

**ROYAL AIR FORCE
HISTORICAL SOCIETY**



JOURNAL

40

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First published in the UK in 2007 by the Royal Air Force Historical Society

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ISSN 1361 4231

Printed by Advance Book Printing
Unit 9 Northmoor Park
Church Road
Northmoor
OX29 5UH

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SELECTED ABBREVIATIONS

From contemporary records, and subsequent writings, it would seem that there has never been a standardised rendering of ‘Air Sea’. Should it have a solidus, a hyphen or neither? For the sake of conformity, I have made the unilateral editorial decision to use a solidus, since it seems (to me) to be the most appropriate option. **Ed**

| | |
|---------|--|
| ACAS | Assistant Chief of the Air Staff |
| ADF | Automatic Direction Finding |
| ADGB | Air Defence of Great Britain |
| AEOp | Air Electronics Operator |
| ALM | Air Loadmaster |
| ANS | Air Navigation School |
| ASR | Air/Sea Rescue |
| ASRU | Air/Sea Rescue Unit |
| ATAF | Allied Tactical Air Force |
| AUTEC | (the US Navy’s) Atlantic Undersea Test and Evaluation Center |
| DSAR | Director (ate) of Air/Sea Rescue |
| DCAS | Deputy Chief of the Air Staff |
| HSL | High Speed Launch |
| IAM | Institute of Aviation Medicine |
| ILS | Instrument Landing System |
| IFC/IFR | Instrument Flight Conditions/Rules |
| ITW | Initial Training Wing |
| LMF | Lack of Moral Fibre |
| MAEE | Marine Aircraft Experimental Establishment |
| MCU | Marine Craft Unit |
| MTB | Motor Torpedo Boat |
| OTU | Operational Training Unit |
| RAFO | Reserve of Air Force Officers |
| RTTL | Rescue Target Towing Launch |
| SAR | Search And Rescue |
| SARAH | Search And Rescue And Homing (beacon) |
| SARBE | Search And Rescue BE acon |
| SASO | Senior Air Staff Officer |
| SARTU | Search And Rescue Training Unit |
| SEAC | South East Asia Command |
| SH | Support Helicopter, ie transport, as distinct from SAR. |
| SRMIU | Survival and Rescue Mobile Instruction Unit |
| VMC/VFR | Visual Meteorological Conditions/Visual Flight Rules |
| VOR/DME | Visual Omnidirectional Range/Distance Measuring Equipment |

SEARCH AND RESCUE

RAF MUSEUM, HENDON, 11 OCTOBER 2006.

WELCOME ADDRESS BY THE SOCIETY'S CHAIRMAN

Air Vice-Marshal Nigel Baldwin CB CBE FRAeS

Ladies and gentlemen – good morning. It is a good to see you all gathered again in this magnificent theatre – which, as always, comes to us courtesy of Dr Michael Fopp and his ever helpful colleagues.

Our Chairman for today, not for the first time in the Society's history, is Air Marshal Sir John Curtiss. You may remember him chairing the seminar some three-and-a-half years ago when we looked at the 1982 Falklands campaign.

But today he will draw on his wide experience not least, I suspect, as a Bomber Command navigator in WW II, but also his time at Northwood where, as AOC 18 Group, working alongside the Royal Navy, he had Search and Rescue helicopters and RAF marine craft under command. Sir John – you have control.



A Whirlwind HAR 10 of No 84 Sqn keeping station with a 68 ft Vosper RTTL Mk 2 at speed off the coast of Cyprus. (Donald Smith)

THE EVOLUTION OF THE AIR/SEA RESCUE ORGANISATION

Air Cdre Graham Pitchfork



Following an initial Canberra tour in Germany, in 1965, Graham Pitchfork, a Cranwell-trained navigator, was seconded to the FAA to fly Buccaneers. Thereafter his career was inextricably linked with that aeroplane, culminating in command of No 208 Sqn. He later commanded RAF Finningley and RAF Biggin Hill before a final tour as Director of Operational Intelligence. Since retirement he has written several books on aviation-related topics and is a regular contributor to the Daily Telegraph's obituary column.

My aim this morning is to give you a background to the development and progress of the Air/Sea Rescue Organisation. In the main, I shall address the period up to the end of the Second World War by which time the RAF had developed a very comprehensive, world-wide capability, which became the basis for the subsequent peacetime organisation. Later speakers will outline the details of the specialist areas of air/sea rescue, including the development and role of marine craft, aircraft and helicopters. However, in order for me to give a balanced account of the development of the wider role, it will be necessary to make mention of these capabilities, but I will leave the detail to others. Similarly, since I will be looking in more detail at survival aids and aircrew training this afternoon, I will mention them now only when it helps to complete the bigger picture.

In times of peace an Air/Sea Rescue Organisation has two aims; the maintenance of morale, and the closely allied humanitarian impulse of saving life. In times of war a third must be added, and it is the most important of the three, the recovery of trained manpower for the furtherance of the war effort.

In the early years after the First World War there was very little organisation or special equipment provided for the rescue of aircrew unfortunate enough to force-land or bale out over the sea. Some were issued with lifebelts or flotation jackets of various types, but once in

the sea they relied on passing naval or merchant ships for rescue. Between the wars this was considered to be sufficient, since little flying by landplanes was carried out over the sea and the increasing reliability of aircraft engines, and the limited need to fly in adverse weather conditions, meant that the number of forced landings at sea was small. The only RAF aircrew provided with any form of rescue equipment were the flying boat crews who, by the nature of their work, constantly operated over, and alighted on, the sea – they were provided with a dinghy. With such limited activity over the sea there was little need for a formal air/sea rescue organisation.

