



OVER THE HOSTILE OCEANS

The flying boats of newly-formed BOAC carried on plying a vital trade during wartime

WORDS: ROY ALLEN

As World War Two entered its first, exacting year for Britain, a new international airline was born — the British Overseas Airways Corporation, or BOAC. First mooted by the Government in 1938 as a replacement for state-owned Imperial Airways and the private company British Airways, vesting day for the Corporation was only reached on 1 April 1940. A less promising date can hardly be imagined. Looking forward to a time of expanding

civil airline operations, members of the new company were now thrown into war activities — whatever their role happened to be.

Discussions with the Air Ministry revealed the absence of any clear-cut plan. The RAF, it seemed, was to have first call on the airline's resources, and it would be some months before BOAC came into its own.

It had earlier been decided to move the airline's aircraft to wartime locations. Thus Whitchurch, near

Bristol, and Exeter became the bases for landplanes instead of Croydon and Heston, and Pembroke Dock, Falmouth or Poole for the flying boats rather than Southampton. BOAC's wartime headquarters was in Bristol.

When a tally was made of its aircraft fleet at the start of the war BOAC had some 12 former Imperial Airways landplanes and 20 Empire flying boats, a growing fleet that had been steadily extending Britain's overseas air routes in the peaceful days. The latter were



This April marks the 75th anniversary of the start of operations by one of the most famous airline names in commercial aviation history: BOAC, the British Overseas Airways Corporation. In a 23-page special, *Aeroplane* this month presents an extensive tribute to the former UK flag carrier

of two models, the Short S23, seating up to 28 passengers, and the later, improved S30, several of which were handed over to the RAF on delivery. The pre-war 'Queens of the skies', these boats were to play a major role for BOAC in the next five years.

While it was agreed that a necessary priority for BOAC was the provision of transport services for the RAF, the Government and the planners were unclear as to what to do with the airline, and in May 1940 the Ministry of Aircraft Production put into BOAC's hands the repair of RAF aircraft and the overhaul of their engines and propellers. So great was the burden that half the time and effort of the Corporation was shortly engaged in such work. This was done so well that, by March 1945, some 22,400 propellers and 8,250 engines had been repaired for the RAF at BOAC's new engineering facility at Treforest, south Wales. The airline was also given the task of assembling American aircraft for the RAF that arrived by sea at Liverpool.

But this would not do. It was with the creation of firstly the Atlantic Ferry Organisation, and then the operation of the Air Transport Auxiliary, that BOAC began to come into its own as an operational arm.

Imperial having begun scheduled passenger services across the Atlantic

in August 1939, BOAC was directed to re-open this service. Two Empire class flying boats, *Clare* and *Chyde*, were modified with long-distance fuel tanks for an inaugural flight to Montréal and New York. This was made on 3 August 1940, with *Clare* taking off from Poole, refuelling at Foynes in Ireland and reaching Botwood in Newfoundland 15-and-a-half hours later, proceeding the same day to Montréal and then on to New York. The payload on these flights was modest (a few passengers, mail and newspapers), but they were far quicker than the sea service.



While this fleet appeared substantial, some were worried about a shortage of transport aircraft to meet wartime needs. The strong possibility of losses was brought home to the planners as early as February 1940 when two of the boats were lost at Narvik upon Germany's invasion of Norway. BOAC's director-general, Leslie Runciman, pressed the Air Ministry for several American aircraft as the urgent answer to the problem.

The upshot was that Harold Balfour, the Under-Secretary of State for Air, flew across to the USA in the summer of 1940 to negotiate with the Americans. Runciman had asked for

five flying boats and nine Lockheed 18s or six DC-3s; in the event, Balfour succeeded in acquiring three Boeing 314A flying boats from Pan American Airways at a cost of £259,250 each, or \$1 million at the prevailing exchange rate. President Roosevelt was agreeable to the deal, as was Juan Trippe, Pan American's chairman. The first of the Boeings, with room for 74 passengers and a range of 3,500 miles, was delivered to BOAC on 22 May 1941.

The British airline had the machine (G-AGBZ) re-fitted for its needs and sent it, just four days after delivery, on its first flight to West Africa. By July 1941 all three were in service, painted in wartime camouflage and given the names *Bristol* (G-AGBZ), *Berwick* (G-AGCA) and *Bangor* (G-AGCB).

Historically, Imperial Airways had been charged with serving Empire destinations, and in the pre-war days this had been increasingly possible with the development of the flying boat. As BOAC got into its stride in 1940 many ports could still be reached, and the airline had the right aircraft with which to reach them.

As the war's intensity increased, however, if the long service to Australia was to be maintained a new route had to be found. Originally, it had been operated from England across Europe to Cairo and then on to India,

BELOW: BOAC Boeing 314A G-AGCA Berwick touching down on the water at Lagos, Nigeria.

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ABOVE: Pictured here undergoing maintenance at Hythe, PBV-5A Catalina G-AGFM Altair Star had been FP244 with the RAF. It later went to Qantas. AEROPLANE

Singapore, Darwin and Sydney, but with the fall of France a change was necessary. This meant going in a great, circuitous arc from England to Lisbon, thence to Lagos in Nigeria, the Belgian Congo, across to Kisumu on Lake Victoria and down to Durban.

This became famous as the 'horseshoe route', and was carried on for years — albeit with some nasty interruptions. The hazards are outlined vividly in a BOAC document, which said that the Empire boats operating the East Indies section "found themselves travelling through

"During their flights into Singapore and along the coasts of the Dutch East Indies in the early days of January 1942, the captains developed a technique of their own for dodging air raids. Their radio officers would tune in to the radio stations of the ports which they were approaching; if they received news of an alert at the port, they would put down on lonely stretches of coastal water and wait for the all-clear before proceeding. The plan, however, was not reliable and the flights into Singapore grew particularly uncomfortable. Often our aircraft arrived to find Japanese aircraft

While the Ministry planners could provide for many upsets, the Japanese invasion of Malaya and Singapore in early 1942 was too swift to be readily dealt with, and as Australia itself became threatened the 'horseshoe route' was severed. The flying boats from Durban ended their service at Calcutta, and for the time being this appeared to be the end of the link. Several of the Empire class boats had been transferred to Qantas and the RAAF just prior to the war — a dozen were now destroyed by the Japanese.

