAC in March 1943, after which it was converted and delivered to Qantas that September.

ALL PHOTOGRAPHS VIA AUTHOR





MAP BY MAGGIE NELSON

a wearying 32hr 9min. The most notable entries in Fysh's diary for the flight concern the length of the flight, how tiring it was for all aboard and the fact that, with the fuel overload and lack of dump-valves, it was some 11hr before the aircraft had lost enough weight to be capable of single-engined operation.⁷

In total, five Catalinas were delivered to Qantas; two IBs in July 1943, two IVAs in September that year and the fifth, IVB G-AGKS, in May 1944. The first two had been used by BOAC for six months on the Poole—Lagos, Nigeria, service and the other three were converted for BOAC and delivered to Perth. As aircraft availability permitted, Qantas further modified the aircraft at Rose Bay in Sydney Harbour, moving the eight auxiliary fuel tanks forward to improve the centre of gravity, and dump-valves were also fitted. A normal fuel load was 1,466 Imp gal and an overload of 1,988gal could be carried. At take-off the fuel alone weighed some seven tons (7,110kg).

The distance from Nedlands to Koggala Lake is 3,513 miles (5,655km), but diversions around poor weather often made it longer. The longest flight has been mentioned, but the shortest was still an exhausting 22hr 46min. The Catalina had a designed all-up weight of 27,000lb (12,245kg), and Qantas often flew its examples at 35,400lb (16,055kg), of which only around 50lb (22kg) was mail, 75lb (34kg) of food and refreshments, plus three to four passengers. Owing to the route being within reach of Japanese aircraft at certain points, the radio was switched on only to receive short weather reports and forecasts from Perth at scheduled times.

The second Qantas Indian Ocean flight, from

Perth to Ceylon, also by G-AGFM *Altair Star*, was flown as 2Q-1 on July 22, 1943. Thereafter, one flight in each direction was flown per week. After two very-long-duration flights in the first few months of operation, including Fysh's 32hr flight, evaluations were made to determine the best combination of true airspeed (TAS), manifold pressure and propeller r.p.m. to achieve optimum endurance. As fuel burned off and weight decreased, the throttle was retarded to maintain a TAS of 115kt. The actual length of the flight depended on wind direction and speed and if weather diversions were required.

Climb-cruise techniques were employed to take into account local wind conditions and weight, and an endurance of at least 36hr and a range of 4,650 miles (7,485km) could be achieved with careful flying and seven tons of fuel. The total overload of four tons (4,064kg) required a different method of take-off from that of the standard military procedure, with back-stick not employed until effective elevator control was achieved.

SERVICES INCREASE

The delivery of the third and fourth Catalinas, IVAs G-AGID/*JX575 Rigel Star* and G-AGIE/*JX577 Antares Star*, permitted the service's frequency to be increased to three each fortnight in each direction by October 15, 1943. It released G-AGFM to fly non-stop from Perth to Sydney in 15½hr on the night of September 24/25, 1943, to begin the modifications to improve the aircraft for the service, including the addition of the fuel-dump valves. The latter were employed in service only six times, once causing the crew some embarrassment. On November 15, 1944, a flight



ABOVE Catalina Altair Star is inspected before another 3,510-mile (5,650km) non-stop flight across the Indian Ocean, by some margin the longest non-stop regular passenger flight made up to that time. When the service was closed in July 1945, the Catalinas had completed a remarkable 271 crossings, carrying a total of 648 passengers.

engineer on his first crossing began the process of transferring fuel from G-AGIE's fuselage tanks to the wing tanks shortly after take-off, instead of waiting for the captain to call for this to be done. This meant that, over some hours, 200gal spilled from the tank overflow vents, causing the aircraft to return to Perth, where it had to dump four tons of fuel to reach the maximum landing weight.

As well as careful fuel management, precise navigation was of the utmost importance. A flight of more than 30hr over featureless ocean, much of it in darkness following a "Great Circle" route, required a high degree of skill from the crews, and, while the captains were heavily involved, specialist navigators were trained for the service. Fixes were obtained by dead-reckoning and star-and sunshots with bubble sextants.

Initially, the Cocos Islands were given a wide berth owing to the possibility of encountering Japanese fighters, but by late 1944 the islands became the only positive navigational fix available, by which time QEA navigators were able routinely to find the tiny atoll by "flying down the sun line" — something even master navigator Bill Taylor had found difficult just six years earlier.

Neither of the bases at each end of the route were particularly suited to the operation. Koggala Lake, while a large RAF flying-boat base, was set up for Short Sunderlands. The main Catalina base at Trincomalee and the lake itself