The introduction by the mid-1930s of longer-range aircraft and regular flights overseas created a need for more formal arrangements for air/sea rescue. Larger dinghies with a greater capacity were developed and in 1935 air staff approval was given to the building of an experimental high-speed launch, to be evaluated as a seagoing safety boat. The trials were successful and the experimental launch was handed over to RAF Manston in Kent in August. A further fifteen of these launches were ordered for distribution between the seven Coastal Command airfields plus one each at stations overseas. Although they were allocated primarily for use with aircraft from their own units, they could be called on to assist in rescue work, when the individual Station Commanders co-ordinated the operation.

From 1934 onwards instructions had been issued regularly to units outlining the steps to be taken when service aircraft were in distress or overdue when flying over the sea near the British Isles. In 1937 the first instructions were issued in which specific reference was made to these high-speed launches. The procedure was as follows:

When a distress call was received or an aircraft was known to be overdue a message was broadcast to shipping from the GPO W/T Stations; naval authorities were requested to inform HM Ships in the vicinity and the Coastguards were advised in order that they might, if necessary, call for the assistance of the Royal National Lifeboat Institute's lifeboats. If the missing aircraft was believed to be in the vicinity of the Croydon-Continental air routes, Croydon aerodrome was also informed in order that civil aircraft might search along the route. If the location of the aircraft in distress was thought to be more than 300 miles from

the British coast, an international broadcast was sent out from the GPO Radio Station at Portishead, in order that ships of any nationality might keep watch for possible survivors. When RAF flying boat or general reconnaissance bases were within reasonable distance, their help could also be enlisted in the search, as well as that of any rescue launch in the area.

It does not take a great deal of imagination to appreciate that, while this introduced some form of procedure for the rescue of downed aircrew, the probability of success was very slim, not least because the unfortunate aircrew had little or no protection or location aids. By the late 1930s, the air staff had started to look at the need for better aids and we shall hear more of that this afternoon.

During the extensive Home Defence exercises carried out in the summer of 1938 and 1939, landplanes had to fly over the sea and special arrangements were made for air/sea rescue. The RAF provided special safety boats and destroyers were made available by the navy. In addition, coastguards were instructed to keep special watch for any distress signals. Civil aircraft equipped with radio and flying in the area of a ditched aircraft could be called upon and asked to search for missing aircrew.

In December 1938, AOCinC Bomber Command (Air Chf Mshl Sir Edgar Ludlow-Hewitt) raised the question of the safety arrangements for his crews. He pointed out that the war plans then being developed required his bombers to fly over the North Sea. It was, therefore, essential that his crews should fly long-range training flights over the sea but these had to be restricted because of the limited rescue facilities and the time taken to reach any of his crews forced to ditch. At this time there were just seven high-speed launches in operation around the British coast, with a 400-mile stretch of the east coast with no cover at all. Although the crews had dinghies, these would be of little use if marine craft could not be dispatched quickly to affect a rescue.

A meeting chaired by ACAS (AVM Sholto Douglas) recognised the need for further resources and identified a requirement for an additional thirteen launches.

In July 1939 instructions were issued detailing the responsibilities of the Coastal Command Group Commanders for co-ordinating the



The first Lysanders were made available for ASR duties in the summer of 1940. Later organised into squadrons, this one belonged to No 277 Sqn. While these aeroplanes did what they could, they were limited by their vulnerability and their inability to carry a substantial load.

aircraft and marine craft involved in rescue operations. Pending the provision of a chain of nineteen high-speed launches for rescue work, based from Wick in the north of Scotland eastwards round the coast to the Isle of Man, interim measures were taken to establish the available launches along the east coast and the English Channel.

The rescue arrangements for the early months of the war followed the general lines of the peacetime organisation, but certain facilities were no longer available, such as the civil aerodromes and GPO W/T stations. In March 1940 new communications instructions were issued dealing with aircraft in distress over the sea. An aircraft in distress sent an SOS, or Mayday (*m'aidez* – help me) message and the RAF formation receiving the call passed a priority message to Fighter Command whose Movements Liaison Section then forwarded the message to appropriate naval authorities, RAF formations and the coastguards.

As the opening shots were fired in the Battle of Britain, there were still only fourteen high speed launches in commission. The intensity

of fighter operations over the Channel alerted the authorities to the increasing loss of airmen over the sea. During the last twenty-one days of July over 220 aircrew were killed, or posted missing, the majority of them over the sea. As a result, at the end of July 1940 the Vice-Admiral Dover (VAdm Sir Bertram Ramsey) and AOC 11 Group (AVM Keith Park) organised a local rescue service with light naval craft, RAF launches and some Lysanders borrowed from Army Co-operation Command. The value of this 'combined services' organisation was soon apparent.

On 22 August 1940, the DCAS (AVM Arthur Harris) chaired a meeting that established the formation of a skeleton Sea Rescue Organisation and this provided the basis for all the developments that followed. All rescue craft came under the operational control of the local naval authorities with the RAF remaining responsible for the air search and for informing the naval authorities. Approval was given to retain the Lysanders, which were placed under the operational control of Fighter Command where liaison officers were appointed to assist in handling the search organisation. Thus, nearly twelve months after the outbreak of war, the first steps were taken towards the formation of an organisation specifically assigned to the task of sea rescue.

The Sea Rescue Organisation put into force in August 1940, valuable though it had proved in the Battle of Britain, was still found to be seriously wanting in many respects, as the demands placed on it increased.