Maintenance of the link to Australia became an issue, and much thought was given to somehow re-opening the 'horseshoe route'. One answer came with the acquisition of a number of Consolidated Catalinas from the American maker, as these aircraft had tremendous range and could stay aloft for many hours. While their payload was moderate, there was room for three passengers as well as equipment, and a new route was introduced — across the Indian Ocean from Ceylon to Perth, Western Australia. At first this operation was a military one, but it was later handed over to BOAC. In all, seven Catalinas were operated, with one crashing at Poole in March 1943.

Thanks to the big Boeings, the North Atlantic service was well

'If the service to Australia was to be maintained, a new route had to be found'

some of the most vulnerable skies which merchant airmen have faced anywhere in the world war. It became increasingly important to keep the Horseshoe open as long as possible to fly reinforcements and supplies into the battle zones and to bring out women and children. The un-armed flying boats were frequently intercepted by Japanese fighter aircraft; even on the waters of their anchorages they were continually bombed and machine-gunned.

over the port, with bursting bombs and spreading fires beneath them."

The risks were highlighted on 30 January 1942, when Qantas-operated S23 *Corio* was attacked by Japanese Zero fighters near Kupang in the Dutch East Indies. On board was "an urgent passenger load for the war theatre". The BOAC report went on: "Most of the passengers were killed in the air and after a strenuous rodeo of evasive aerobatics, *Corio* was driven into the sea and sank five miles off-shore."

BELOW: Short S30 Empire boat G-AFCT Champion in camouflage. This aircraft survived the war. AEROPLANE





during the Norwegian campaign. Following them into service were the aforementioned *Clare* and *Clyde*, fitted with their extra tanks. *Clyde* was wrecked in a gale in Lisbon in February 1941, while *Clare* later crashed off Bathurst, Gambia.

At the time of its creation, the first chairman of BOAC was Sir John Reith, previously chairman of Imperial Airways and of the BBC before that. He wanted neither of the airline appointments, and soon managed to secure a Government job as Minister of Information. His one claim to aeronautical fame, it seems, is that he created the name of BOAC. His successor was The Hon Clive Pearson, who had been head of the pre-war, privately-owned British Airways.



maintained, carrying people and equipment of all kinds. Baltimore was their base, and in the summer they flew to Botwood and then to Foynes from where their loads were brought to the UK by a shuttle service. When winter made Botwood unusable because of ice in the harbour the boats switched to a southerly routing, Baltimore-Bermuda-Azores-Lisbon-Foynes. Largely to accommodate the exigencies of war, this was rendered possible by the Boeings, which made a major contribution to the war effort.

The C-class Empire boats meanwhile carried on with their work in many theatres. Two aircraft, *Cabot* and *Caribou*, had started the experimental trans-Atlantic programme just prior to hostilities. They were then passed to RAF Coastal Command, after which they were sunk

By 1943 air movements were on an increasingly large scale and the flying boat was pre-eminent for long-range transport operations. When Field Marshal Lord Wavell made a trip to India it was by Short Sunderland, in which BOAC had fitted out the crew's quarters with six comfortable chairs convertible into two curtained bunks. The bomb compartment was similar but had three seats on each side, convertible into four bunks. Between what had been a storage area was a toilet and washroom. The adjoining section was fitted with another two bunks, a desk and chair. Aft of this was a suitably stocked pantry.

A number of Sunderlands were turned over to BOAC and given civil registrations. In December 1942 six Sunderland IIIs were taken from the production line at Rochester, stripped



of all military equipment and fitted with bench-and-mattress seating for use on BOAC's Poole-West Africa priority passenger and mail service. By the end of January 1943 all of these aircraft had received civil registrations and Certificates of Airworthiness. After minor modification by BOAC they went into regular service to and from Lagos in March 1943, also operating on the Poole-Karachi route.

While the half-dozen Catalinas fared fairly well during their stint with BOAC, losses were heavy with the S23 and S30 Empire boats. Some 12 were blown up, sunk or crashed in various locations during the war, and even three of the hardier Sunderlands were lost, but they all answered a vital need for long-range transports, able to go where big landplanes could not.

ABOVE: A famous shot of Winston Churchill at the controls of Boeing 314A *Berwick* in January 1942.

AP/PRESS ASSOCIATION IMAGES

CHURCHILL'S FAVOURITE AIRLINE

On 8 December 1941, Prime Minister Winston Churchill prepared to travel to the United States to visit President Roosevelt. He had made the decision after listening to the radio with colleagues the previous evening, when reports were just coming in about some attack on Pearl Harbor by the Japanese; a telephone call to the President confirmed the fact. The battleship *Duke of York* was available and Lord Beaverbrook, the Minister of Aircraft Production, Admiral Pound, the First Sea Lord, Air Marshal Portal, Chief of the Air Staff, and Field Marshal Dill were the principals of the party. They were joined by Churchill's doctor, Lord Moran.

It was hoped to make the crossing in seven days, but there was a heavy gale and a rough sea, and the ship with its attendant fleet of destroyers took eight days to reach port in Virginia. From there the party flew to Washington National Airport, where the President was waiting. Long talks ensued, and immediately after Christmas Churchill addressed the US Congress. He then travelled to Ottawa and spoke to the Canadian Parliament on 30 December. After more, long talks Churchill took leave of the President and travelled to Norfolk, Virginia, for a flight to Bermuda on 15 January, for a conference with Admiral Sir Dudley Pound. This trip he carried out aboard a BOAC Boeing 314A, G-AGCA *Berwick*.

In Bermuda the *Duke of York* and its attendant destroyers were waiting, but Churchill had been much taken by the Boeing 314 on its three-hour flight from Norfolk and was equally impressed by its BOAC captain, John Kelly-Rogers. "Of course we can do it", Kelly-Rogers replied to Churchill's enquiry as to whether it would be possible to fly from Bermuda to England. "The present weather forecast would give us a 40mph tailwind, and we could do it in 20 hours!"