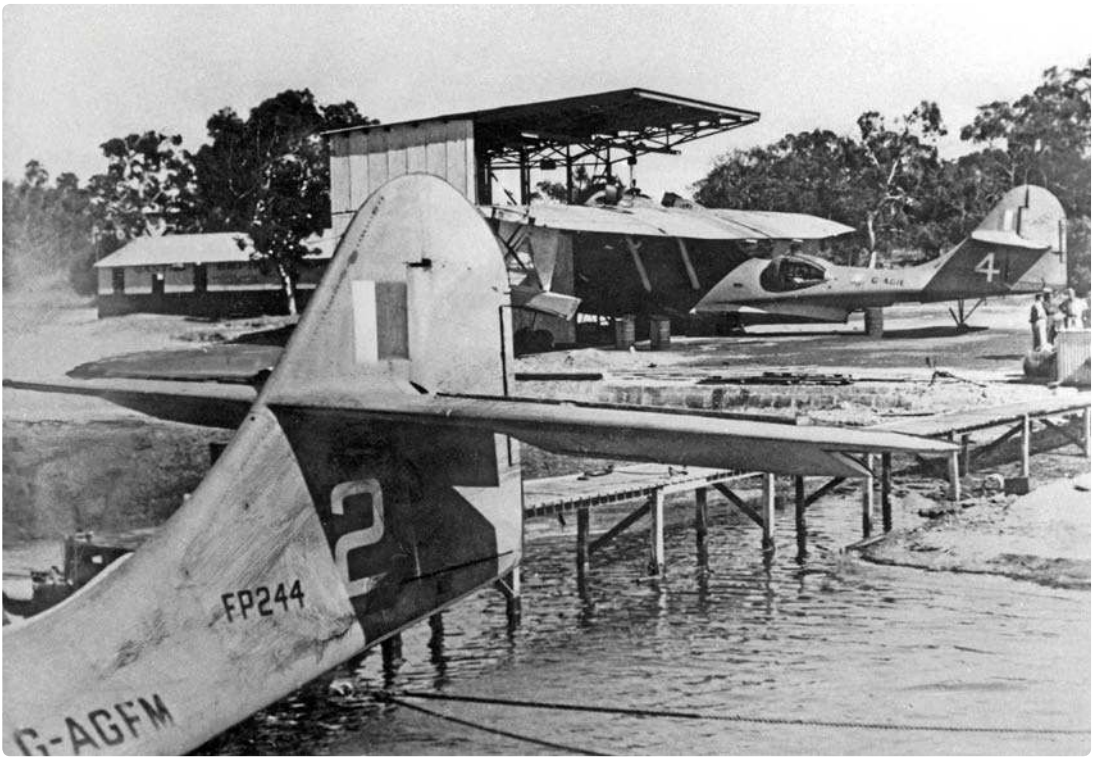
QANTAS EMPIRE AIRWAYS' CONSOLIDATED CATALINA IB/IVA/IVBs

Variant	Reg'n	RAF serial	Name
Catalina IB	G-AGFM	FP244	<i>Altair Star</i>
Catalina IB	G-AGFL	FP221	<i>Vega Star</i>
Catalina IVA	G-AGID	JX575	<i>Rigel Star</i>
Catalina IVA	G-AGIE	JX577	<i>Antares Star</i>
Catalina IVB	G-AGKS	JX287	<i>Spica Star</i>

provided such a marginal distance for take-off that the Qantas Catalinas had to backtrack up a shallow creek to maximise the run. The Perth end had been established hurriedly on the Swan River at Nedlands, and working conditions were primitive to say the least, without a slipway to beach aircraft or even a covered workshop until mid-October 1943. Initially, the Catalinas had to be towed 2½ miles (4km) to the US Navy's Patrol Wing 10 base at Crawley Bay for refuelling, and some specialist equipment such as a spark-plug-removal spanner had to be borrowed there.

ROUTE EXTENSION

In November 1943 Qantas extended the Indian Ocean route to Karachi to connect with the BOAC Sunderland service to the UK via Cairo, as despatches and passengers continuing their




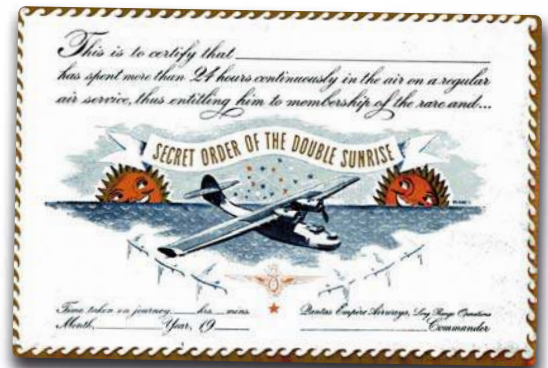
ABOVE Two QEA Catalinas — G-AGFM and G-AGIE — at the rather primitive facilities at Nedlands. All five were scuttled off the Australian coast in late 1945, Hudson Fysh calling it “a dismal fate for these splendid ‘boats which for two long years saw us through our most hazardous operation ever, without accident or mishap of any kind”.

journey beyond Koggala often faced delays and disruptions to the RAF and BOAC courier services from Ceylon to India.

The Catalina route extension was flown at night over water for safety and took 12½hr to reach the RAF station at Korangi Creek, near Karachi. The first eastbound service from Karachi to Perth covered a 1½-day duty period and 41½hr flying time, with one stop at Koggala.

The importance of the route can be gauged by the amount of effort and cost expended to carry a maximum of three passengers and a mere 150lb (68kg) of diplomatic and armed services mail per service. Fewer than 700 passengers earned membership of the “Secret Order of the Double Sunrise”. If any of the passengers had wanted a second look at their certificate (ABOVE RIGHT) it would have been difficult; the service was flown mostly in the dark in a blacked-out aircraft!

Although there was sound reasoning behind operating flying-boats over such a long over-water distance, the realities of alighting on the open ocean in an overweight Catalina were not that much different from ditching a landplane — and QEA had wanted to run the service with Liberators from the beginning. 



1 Qantas Empire Airways, established specifically for the operation of the Empire Service, was jointly owned by Qantas and Imperial Airways

2 Imperial Airways became part of the British Overseas Airways Corporation (BOAC) on April 1, 1940

3 19 Catalinas were ferried by Qantas, one (AH534) being delivered to the RAF at Singapore
4 Known to the USAAF as LB-30s, these retained their RAF serials and never carried USAAF serials
5 Taylor, Sir Gordon, *The Sky Beyond* (Sydney, 1963), p112

6 In total, five Dutch Catalinas made the trip, but only the final two were non-stop

7 Fysh, Sir Wilmot Hudson, *Qantas at War* (Sydney, 1968), p155

NEXT TIME The author concludes the story of QEA's Indian Ocean wartime service with the airline's addition of Liberators and Lancastrian landplanes in 1944