In October 1940, aircrew losses were 260, the majority over the sea, which a more efficient rescue organisation could have reduced. In December 1940, CAS (Air Chf Mshl Sir Cyril Newall) instructed that the Sea Rescue Organisation must be drastically reorganised and expanded. At a subsequent meeting, chaired by DCAS, it was agreed that the rescue of RAF personnel from the sea had become of such paramount importance that a directorate should be formed. Headed by an air commodore, as Director of Sea Rescue Services, who was to be assisted by a naval Deputy Director, it was to be located at HQ Coastal Command. Approval was given for the formation of the Directorate on 24 January 1941 when Gp Capt L G Le B Croke was promoted and appointed as the first Director of Sea Rescue, the Admiralty appointing Capt C L Howe as Deputy Director. The title of the Directorate was soon changed to 'Air/Sea Rescue Services', in

order to avoid confusion with the Naval Sea Rescue Services.

A set of regulations was drawn up for the new Directorate, which was to report directly to DCAS. Briefly, its responsibilities were:

1. The co-ordination of all sea rescue operations for aircraft and their crews.
2. The provision of ancillary equipment to be dropped by aircraft at the scene of distress, to provide aircrews with a chance of survival until the arrival of the rescue craft.
3. The provision of adequate marine craft, moored buoys and similar aids to rescue.

The new Directorate took up its duties on 6 February 1941 and during the next six months the small staff established close relations with various organisations that had a role to play in sea rescues. In addition to dealing with actual rescue activities, the Directorate of Air/Sea Rescue was responsible for the development of life-saving equipment in conjunction with the Director of Operational Requirements. From its foundation it had four main problems to solve:

1. How to teach aircrews to ditch and abandon an aircraft in the sea.
2. How to keep aircrew alive after they had abandoned their aircraft.
3. How to locate the aircrew.
4. How to bring them safely home.

For the purpose of sea search the British Isles was divided into four areas coinciding with the geographical boundaries of the four Coastal Command Groups (Nos 15, 16, 18 and 19) with Sea Rescue Officers attached to each Group HQ. Close-in search in a coastal area 20 miles in depth stretching from the Wash round the south coast to South Wales was the responsibility of Fighter Command's Lysanders.

Despite a significant increase in successful rescues since the formation of the new Directorate, DCAS (by now AVM Norman Bottomley) was concerned that the rescue services were not expanding in proportion to the increasing air offensive. His view was supported by AOCinC Bomber Command (Air Mshl Sir Richard Peirse), who recognised the inability of the rescue services to meet the growing needs of his Command. The Admiralty also saw the need to review the

administration of their light coastal forces, which included naval motor boats used for sea rescue, and they also recognised the need to create a post on the naval operations staff for an officer with specific responsibility for air/sea rescue matters.

To consider the way ahead, DCAS convened a meeting on 11 September 1941 which was attended by the Assistant Chief of Naval Staff and senior representatives from the major operational RAF Commands. It was arguably *the* most important and significant meeting for the longer-term development of the air/sea rescue organisation.

The meeting recognised that in the four months following the formation of the Directorate of Air/Sea Rescue successful rescues had increased from a bare 20% to almost 35% of the 1,200 aircrew who had crashed at sea, due in part to the co-operation of the numerous organisations and to good progress in providing aircrew with dinghies and equipment to keep them alive and with aids to attract attention.

These were positive improvements but fundamental difficulties remained, in particular the lack of rescue aircraft and the unsuitability of the existing high speed launches for deep searches in rough water.

At this stage, deep search could still be undertaken only by misemploying operational aircraft and the serious losses of highly trained aircrew during the summer of 1941 had demonstrated that it was vitally necessary to commence a search with the minimum of delay. Unfortunately, response times had been slow using aircraft which could only be made available by diverting them from their, arguably even more important, primary roles and which had then to be loaded with survival aids before they could take off. Furthermore, for a successful rescue, close co-operation with surface craft was essential, and this had proved to be difficult to achieve using untrained crews.

Clearly, there was little prospect of improvement in deep search until aircraft dedicated to air/sea rescue duties could be made available and the meeting agreed that these aircraft would have to be provided. It was decided that two squadrons of Hudsons, equipped with air-to-surface vessel (ASV), radar, should be formed for air/sea rescue duties. In the meantime, better utilisation of the Lysanders and Walruses of Fighter Command, the latter having just been introduced for sea rescue, was discussed and it was agreed to expand their search



The 115' Fairmile Long Range Rescue Craft had range of 1,500 miles at 20 kts and a top speed of 33 kts. In 1942 the RN promised to provide the RAF with forty of these boats but they were not delivered until 1944. (Donald Smith)

area, from the original 20 miles, out to 40 miles from the coast.

Finally, the meeting considered the available types of sea rescue craft, and it was decided that high speed must be sacrificed for seaworthiness so that rescues could be affected in rough seas. Crews, therefore, had to have better aids for staying alive until the slower launches arrived. The Admiralty representative reported that the Fairmile 'B' launch was being produced for the Navy and it was decided to approach them for fifty of these to meet the RAF's overall requirement for ninety air/sea rescue launches.

DCAS's September 1941 meeting marked the major step forward that established the air/sea-rescue service on a firm footing and laid the foundations for a rapid expansion of the service in anticipation of the dramatic increase in air operations mounted from airfields in the British Isles.

Over the next two years the improved organisation, the increasing availability of dedicated air/sea rescue squadrons, the expansion of the fleet of more capable RAF and Royal Navy rescue launches, and the development of survival aids led to more rescues. Aircrew operating at long range now stood a better chance of being picked up and there were some dramatic rescues in the Atlantic and the Bay of Biscay in

addition to pick ups by aircraft and launches operating in coastal waters and even in enemy minefields. At this point, I should also mention the gallant work of the Sunderland and Catalina crews of the operational squadrons who landed on the open sea to rescue men who had ditched miles beyond the range of local rescue services, one such incident occurring 120 miles north of the Arctic Circle when a RAF Catalina picked up the six survivors of a Coastal Command Liberator crew who had spent two days in three one-man dinghies.