The Prime Minister put the idea to his party, and it was arranged that six would fly home and that the rest would travel by the *Duke of York*. Major events were occurring in Malaya and elsewhere, and it would be valuable to shorten the trip time. "The flight cannot be regarded as a war necessity but it is a war convenience", said Churchill. It was arranged that departure time should be 14.00hrs the following day, 16 January 1942.

The rest is history, as they say, and the Prime Minister had unknowingly given BOAC a large testimonial, underscoring the value and pleasures of air travel. The flight home to Plymouth took 17 hours 55 minutes against the ship's time of eight days, and when he was next required in Washington – in June 1942 – Churchill unhesitatingly elected to fly, again with Capt Kelly-Rogers in command of the Boeing 314A *Bristol*.

BY NIGHT TO SWEDEN

Much has been written about BOAC's Mosquito operations on the famed 'ball bearing run' between Scotland and Stockholm — more, surely, than any other aspect of the airline's wartime activities. Seventy years on, aided by archive material, it remains a story worth re-assessing

WORDS: BEN DUNNELL



Serving at home and abroad, 83 personnel of the British Overseas Airways Corporation lost their lives during the Second World War. For an airline, it was a high price to pay. Never has a British national carrier flown so deep into harm's way as did BOAC from 1940-45, whether providing much-needed transport capacity to the RAF, administering and supporting the Air Transport Auxiliary, operating the North Atlantic Ferry Service, keeping up long-distance scheduled services, and more. From BOAC's earliest wartime days, when its Armstrong Whitworth Ensign crews made such heroic efforts to aid British forces in France, the pattern was set. Somehow it would find a way.

So it was with the route to Sweden. The odds seemed stacked against continuing to get through, yet, in Britain's strategic interests, the link had to be maintained. Given Swedish neutrality, BOAC had to be the government's chosen instrument.

Seventy-five years on from BOAC beginning operations, this rightly remains among the carrier's most famous episodes. Material in the British Airways archives tells its own story of what came to be known as the 'ball bearing run', but which was, of course, far more than that. More often has this story been told than many of the Corporation's others, but the original documents — reports, letters, cipher messages and more — offer perspectives that become

no less powerful with the passage of time. They also allow us a degree of re-assessment. Was the risk worthwhile, and was using the de Havilland Mosquito, for which the 'ball bearing run' was so famed, truly the best option?

To understand why a service to Sweden was such a wartime priority, we must turn to the Air Ministry's official account of British civil aviation from 1939-44, 'Merchant Airmen'.

"That country, soon to be the only remaining neutral in northern Europe, was completely surrounded by Axis troops. The only method of communication she still retained with Britain — with the whole outside world, for that matter — was the cable. Unless Britain's influence in Sweden

BELOW:
'Stockholm Express'
— a specially-commissioned illustration by Adam Tooby of BOAC Mosquito IV G-AGFV plying the route between Leuchars and Bromma. This artwork is available from www.adamtooby.com





ABOVE: A passenger inside the bomb bay compartment. Donning the oxygen mask was vital; Danish nuclear physicist Niels Bohr, forced to flee his Nazi-occupied homeland, failed to do so when he was spirited away from Stockholm in Mosquito G-AGGC on 6 October 1943, and duly passed out. On receiving no response from Bohr over the intercom, the captain realised something was amiss and descended to a lower altitude, whereupon Bohr – subsequently involved with the Project ‘Manhattan’ work on the atom bomb – regained consciousness.

BA SPEEDBIRD CENTRE



were to be wholly surrendered to the enemy, it was vital to have some means of personal communication with that country; it could only be by air. Only by air could she get into Sweden newspapers and magazines to do something to correct the Nazi

propaganda with which the country was being drenched. Only by air could she send diplomats and other Government officials, to assert in Sweden the fact that Britain still fought the war, and intended to win it. Moreover, there was a very practical reason for desiring some sort of transport link. Every mechanical instrument of war must contain, in some part of its body, ball bearings; they are as vital to mechanised war as

guns or ammunition. Some of the finest ball bearings of the world are produced by Sweden, and not only did Britain need to acquire them, she needed by doing so to prevent the enemy's having them. Early in 1941, therefore, British Overseas Airways was asked to re-commence a regular service between Scotland and Stockholm.

“Consider for a moment the magnitude of that request. Even though the aircraft flew at night, they had to fly, quite unarmed, directly over the waters of the Skagerrak, flanked on either side by some of Germany's most powerful anti-aircraft defences, within easy range of the enemy's radio detecting devices and fighter squadrons. There were no air crews on this route who were not soon accustomed to searchlights and flak; and at those northern latitudes, even at night, they flew, sometimes in moonlight, or through skies lit by the crescendo and decrescendo of the Northern Lights. In summer there was scarcely any darkness at all.”



That, then, was the challenge. What of the aircraft tasked with meeting it? Initially it was Lockheed-built machines that held sway, the first a number of Lockheed 14 Super Electras. Some had been flown by between-the-wars British Airways, while others were operated by Polish flag carrier LOT



MAIN PICTURE:
An unidentified Mosquito on finals to Leuchars.

AEROPLANE



until the German invasion, when they were flown to Britain and taken on by BOAC. The regular scheduled service to Stockholm's Bromma airport was terminated in April 1940, but the need to maintain a link led that autumn and winter to the Super Electra completing several trips from Aberdeen and Perth, taking diplomatic mail back and forth — the first to be operated under the codename 'Scrutator'.

Arrangements were formalised in early 1941. BOAC established a new base at RAF Leuchars, Fife, and the Swedish government permitted it to make daily courier flights to Bromma. Further aircraft became available to supplement the two Super Electras. On loan from the RAF came an initial trio of Hudson IIIs, converted for civilian use at BOAC's Bramcote base, while, as that year's annual report states, "the Norwegian Government [then exiled in London] obtained two Lodestars, which were handed over to the Corporation to operate with Norwegian crews."