I now want to dwell in some detail on the major impact on the RAF's air/sea rescue organisation made by the arrival of the United States Army Air Forces (USAAF) in the United Kingdom in the spring and summer of 1942.

It was clear from the outset that it would be uneconomical to have two similar organisations operating side by side, so it was agreed that the resources and facilities of the UK's service would be placed at the USAAF's disposal with American aircraft making a contribution to the RAF's rescue organisation in due course.

The Americans had given virtually no thought to operating over the sea – many of them had never even seen it. Their aircraft were equipped with basic dinghies, but little thought had been given to ditching and sea survival procedures. American airmen had been conditioned to parachuting from their aircraft when in distress since most of their flying experience had been over the land. However, the US authorities were quick to appreciate the need to ditch aircraft and have appropriate survival aids. The RAF produced a training syllabus, including briefings, for crews arriving in the UK. Air-sea rescue officers were appointed at each airfield and at HQ 8th Air Force, the latter being responsible for liaison with his opposite number in the RAF organisation.

The (by this time Deputy) Directorate of ASR¹ assisted the 8th Air

¹ By 1942 the Directorate of ASR had become a Deputy Directorate under Gp Capt E F Waring; it still reported to DCAS, but now via the Director General of Aircraft Safety. In May 1942 the post of DCAS was disestablished in favour of ACAS(Ops) who retained responsibility for ASR until 1943 when the Deputy Directorate (still Waring) was transferred to ACAS(Gen). By late 1945, a final wartime reorganisation had seen the post re-styled as the Deputy Directorate of Rescue, still under ACAS(Gen) but now a sub-division of the Directorate of Navigation, the last incumbent being Gp Capt G M Bryer. **Ed**

Force in drawing up an organisation for search and rescue procedures, training and dinghy drills for USAAF aircrew. Despite these measures, it took US aircrew some time to appreciate the need to understand ditching procedures and the capability of the survival equipment, much of their own being unsuitable for operations over the seas around the United Kingdom.

In spite of all efforts to instil an understanding of air/sea rescue into American aircrew, unnecessary losses continued. After a successful incident in October 1942, no further rescues were reported until the following February, during which nine crews were lost, involving 65 aircrew, only one man being saved.

The RAF air/sea rescue staffs recommended a number of modifications to US aircraft, including better dinghy stowage, standardisation of rescue equipment and other relevant issues. They also observed that, for all the efforts of the 8th Air Force staff, it was clear that USAAF aircrew were not practising ditching and dinghy drills, and had taken little interest in rescue training. The few successful rescues recorded in the spring of 1943 were effected, for the most part, through luck rather than skill.

As a result of a major RAF-inspired training drive, and the work of the RAF and USAAF air/sea rescue liaison officers, rescue figures finally began to improve in the summer of 1943. In June, 255 USAAF aircrews came down in the sea of whom seventy-one were saved, a 28% success rate. In July, 139 out of 196 were rescued (a remarkable 71%) and this included, on 25 July, the rescue of no fewer than seventy-eight out of a total of eighty reported down in the sea. However, the increase in combined air operations, and the inevitable higher rate of ditchings, placed a considerable strain on the rescue organisation.

A major development occurred at the end of August 1943 when the 8th Air Force agreed to make available one aircraft from each bomb group for search operations when requested. As a result, the RAF's Lindholme rescue gear was cleared for dropping by Fortress, Liberator and Mitchell bombers. The increasing efficiency of the rescue organisation, and the USAAF's determination to educate their crews, is borne out by the rescue figures for the last six months of 1943 when 524 aircrew out of 1,364 were picked up; or nearly 40% as compared with the first half of 1942 when just 6% were rescued.

The USAAF soon recognised the need to treat air/sea rescue as a specialist task and they formed a new branch, known as the Emergency Rescue Branch, to deal with the supply and maintenance of all emergency equipment.

Further evidence of the USAAF's determination to integrate into the RAF organisation was the establishment of a Central Control Room at 65th Fighter Wing HQ at Saffron Walden. If an aircraft advised that ditching was imminent, the controller at Saffron Walden passed the information to the appropriate RAF Fighter Command Group HQ and/or RN Sea Rescue Control Centre.

As formations of US fighters began escorting the large bomber forces, spotter aircraft drawn from the fighter wings patrolled the bomber's return routes, reporting the positions of ditched aircraft to Saffron Walden. Following the success of this system, in May 1944 the USAAF authorities authorised, the provision of twenty-five P-47 Thunderbolts to be based at Boxted and dedicated to rescue work. They were equipped to drop dinghies and smoke floats supplied by the RAF. The RAF also agreed to make available six Warwicks, equipped with airborne lifeboats, prior to each 8th Air Force operation, in addition to two Walruses at Martlesham Heath; all of which could be diverted to the scene of any USAAF incident at the request of Saffron Walden.

The new US rescue unit (later designated as the 5th Emergency Rescue Squadron) commenced operations on 9 May and within two weeks it had achieved its first success when, in conjunction with a Warwick, a Fortress crew was recovered by airborne lifeboat.

The round-the-clock bombing operations of the RAF and the USAAF imposed huge demands on the air/sea rescue service. During 1943, aircraft lost at sea, the great majority being bombers, numbered 1,188, involving 5,466 aircrew. The rescue service was responsible for saving 1,684 of them, reflecting the increased effectiveness of the air/sea rescue force and, of course, the much greater scale of the bomber offensive.