Both ways on the route could be flown diplomatically and intelligence personnel, members of the Special Operations Executive (SOE) active in occupied Norway, and other high-priority passengers. To Sweden was facilitated the delivery of British media, in the name of propaganda. Back would come escapees from the Germans who had made their way to

Sweden, Allied airmen forced down there, and industrial equipment like ball bearings. It was an operation unprecedented in air transport history.

Said the annual report covering the year to 31 March 1942, "80 services were operated to Scandinavia, a very considerable increase in frequency over a route of great climatic difficulty, further complicated by the presence of enemy aircraft". An increase it might have been, but BOAC's efforts were not without their problems, nor immune from criticism.

The man then in charge of SOE operations in northern and north-western Europe, Harry Sporborg, sent on 19 February 1942 a concerned letter to Capt Herbertson at the Air Ministry. "I have received a personal and confidential letter from our Commercial Secretary in Stockholm", Sporborg wrote, "which contains the following words: 'I am sorry to say that we are still getting away very little priority material (steel goods, etc) as only one of the aeroplanes is fitted with the special compass permitting magnetic freight to be carried. Can you not do anything about this?'" The SOE was, of course, deeply involved in Britain's attempts to secure industrial supplies from Sweden. Sporborg said he was "constantly bombarded by the Ministry of Supply on the subject, and they continually stress the vital importance of the material to the tank production programme amongst other things". He went on to report "trouble with the Hudsons [...] due to the fact that their lubricating oil is not heated", the lengthy absence of Lodestar G-AGDE on overhaul, and how he was "very disturbed indeed at the shortage of crews."

Measures were put in hand to try and cut down the number of cancelled flights. One report, for which BOAC crews operating the Stockholm service were interviewed, said: "[The captains] fear enemy fighter interception against which their only defence is concealment either in cloud, or, when there is any, in darkness... [They] expressed their willingness to fly without cloud cover during the period of the 'midnight sun' if the aircraft

'The aircraft had to fly, quite unarmed, over the waters of the Skagerrak'

were armed". Clearly, given Swedish neutrality, that was not an option.

Allocating to the route in August 1942 a quartet of transport-configured Whitley Vs did not help matters. It was, said another report focusing on aircrew morale, "inevitably considered by the British crews to be a retrograde step and as such made it difficult for them to put up a 'good show'." Indeed, they were withdrawn as unsuitable after just 26 flights, the Hudsons thereafter continuing until July 1943.



Nor were the Lodestars — now four of them — ideal. The type's service ceiling was thought inadequate, though the aircraft in fact performed well on the service during the winter months.

From these reports and other correspondence can be seen that BOAC's thoughts were now turning towards alternative equipment. "The Hudson III has all that we require operationally and the Ventura considerably more", wrote one official. Of the Stockholm run, he said: "It cannot be denied that the Leuchars-Stockholm flights are akin to operational flying and are in fact considerably more arduous than many forms of operational flying because our crews are expected to keep the pressure up, whereas in many service squadrons, their 'shows' are spaced."

He went on, "The co-operation we receive from the RAF is excellent.

ABOVE: Curtiss-Wright CW-20A St Louis parked at Bromma. This aircraft was used on the Stockholm route five times between April and December 1942.

VIA ARCHIVES OF THE SWEDISH AVIATION HISTORICAL SOCIETY

TOP: G-AGDD Loch Losna was one of the first two Lockheed 18 Lodestars acquired by the Norwegian government-in-exile for wartime operation by BOAC.

VIA ARCHIVES OF THE SWEDISH AVIATION HISTORICAL SOCIETY

TOP MIDDLE: Capt Bill Wilkins (centre) with his navigator/radio officer (left) and their passenger upon completion of a Mosquito flight to Leuchars.

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If we were an operational squadron, we could not be given more help. I believe that to some extent this is due to the high opinion the RAF formed of our service when we were operating Hudson IIIs. The flights by Captains Prowse, Wilkins and Orrell aroused the admiration of the RAF. They were made with far less [sic] route facilities than we now possess."

Those words were written in September 1942, not long after an event that, with hindsight, assumes



ABOVE: A rare shot of three BOAC Mosquitoes together in Sweden. In the centre is MkVI G-AGGC, the aircraft that carried Niels Bohr in early October 1943, and later that month was lost along with its two Norwegian crew members and their American passenger.

VIA ARCHIVES OF THE SWEDISH AVIATION HISTORICAL SOCIETY

considerable significance. “I am positive that if the RAF were to operate this service, they would not use the Whitley”, the author noted. “The fact that they sent a Mosquito over during the summer is a fair indication of their appraisal of the task and the need for prestige.”

This was Mosquito IV DK301 of No 105 Squadron, flown over on 4 August by Flt Lt Parry and Fg Off Robson. On board the unmarked machine was a range of diplomatic correspondence. It proved that a fast, high-flying aircraft could get through during the summer months, when slower types were extremely vulnerable. Even so, a BOAC memo that October made no mention of the Mosquito when discussing future requirements. Reports of increased German air activity over the Skagerrak, it said, “give further support to our claim that an intermediate type such as the Ventura or Beaufighter, preferably the former, is necessary to secure the best regularity and safety of operations.”

BOAC’s sole Curtiss-Wright CW-20A, G-AGDI *St Louis*, did a short Stockholm stint from April to December 1942. This first prototype

first ‘ball bearing run’ flight with the type. More Dakotas soon followed.

Back home, though, again there were concerns about maintaining the service over summer. Sir Victor Mallet, the British Minister in Stockholm, sent a telegram 10 days after the inaugural Dakota flight in which he described the need for at least 100 tonnes of ball bearings as “desperate”. He recommended that “risks should be taken as in any other wartime operation”, and that freight aircraft without passengers “should fly regardless of bright nights throughout the next few months. If the Germans take to shooting them down the position can be reconsidered and at the worst we shall have lost one or two Dakotas and crews.”