Initially, the USAAF made many mistakes and it was an uphill battle to persuade American aircrew to take rescue training seriously. However, USAAF leaders saw the need for air/sea rescue and spared no efforts in preparing their aircrew. A close relationship between the RAF, Royal Navy and USAAF had been established, and the dramatic

improvements achieved during 1943 speak volumes for the combined efforts. In some cases American equipment was modified to follow RAF design, such as dinghies and Mae Wests; in others, such as the dinghy radio, the Americans were able to eliminate the drawbacks of the British design. Thus, by the time of the greatest amphibious landing of all time in June 1944, the USAAF was completely integrated into the British air/sea rescue organisation and stood prepared for the major operations ahead.

The introduction into the strategic bombing campaign of the USAAF's 'Mighty Eighth' had created a new dimension for the air/sea rescue services in UK.

The next major development was to gear up the rescue organisation for the D-Day landings. New areas of responsibility of Coastal Command and ADGB (the old Fighter Command) came into force on 15 April 1944. Rescue work in the assault area was to be ADGB's responsibility, and this required the reinforcement of the south coast resulting in the redeployment of rescue squadrons and air/sea rescue marine craft units.

Two ASR squadrons were redeployed to the south and small flights of rescue aircraft were established at seven south coast airfields with a total of eighty aircraft. Outside the assault area, the American Thunderbolt rescue squadron and the four Coastal Command rescue squadrons of, mainly, Warwicks provided adequate cover. There was also a need to concentrate more launches along the south coast and new marine craft units were formed at Plymouth, Poole and Portland. Together with the nine units already established, some seventy-six RAF high-speed launches were earmarked for Operation OVERLORD. In May the final redeployment of RAF launches actually totalled ninety. The Royal Navy also reinforced the area with launches drawn from elsewhere to provide an additional five flotillas; all were in place by 15 May. By the end of the month the number of air/sea rescue craft in the assault area totalled 136. The RNLi earmarked fifteen lifeboats for rescue work outside the assault area. No one could possibly have imagined that in barely three years, the air/sea rescue organisation could have grown to such a degree.

The plan for D-Day went according to schedule. There were so many naval ships filling the Channel that the chances of an aircrew being lost were remote. In the early hours of 6 June, the surface craft



An ASV radar-equipped, lifeboat-toting Warwick of No 276 Sqn tricked out in a full set of 'invasion stripes' at about the time of Operation OVERLORD.

took up their rendezvous positions. Before dawn, the Spitfires, Walruses and Sea Otters of the air/sea rescue squadrons were out on patrol. The assault area, and the areas either side of it, were systematically covered, so it would have been difficult for any aircrew to bale out or ditch without being seen and rescued quickly. Indeed, very few of the many thousands of Allied aircrew operating on D-Day were lost in the sea.

Frequently, distress signals were passed so efficiently to the control officers on the fighter direction tenders, they were able to send the rescue launches straight to the scene. One Spitfire pilot sent an SOS when he was about to bale out. A rescue launch was despatched immediately and arrived in time to see the aircraft crash and the pilot descending in his parachute. The skipper manoeuvred his launch so that they were alongside when he hit the water and he was picked up almost before he had the chance to get wet.

The results of the special rescue arrangements for the initial period of the campaign surpassed all expectations. During the first ten days of OVERLORD, the air/sea rescue services alone picked up 163 aircrew, fifty-eight others and two Germans; other aircrew were picked up by a variety of naval vessels and landing craft. The four rescue squadrons flew a total of 1,471 operational sorties during June, and were involved in the rescue of many of the 355 lives saved during the period.

Once a firm foothold had been established on the Continent, a number of the high speed launches, together with the fighter direction tenders, operated from the anchorages in the Seine Bay prior to the establishment of a mobile flotilla of marine craft based in northern French ports. By early July rescue aircraft were also based on the Continent and the rescue units moved their bases eastwards as the military operations advanced through France, Belgium and Holland.

The next major test for the air/sea rescue service was the large-scale airborne operation against the bridges at Grave, Nijmegen and Arnhem in Holland, which commenced on 17 September. The airborne operation created a steady stream of gliders and transport aircraft each day until the 21st. RAF and naval rescue craft from Yarmouth, Gorleston, Felixstowe and Ramsgate were positioned in the North Sea in a double line under the air routes between the English and Dutch coasts. Each launch was visible to its neighbour, thus minimising the chance of any ditched aircraft or glider not being seen by at least one of them. There were seventeen air/sea rescue launches positioned to cover the northern route and ten for the southern. Rescue aircraft flew constant patrols with others on immediate standby.

On the first lift 358 gliders took off behind the tugs of Nos 38 and 46 Gps. During the four days of Operation MARKET² 205 personnel were rescued by the air/sea rescue organisation from thirty-five gliders and one Dakota tug, in addition to aircrew on support operations. A minesweeper and a lifeboat picked up a further twenty-one. No fewer than ninety-two of those rescued were picked up on 19 September. In supporting the operation 251 sorties were made by the air/sea rescue squadrons and 104 by the RAF's high speed launches. These launches were at sea for just under 900 hours and they saved 144 lives. Naval launches made 100 sorties and rescued seventy-nine personnel.

The rescue arrangements for Operation MARKET were a great success. When asked by HQ 11 Gp if they had been content with the arrangements, the reply from HQ 38 Gp expressed complete satisfaction, adding that the rescue operation had been so well planned and executed that 'the tug aircraft had no need to navigate, but had

² Although often referred to as Operation MARKET GARDEN, it was actually two co-ordinated events – MARKET was the airborne assault on the bridges; GARDEN was the armour-spearheaded thrust from the south. **Ed**



A 63' whaleback HSL attending an American Hadrian glider that didn't make it across the North Sea.

simply followed the track of the rescue launches spread along the route across the North Sea'.

With the re-occupation of France, some of the air/sea rescue effort was transferred to the north to support operations in Norway, Holland and across the North Sea. With the Allied armies entering Germany the work of the air/sea rescue organisation continued on a reducing scale. In Operation VARSITY – the crossing of the Rhine – rescue aircraft and launches again patrolled the routes taken by the gliders and transport aircraft.