Mallet’s advice was not heeded. The Dakotas ceased operations for the summer solstice period in May 1943, but by then an alternative, at least for the ball bearing flights, was available.

Agreement with the Air Ministry having been reached, BOAC received its first Mosquito on 15 December 1942. The aircraft, Mosquito IV G-AGFV, had previously been delivered to No 540 Squadron, RAF as

territorial waters” by a Luftwaffe Focke-Wulf Fw 190. It stated that the emergency hatch “came out during evasive action”, causing the pilot, Capt Gilbert ‘Gibby’ Rae, temporary blindness due to flying dust. “With undercarriage and flaps unserviceable”, the document went on, Rae decided to crash-land at the Swedish Air Force base at Barkarby, north-west of Stockholm. This was “entirely successful”, undertaken with “No injury to crew nor apparently to load”.

In a subsequent memo, the BOAC station manager in the Swedish capital, Douglas Grey, commended Rae and his radio operator Jimmy Payne. “There can be no doubt about the excellent landing made by Capt Rae; he landed in exactly the right part of the aerodrome, slightly uphill, and he did as little damage as could be done in the circumstances. I was most impressed with the quiet and cool demeanour of these two officers, immediately after their landing; after being shot up and making a crash landing, I consider their control of the situation was absolutely first class, and does great credit both to themselves and the Corporation.”

Less credit went in the aftermath to the Swedish Air Force. A BOAC official from Whitchurch wrote, “Following the accident the Swedish Air Force undertook to guard the aircraft, but [...] they have behaved in a disgraceful manner, and have permitted Swedish civilians to inspect the machine”. Remember, the whole operation was, at the time, secret. G-AGFV was repaired and returned to service, but Mosquito flights would only now take place when conditions were other than clear. The damage done to relations with the Swedes was also soon fixed.

Passenger-carrying using Mosquitoes was not initially on the agenda. “Their bomb bays”, the book ‘Merchant

‘Rae turned towards the Fw 190s, experiencing a high-speed stall as he dived’

of what became the C-46 Commando made just five trips, but even if its speed still left it at potential risk, its capacity was appreciated. Much the same was true of a longer-term solution. Swedish airline AB Aerotransport (ABA) had been operating Douglas DC-3s on similar courier flights between Aberdeen and Stockholm for some time. Now BOAC began to do likewise. On 12 March 1943, ex-RAF Dakota I G-AGFX, the former FD769, completed the carrier’s

a PRIV photo-reconnaissance version with serial DZ411. Its debut mission took place on 4 February 1943, and in April and May six Mosquito VIs joined it.

Not three months into the Mosquito operation — which, it was thought, could be undertaken by day as well as night — came proof of the risks. On 23 April was sent from BOAC’s Stockholm office an urgent signal reporting that G-AGFV had been attacked “just outside Swedish

Airmen' recorded, "were fitted with baskets and hooks, so that they could be filled to cubic capacity with the ball bearings". But desperate times call for desperate measures, and when it was necessary to convey urgently to Sweden a pair of "officials concerned with the ball bearing industry [...] to counter an enemy move designed to deprive us of that source of ball bearings and to secure it for themselves", there was only one thing for it.

"The bomb bays of two Mosquitoes were padded with felt and equipped with safety-belts", said the Air Ministry publication. "One passenger, muffled in flying clothing, was pushed into each and strapped down; when the bomb doors were shut on him, he could stretch out his legs. An electric light had been hastily rigged inside the bomb bays, and an intercommunication telephone point inserted, so that the passengers could read books and talk to their pilots on the journey. Each" — the passengers being Bill Waring from the British Iron and Steel Corporation, and Ville Siberg from the UK arm of Swedish ball bearing manufacturer SKF — "was given some sandwiches and a flask of coffee, and told to hope for the best."

It worked. In those early days, that was not true of the Mosquitoes. At one stage Douglas Grey described their operations as "miserable", and having "a very depressing effect on the Minister [Mallet]". The Leuchars station report for 3 July read: "With continued aircraft trouble, results with the six Mosquitoes are still disappointing". Since conditions were unsuitable for the sole Leuchars-based Hudson, quite a backlog of passengers ensued.



His line superintendent at Leuchars, R. E. Leete, was moved to describe Gilbert Rae as "an exceedingly tough young pilot". Not three months on from the G-AGFV incident, and following soon after an engine failure on another aircraft that could have resulted in a ditching, Rae was flying Mosquito VI G-AGGC when he found himself in another hairy situation.

On 18 July, the initial report states, "he had an important passenger on

board (not a VIP but a man whom the German Government had requested the Swedes to hand over to them)".

The individual in question was a Danish officer, Lars Lassen-Landorph, who served in the SOE. Following behind was "a second Mosquito with a similar type of passenger". Going westbound some 50 miles off the Swedish coast, Rae's radio officer Payne spotted the vapour trails of two enemy aircraft, again Fw 190s.

"Apparently", says another BOAC report, "they saw Rae at the same time and were diving at him and Rae turned towards them very rapidly, experiencing a high-speed stall as he dived to sea level. The stall was very violent and all instruments became completely unserviceable for approximately twenty minutes. During the dive Rae decided to take up again his westerly course for Leuchars in view of the importance attached by the Air Ministry to his passenger 'load' reaching Scotland as quickly as possible. This, I think, was very courageous of him, particularly as the Swedish coast was so close..."

"Rae was uncertain of his speed in view of the instrument difficulty, but he estimates approximately 330 to 340mph. He maintained his lead on one fighter only which followed him to sea level during the twenty-minute chase... The important passenger is thought to have 'blacked out' for some time subsequent to the evasive action, but regained his senses approximately one hour from base". He emerged, in the words of one memo, "somewhat

shaken but otherwise little the worse for his experience."

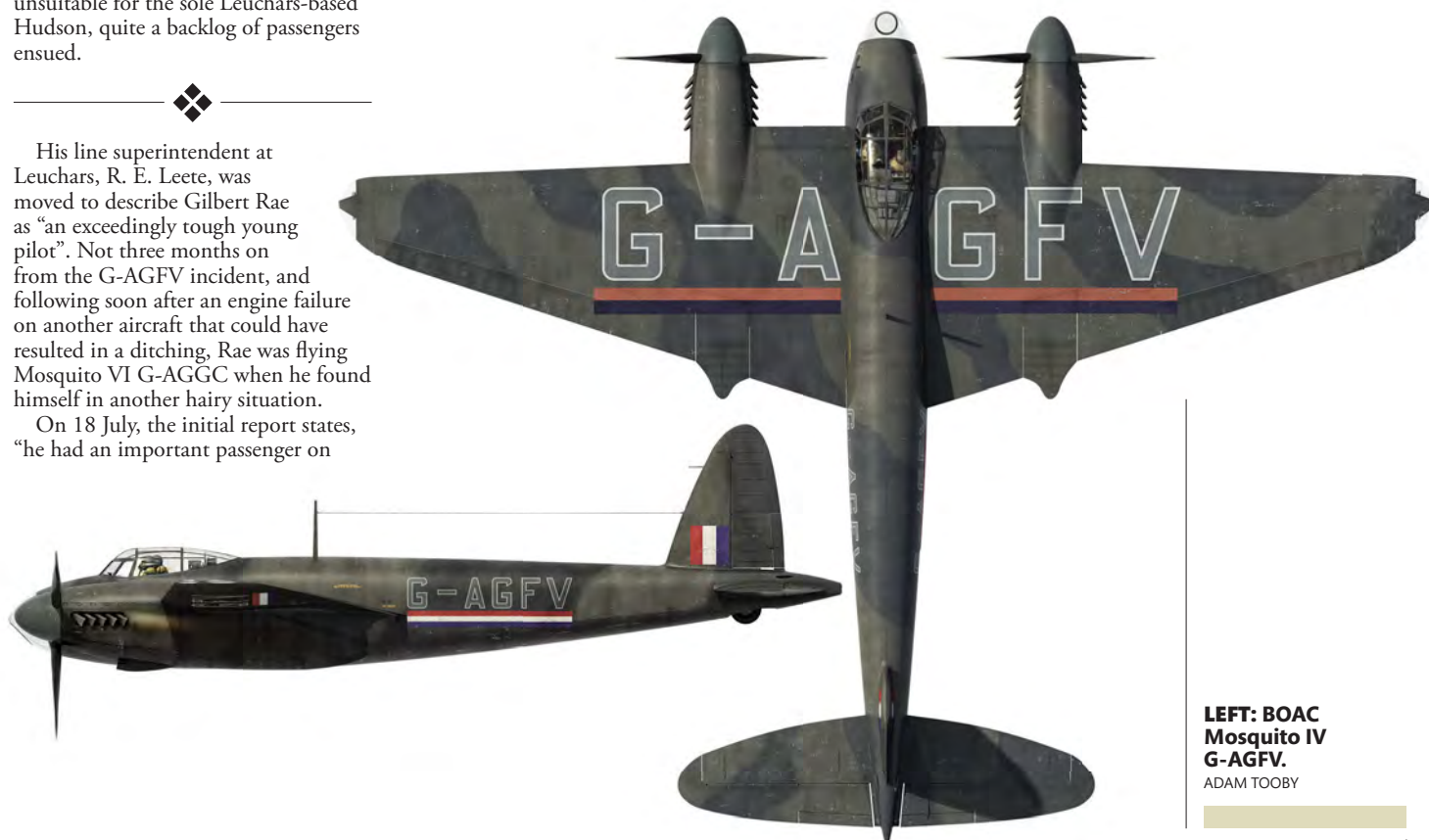
The same could not be said for Payne, badly bruised in the incident, who asked to be taken off the Stockholm route. He was awarded the MBE, Rae the OBE.

Wrote Leete: "I would commend that it is my considered opinion that the German aircraft were waiting for [Rae] off the corridor and that they had received intelligence through their Legation that the passengers were being carried on our service that evening, and that in view of serious German interest in these passengers not reaching the United Kingdom it is very providential that we did not experience the loss of both our aircraft [the second completed its flight without incident]. This can only be accounted for by the performance of the aircraft in question, as under present operating conditions, moon and clear visibility makes performance essential to safe operation.

"I am restricting our service to one westbound and one eastbound each night until cloud cover or the waning moon make conditions reasonable, in my estimation, for double this frequency."

Whatever decisions were taken, the risks did not diminish. Mosquito losses were frequent, even if not down to enemy action — for the crews, this was a high-pressure undertaking, and for their aircraft too a demanding one.

The first occurred on 17 August 1943, G-AGGF crashing near Glenshee in Perthshire. Capt Bill Wilkins and radio officer Harold



LEFT: BOAC Mosquito IV G-AGFV.
ADAM TOOBY

Beaumont had turned back towards Leuchars due to navigational difficulties. On 25 October, struggling on a single engine for most of the way from Bromma, G-AGGG also nearly made it to base. The Norwegian flight crew of Capt Martin Hamre and Sverre Haug, and their American passenger Paul Rogers, lost their lives when the aircraft crashed but a couple of miles

1942, flying almost all the types engaged in the Stockholm service, he had completed around 150 crossings. As long-time British Airways archivist Keith Hayward has written, "The most likely cause was sheer exhaustion."

The last BOAC Mosquito loss involved G-AGKR, posted as missing en route from Gothenburg to Leuchars on 29 August 1944. Capt John

you this note to say how appreciative everybody is at the Air Ministry at this very creditable performance". As an individual achievement, meanwhile, Capt White's January 1944 feat in completing three journeys during one night was unique. He spent nine hours in the air, all in darkness, and just 45 minutes on the ground between trips.

The last BOAC Mosquito operation to and from Bromma, by G-AGKO, took place on 16-17 May 1945. With the war in Europe over, Dakotas could ply the service alone. There was now no need to evade the attentions of enemy fighters.