In March 1945, eighty-four aircrew were rescued from a total of 291 down in the sea. By the end of the war, the air/sea rescue organisation had saved 5,658 aircrew. In addition, there were many non-aircrew personnel, of both Allied and enemy forces, saved by the men who manned the aircraft and launches. It was one of the great successes of the air war in NW Europe.

ASR Overseas

Turning briefly to the Middle and Far East, as with many other operational capabilities, these two regions very often had to take a

lower priority for resources and both suffered in the early days.

The Mediterranean and Middle East. The development of the air/sea rescue service in the Mediterranean and Middle East falls into two distinct phases. The first covered the campaigns associated with the defence of Malta and the desert war in North Africa. The second embraced the campaigns that saw the Allies return to Europe: the invasions of Sicily and Italy in the summer of 1943; subsequent operations in the Aegean; and the reoccupation of southern France in 1944. From early difficulties and meagre resources, the organisation and capabilities for air/sea rescue expanded considerably, and ultimately it was developed on a large scale on similar lines to that in the United Kingdom

At the outbreak of the war in Europe there were only four high-speed launches overseas; one of these was based on Malta with a second at Basrah in the Persian Gulf. There were no aircraft dedicated to air/sea rescue based anywhere overseas. In June 1940 the entry of Italy into the war highlighted the need to augment the paltry resources in the Mediterranean. With so few dedicated assets available, together with the increasing demands to develop an air/sea rescue organisation in the UK, little could be spared for the overseas theatres. The launch based at Basrah was transferred to Mersa Matruh where it was assisted by a cabin cruiser improvised as a rescue boat.

As with marine craft, every aircraft that could be spared for rescue work was needed at home and the overseas commands had to rely on aircraft drawn from operational and training units, when available, for search purposes. For the first year following the entry of Italy into the war no formal system for rescue existed. It was the siege of Malta that highlighted the need to establish a sea rescue organisation, although launches and specialist aircraft remained in desperately short supply.

It was in May 1941 that the Director ASR produced his requirements for worldwide commitments and the establishment of high speed launches for the overseas commands was authorised at thirty-four plus a reserve of ten. However, production rates were slow and it was obvious that it would be some time before this requirement could be met. Therefore, agreement was reached in June that six launches from existing stocks should be allotted immediately to the Middle East region. Three of these were assigned to Malta, whence

they carried out some remarkable work and rescued many aircrew.

By the summer of 1941, the amount of flying in the Eastern Mediterranean, most of it over the sea, had increased significantly and the need for air/sea rescue facilities became more urgent. To meet this requirement, Middle East Command formed in August a Sea Rescue Flight with old Wellingtons under the operational control of No 201 Gp. We will hear more of this later.

By the end of 1941, five of the six additional launches allocated in the previous June had reached their overseas destinations and had been deployed to the operational areas. In the New Year, an air/sea rescue officer arrived to co-ordinate the rescue organisation throughout the Middle East. At last, an air/sea rescue organisation in the Middle East and Mediterranean was effectively established, albeit on a very small scale.

Following Operation TORCH, and by the time of the invasion of Sicily and the subsequent landings in Italy, the air/sea rescue forces had been significantly enhanced with the formation of a number of marine craft units and dedicated air/sea rescue squadrons. As the campaign developed, the rescue units relocated to be close to the operational areas and many rescues were completed.

The Far East. In keeping with so many other military aspects of the war in the 'forgotten' theatre of the Far East, the air/sea rescue organisation was low on the list of priorities and it had to make do with whatever equipment was left after the demands of other theatres had been met. It was a constant struggle to develop and maintain an efficient rescue service in a theatre of operations that many officials in the United Kingdom simply did not understand. They found it difficult to comprehend the influence of the weather and the vast size of the theatre, and thus the distances involved, and the problems that these created for the communication systems which were crucial for the timely rescue of aircrew in distress. It says much for those involved that the rescue organisation was able to function at all.

Although a basic organisation had been established by mid-1942, there were virtually no specialist resources and operational aircraft had to be diverted to search and rescue operations. By June 1944 sufficient high-speed launches had arrived to provide a service around the coast of India and Liberators and Catalinas were available. Once the

offensive in Burma gathered momentum, rescue launches were redeployed along the Burmese coast and Sea Otters were used for short-range rescues. However, many searches were carried out by operational aircraft flown by the squadron colleagues of those who had come down in the sea.

No records were maintained of rescues carried out in SEAC prior to the creation of a formal regional air/sea rescue organisation in June 1943 but between then and the end of the campaign in August 1945 150 aircraft, involving 700 aircrew, were recorded in distress over the sea. In eighty-eight of these incidents successful rescues were effected with 327 aircrew saved, representing 50% success. Interestingly, the majority of these rescues were effected with the aid of operational, rather than dedicated air/sea rescue, aircraft. Although not forming part of the rescue services, credit must be given to the rescue work undertaken by the RAF's general reconnaissance Catalinas. In co-operation with naval and merchant vessels, and in addition to some daring rescues of ditched aircrew, they were responsible for saving 1,304 mariners and passengers shipwrecked during the twenty-seven months leading to the end of hostilities in the area.

Conclusion

In conclusion, I hope I have shown that, by the end of the war, the RAF had developed, a very effective search and rescue capability with marine craft units and dedicated air/sea rescue squadrons in every theatre of war. Aircrew who came down in the sea in mid-1940 had little chance of rescue but just four years later almost 60% could expect to be rescued. The men of the air/sea rescue forces attracted little attention but wherever and whenever there was a chance to rescue downed aircrew, no effort was spared and their dedication and bravery ranks amongst the highest in the RAF. They certainly lived up to their motto 'The sea shall not have them.'