In the cold light of day, it is hard to dispute the view of one BOAC official that the Mosquito operation was "very wasteful" when considering cargo capacity against the burden in terms of specially-trained crew provision. But, in truth, no ideal aircraft existed. Consider the challenges — the need to fly un-armed, at altitude, through contested airspace, and do it with an aircraft possessing both sufficient performance so as not to be a sitting duck for enemy defences and the load-carrying capacity to render it worthwhile. The Ventura, as desired by BOAC, was a better load-carrier than the Mosquito but only a little less vulnerable than the Hudson or Lodestar; the Beaufighter, also considered, offered few advantages.

And to call the Mosquito services "wasteful" is to ignore completely the contribution they made despite the difficulties. Nothing can detract from the achievement of BOAC's crews in keeping the 'ball bearing run' open, and that goes for those who flew the Lockheeds, the Whitneys, the Dakotas and the Liberators too. Their work, often overshadowed by those of the Mosquitoes, is worthy of equal historical recognition. A BOAC statement summed it up admirably: "...when the history of this war is written, this magnificent achievement will take an outstanding place in the annals of British civil aviation." **A**

'When the history of this war is written, this magnificent achievement will take its place in the annals of British civil aviation'

from home. That same machine could have been lost exactly two months before, if not for radio officer Jock Burnett. When Capt Sigfrid 'Flaps' Rendall fainted through lack of oxygen at 23,000ft, Burnett, stretching for the controls, managed to fly the Mosquito down to 19,000ft where his pilot regained consciousness.

Mistakes were inevitable in the heat of the moment. G-AGGD was reduced to spares after an accident on 3 January 1944, when Capt Vernon Hunt stalled at around 30ft while on approach for a diversionary landing at Sätenäs. The two crew members were unhurt (thankfully no passenger was on board), but the Mosquito was deemed fit only to be reduced to spares. In poor weather the aircraft had suffered radio maladies, while the inexperienced radio officer was not well-versed in navigation, adding to Hunt's difficulties.

No-one truly knows what caused G-AGKP to crash into the sea while approaching Leuchars in the early hours of 19 August 1944, killing pilot 'Gibby' Rae, radio officer Trevor Roberts and passenger Capt Bill Orton, a BOAC Mosquito pilot being ferried back to base following a take-off incident at Bromma in which G-AGFV's undercarriage collapsed. Rae's body was never found. Since

White and radio officer John Gaffney crashed into the North Sea, the cause unknown, but probably not down to enemy action. Adding in the effective write-off of G-AGFV following its mishap that July, six of the 10 Mosquitoes used on the 'ball bearing run' were destroyed or damaged beyond repair. The Norwegian-flown Lodestars, which had carried on plying the route, suffered too: five total losses, two of them shoot-downs, claiming 11 crew members and 18 passengers. Quite a cost, yes, but such is war.



Consideration was given in early 1944 to requesting new Mosquito XVI's. They never materialised. Instead the remaining aircraft soldiered on, joined by three more MkVI's as attrition replacements. Of those, as described, G-AGKP and 'KR would themselves be lost.

The tonnage carried was small, especially compared with the Liberators trialled on the route from late 1943, but for the Mosquitoes to complete 14 flights in the week to 13 May 1944 was a notable occurrence, recognised in a letter to BOAC chairman Lord Knollys from Under-Secretary of State for Air Harold Balfour. "It is with pleasure", Balfour wrote, "that I send

ACKNOWLEDGEMENTS:

The author thanks Jim Davies and Keith Hayward of the BA Speedbird Centre, and Nils Mathisrud, for their assistance in preparing this feature. Nils Mathisrud's new book on the subject, provisionally entitled 'The Stockholm Run', will be published by MMP Books later this year.

SPEEDBIRD CENTRE

For those interested in the background of Britain's flag carrier, the British Airways Speedbird Centre is a fascinating place. At once heritage showcase, museum and archive, the facility at BA's Waterside corporate headquarters near Heathrow contains a treasure-trove of items available to view — models, uniforms, pictures, memorabilia and much more. It also holds all the historical document records of BA and its predecessor companies, looked after by a small but dedicated staff, who assisted greatly in the preparation of this feature.

Aeroplane will carry a full report in a forthcoming issue; for now, to find out further information on the centre, visit www.britishairways.com and go to the 'History and heritage' section under 'About BA'.



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MARCH ISSUE FEATURES:

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John Blackman meets the owners of a 1941 Dodge WC10 and 1941 WC1, and looks at the connection these ½-tonners had with the infamous Alcan Highway.

DUTCH COURAGE

Now, here's an owner who's totally embraced the military vehicle world with his Dutch assembled M38A1. Although it has to be said, he didn't get off to a very promising start with his eBay purchase...

BASTOGNE

Snow and cold conditions were just some of the obstacles put in the path of enthusiasts gathering for Battle of the Bulge commemorations in Bastogne. Alain Henry de Frahan was there for CMV.

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LAST DAYS OF THE BIG BOATS

By the time hostilities ended, BOAC's flying boats had not long left in the airline's service


WORDS: ROY ALLEN

Even as the war progressed to a favourable end for the Allies, the life of the long-range flying boat appeared to be shortening, and it would not be too many years before it

came to a close. American transports such as the Douglas DC-4 and Lockheed Constellation were already upon the scene, and these would be developed into the DC-6 and Super Constellation. Such landplanes were

indifferent to the problems associated with sea ports, like sea fogs, iced-up harbours and heavy swells. Landplanes required land airports, of course, but





this was a diminishing problem as great numbers of aerodromes had been built in various countries for military purposes. Even the great pace-setter in flying boat operations, Pan American Airways, had contributed by building 50 land airports under a construction programme for the US Government.

But BOAC was by no means finished with flying boats. The Sunderland and others had continued in the latter part of the war to carry passengers, mail for the forces and all kinds of stores and supplies in the Pacific areas as well as Europe. Development produced the Sunderland V with a gross weight of 75,000lb, which could extend range to 2,880 miles. A fleet of these aircraft was flown to Hong Kong to form a new transport unit, and from there BOAC carried mail for the occupation forces in Japan.

As the war was finishing BOAC turned its attention to the civil scene.

The success of the Sunderland had suggested the design of an airliner for post-war purposes, and Short Brothers' first answer was the Sandringham, a cleaner, faster and commercially tailored aircraft seating up to 43 passengers, which was to do well in the

BOAC acquired its first Sandringhams in January 1947, designating them as the Plymouth class, but before this the Corporation re-furnished its Sunderlands to full airliner standard and gave this fleet the class name of Hythe. These machines were

'As the war ended, the life of the long-range flying boat was shortening'

post-war market. The first Sandringham was a re-modelled Sunderland. The nose and tail turrets were faired over, and it was furnished internally on two decks, with seats and berths for 24 day or 16 night passengers on the lower deck and a dining saloon and cocktail bar above. The Pegasus engines were retained and the speed increased slightly to 216mph.

furnished on a single deck, initially for 16 passengers but soon increased by another eight seats. During August 1946 the airline inaugurated the 'Dragon' service to Hong Kong, and that year the class-named aircraft *Hythe* became the first civil flying boat to visit China and Japan. The Hythes flew on for many years, and in the late 1940s BOAC sold several to private operator

MAIN PICTURE:
A beautiful study of Solent G-AHIM Scarborough moored off BOAC's flying boat base near the Vaal Dam in South Africa.

AEROPLANE



ABOVE: BOAC's first Sandringham was G-AHYH Portsmouth.

AEROPLANE

Aquila Airways and to the Australian airline Qantas.

In January 1947 BOAC's Sandringhams began operations on the routes from Poole to Sydney, Hong Kong and Bahrain, and between Sydney and Singapore. After April 1948 they flew from a modernised Ocean Terminal established at

Subsequent to the Sandringham, Shorts developed (via the Seaford) a new version, the Solent, which had three cabins on the lower deck and two on the upper, each furnished for six passengers by day or four by night; BOAC later changed the arrangement to seat 34 daytime passengers as the airline moved to operate solely daytime services. The Solent was powered by four Bristol Hercules engines and had a range with payload of 3,000 miles. BOAC took 12 Solent 2s, and as these steadily joined the fleet the two dozen Sunderlands were withdrawn. These had given six years of service, during which they had carried almost 80,000 civil and military passengers and some 2,800 tonnes of freight, and flown over 25 million miles.



The landplane was now the established type for the future, and operators began to run down their flying boat services. The first scheduled landplane commercial flight across the Atlantic had been made by American Overseas Airlines on 23 October 1945, when a DC-4 was flown

'BOAC expected capacity and range to be partially provided by a new generation of modern flying boats'

BELOW: The life of Sandringham G-AHZB Portland was brief. Just short of four months after delivery, it was lost on 23 August 1947 while attempting to make a night landing off Bahrain. Of the 26 people on board, 10 were killed.

AEROPLANE

Southampton instead of the old wartime base at Poole.

Capacity and range were the essential pre-requisites for the future, and BOAC was still expecting these to be partially provided by a new generation of modern flying boats. The design for one of these was drawn in mid-1945, and, as a pressurised airliner operating at 39,000ft with a range of 3,330 miles and a capacity for more than 150 passengers, appeared almost certainly destined for service with BOAC. The aircraft was, of course, the Saunders-Roe Princess, which was to be too late on the scene.

from New York to Bournemouth's Hurn Airport by way of Gander and Shannon, Ireland. Pan American quickly followed with a DC-4 carrying 44 passengers, subsequently ordering up to 80 DC-4s and then a fleet of Constellations. BOAC likewise turned to the Constellation and Boeing 377 Stratocruiser, and made its last Atlantic crossing by Boeing 314A on 7 March 1946, from Poole to Baltimore; those three aircraft were then sold.

The next BOAC flying boat service to go was on the 'horseshoe route', terminated on 2 March 1947. The Solents cut existing schedules almost in



half when they began service on the South African route in May 1948, but their commercial life was short — no more than 18 months — for on 10 November 1950 BOAC finally ended all flying boat services throughout its





network. The aircraft were returned to the Ministry of Civil Aviation, from which they had been leased.

The Princesses under development at the Saunders-Roe boatyard at Cowes were now an anachronism. Whitney Straight, deputy chairman of BOAC, made clear to the Government that there appeared very little future in prospect for the aircraft with his company, for one reason: that the three

under construction would be far too few for international services when all other flying boat operations had been abandoned worldwide. Nothing was done until the RAF offered in 1950 to take them for troop-carrying, but it had second thoughts. Deliberations continued until 1953, when the Government was still hoping the aircraft could be operated commercially with new Bristol turboprop engines, the

arrival date expected for these being 1958. By then BOAC would have several years of operational experience with the Comet jetliner behind it and be on the point of taking its first 150-seat Boeing 707. But that's another story. The flying boats had served BOAC and its predecessor well, and put the corporation on the map for a standard of service unrivalled in the airline world.



ABOVE: Hythe class flying boat G-AGKY *Hungerford* (a former RAF Sunderland III, ML789) was delivered to BOAC in July 1944, and served until January 1948.

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BY SOLENT TO SOUTH AFRICA

The 3 June 1948 issue of *Flight* provided an insight into what it described as BOAC's 'Air Cruise', the route from Southampton to South Africa on which had recently begun to be employed the new Short Solent 2. "The standard of service and catering in BOAC aircraft is high, and in the Solent it is probably at its best", wrote Roy Pearl. "Frozen food is heated in special ovens, and excellent meals are served at normal times. The Solent (...) has accommodation for fourteen passengers on the lower deck forward of a gentlemen's dressing room, while

the aft portion has seats for eight, a promenade deck and the ladies' powder room. The two decks are connected by a spiral companionway, entailing an easy climb to seek the reward from a cocktail bar on the upper deck, where also there is accommodation for twelve passengers. It is undoubtedly a great relief on a long air journey to walk and stand about without performing antics over the seats of other passengers, to order drinks at a bar, and to lean on a sill whilst looking out of a window."