SAILORS IN LIGHT BLUE

Gp Capt J Stephen Fosh



Stephen Fosh joined the Merchant Navy in 1952. He was certified as a Master Mariner ten years later before being commissioned into the Marine Branch in 1963. He subsequently commanded a number of individual vessels, marine craft units in Scotland and Malta and, ultimately, RAF Mount Batten. In 1984, after two years at HQ 18 Gp, he moved to the MOD as Director of Marine Craft and Head of Branch. This meant that he had the sad task of overseeing the Branch's demise and arranging for its tasks to be transferred to civilian contractors.

It is not unusual to find, particularly with today's younger officers, that they are not aware that from the day the Royal Air Force was formed, 1 April 1918, it sponsored a marine service which operated continuously for the next sixty-eight years. The story of any achievement involves both the hardware and the men who were instrumental in creating and using that hardware and who thus established the traditions of the Service. So, while I shall summarise the development of the fleet and its operations, I shall also identify some of the key early personalities, for without their contribution the story might well have been very different.

In 1918 the new Service inherited from its predecessors a number of marine officers and tradesmen, together with numerous flying boats and floatplanes, and large numbers of bomb scows, seaplane refuelling tenders and three steam-powered, 50 foot-long, ex-RN general service pinnaces. But it was not long before the RAF decided that most of these old vessels were inadequate and it soon began to build boats to its own specification. The first of the new 56-foot semi-diesel pinnaces were brought on charge in 1926. These vessels could steam sedately at little more than 10 knots, took some considerable time to start up – with the aid of a blow torch! – and were not very agile when manoeuvring. So, while the Service did use them for some time, they were never really capable of meeting the demands of an efficient seaborne rescue service.

It was at this stage that the four men associated with high speed launches, and who would become the pillars of this specialised branch of the UK boat building industry, and/or the use that the RAF made of that industry, began to make their presence felt. The first of them was Hubert Scott-Paine, who, having been working on seaplanes at Woolston since 1913, became Managing Director of Supermarine in 1916 all of which implied that he had wide experience of all aspects of marine aviation. While engaging the young R J Mitchell as a designer was probably Scott-Paine's most significant contribution to the company's ultimate success, his very positive influence was also felt in its participation in the Schneider Cup races of 1919 and 1922, which it won for Great Britain on the second occasion. He left Supermarine for commercial aviation the following year, becoming one of the original directors of Imperial Airways in 1924, but Scott-Paine's career took yet another turn in 1927 when he established a new enterprise, the British Power Boat Company, with the aim of building fast pleasure boats at Hythe.

The American fast boat industry was ahead of Britain's in the 1920s and Scott-Paine was in competition with Commodore Garfield-Wood, a wealthy American industrialist who was the first person to realise the possibilities of adapting high powered aero-engines to drive fast hydroplanes for racing. Ten years later, and in conjunction with the Americans, Scott-Paine was instrumental in developing a line of fast patrol boats employing a 'hard chine' hull shape, rather than the much slower 'round bilge' form, and he had, of course, already seen both the Royal Navy and the Royal Air Force as potential customers for petrol-driven fast boats of this kind.

By 1923 there were about sixty flying boats and floatplanes requiring moorings in the UK, plus their supporting marine craft. In 1928-29 the seaplane units were reorganised, flights being elevated to squadron status and, to accommodate the Southampton's of Nos 203 and 204 Sqns, RAF Cattewater (Plymouth) was reactivated after a period in reserve. On 1 October 1929 Cattewater was renamed to become the more familiar RAF Mount Batten where, in 1931, the first of Scott-Paine's seaplane tenders underwent its RAF trials. In attendance were Flt Lts W E G Beauforte-Greenwood and W H Jinman, both of them ex-RNAS and annotated as qualified engineering officers in post-war Air Force Lists. Beauforte-



Aircraftman Shaw at Mount Batten.

Greenwood, while still a member of the RAFO, was currently employed as a civil servant at the Air Ministry where he was responsible for satisfying the RAF's requirements for aircraft moorings, targets and marine craft. Jinman was the first uniformed RAF marine craft officer. As such, he served at Gosport, Calshot and aboard HMS *Hermes* before spending 1930-31 at Mount Batten with the newly established No 204 Sqn, moving on from there to the MAEE at Felixstowe where he stayed until 1937.

Between them, in July 1933 Beauforte-Greenwood and Jinman would be responsible for providing the appropriate facilities, moorings and marine craft to handle no fewer than twenty-four Savoia-Marchetti flying boats of the Italian Air Force which staged through Londonderry en route Rome-Chicago-Rome. Clearly, these two men worked very closely together and as such they represented the second and third pillars that supported the development of RAF marine craft.

The fourth pillar was T E Lawrence, otherwise known, of course, as Lawrence of Arabia. After his wartime adventures in the Middle East, he eventually elected to join the RAF as an aircrafthand. The hoped-for anonymity provided by his assumed identity of AC2 J H Ross was soon penetrated by the press and the consequent publicity embarrassed the Service to the extent that he was discharged in 1923. Lawrence promptly enlisted in the Tank Corps, this time as Pte T E Shaw, but he soon began applying to be re-admitted to the RAF. An initially reluctant Air Ministry eventually relented in 1925 and he transferred back to the RAF, still as an AC2, but retaining his identity as Shaw, a name that he would eventually adopt by deed poll in 1927. Posted to India that year, more fanciful press stories, this time suggesting that he was there in connection with a civil war in Afghanistan, obliged the Service to move him again. After only two years in India he was back in the UK where he was posted to Mount Batten, which is how



A 200 Class Seaplane Tender armed with a single Lewis gun. Aircraftman Shaw handled the trials of the lead boat in this class at Mount Batten. (Donald Smith)

Lawrence began his association with flying boats and fast marine craft, initially in the capacity of the CO's clerk.

When HQ Coastal Area subsequently granted Scott-Paine's request that the trials of his new 200 Class seaplane tender should be conducted at Mount Batten, rather than elsewhere (in order to minimise the opportunities for his competitors to observe progress), it also endorsed his suggestion that AC Shaw should be directly involved in the management of the trials. This sort of work appealed to Shaw's individualism and, from the RAF's point of view, it was also expected to keep him out of the limelight and thus avoid any further problems with the press. While he was neither a marine craft tradesman, nor a qualified engineer, Shaw's intellectual capacity permitted him to solve mechanical problems, sometimes involving quite innovative solutions. Furthermore, as a published author, he was clearly capable of writing reports, so, despite his lack of appropriate formal qualifications, he was actually well suited to the task. Responsible to both Beauforte-Greenwood and Jinman, he worked

closely with both of them, writing many letters and reports to and/or for them. Lawrence/Shaw had finally found his niche and, before taking his discharge in 1935, he spent time at Hythe, Calshot, Felixstowe and Bridlington, always working on marine craft.

The original trials involved a pair of 37½-foot seaplane tenders. An official report tells us that the engines of the first of these, Tender 200, which arrived at Mount Batten on 17 March 1931, could be started very quickly, that the vessel could achieve a speed of 24 knots and that she behaved extremely well in broken seas of up to 19 feet. Testing continued throughout 1931 and the eventual outcome was Scott-Paine's first RAF contract, which was for nine of his 200 Class tenders. Although subsequently modified in detail, this basic design continued in production in various boatyards until as late as January 1945.

Since 1930 responsibility for all marine craft matters had been vested in the Air Ministry's Aircraft Handling Equipment Co-ordinating Committee. In 1935 Air Mshl Sir Hugh Dowding, as Air Member for Research and Development, decided that marine affairs should be dealt with separately which led to the establishment of the Marine Craft Policy Committee. Meanwhile Beauforte-Greenwood had identified a requirement for a 60 to 70-foot High Speed Launch capable of 30 knots, which led to the 100 Class. These vessels, along with other 'hard chine' hulled designs, were built by Vospers, Thornycroft, the Fairmile Company and others. This upset Scott-Paine who considered that he should have had an exclusive right to build hard chine boats for the Air Ministry, rather than having to bid for competitive contracts. He lost his argument but still won contracts, so, along with the other boatyards, his British Power Boat Company was able to build many more 200 and 100 Class vessels and later models, including slower general purpose pinnaces.

Turning to manpower, the RAF drew most of its marine officers from the Merchant Navy, categorising them as 'civilian Masters'. They were qualified Master Mariners and commanded the larger vessels of the RAF fleet. Granted reserve commissions as flight lieutenants within the RAFO, they were employed on non-pensionable engagements, subject to one month's notice on either side, at an annual salary of about £400 (much the same as contemporary officers of the Stores Branch and commissioned engineer, signals and

armament officers). These terms of service were not entirely satisfactory, which led to some recruiting problems and provoked some specific complaints, not least by the Station Commander at Calshot, the RAF's largest marine station. Some changes were eventually made but, shortly after the outbreak of war, the status of Marine Craft Officers was regularised when they became a recognised sub-division within the newly created Administrative and Special Duties Branch.

The Service always provided its own non-commissioned personnel via the Marine Craft Training Section (later School) which was set up in 1922 at Calshot, where it remained until half-way through WW II when it moved to Corsewall (Galloway). Over the years there were changes in the terminology related to ranks and trades, and in the location of the schools (of which there were two overseas during the war), but the marine service continued to train its own men, at Mount Batten from 1953 onwards, right up until the closure of the Branch in 1986.

By September 1939 there were a number of launches available at various locations around the coast of the UK, but only four overseas. By VJ-Day there were 106 marine craft units operating in home waters and many others were deployed globally wherever there was a need for seaborne support of the flying task. The primary tasks for marine craft were, of course, search and rescue and support of flying boats. During the six years of war the RAF marine service was the basis of the joint services air/sea rescue organisation which saved more than 13,000 allied and enemy souls from the sea, and of those more than 6,000 were aircrew. The Air/Sea Rescue Service was described as being the biggest lifeboat organisation in the world. Air/sea rescue aside, the support of flying boats required large numbers of marine crews but RAF marine craft were also involved in clandestine operations around the enemy-occupied coasts of the Mediterranean and northern Europe. The RAF's boat crews had a very active war, especially those serving at Dover, Ramsgate and Newhaven who were very intensively involved in both the evacuation from Dunkirk and the subsequent invasion of Normandy, and much else in between.

To take an example, in August 1942 seventeen RN rescue vessels and fourteen RAF launches participated in Operation JUBILEE – the



A sister ship to those lost off Dieppe, HSL 124 was a 63' foot launch of a type introduced in 1941 as a successor to the pre-war 100 Class. The turrets were each armed with a single .303 machine-gun. (Donald Smith)

Dieppe raid. From Dover, No 27 ASRU contributed HSLs 122, 123, 147 and 186. Of these: HSL 122 was bombed and machine-gunned by several He 111s and sunk; HSL 123 was attacked, first by a pair, and then by a formation of four Fw 190s and was also sunk, the survivors of 122 and 123 being picked up by launches from Ramsgate and Newhaven; HSL 147 was last seen close to the French coast under attack by both aircraft and shore batteries. Damaged by air attack and with two of her crew wounded, only HSL 186 returned to base. The cost to the RAF unit at Dover had been two officers and nine crewmen killed, two more posted missing and seven taken prisoner. On the credit side, RN and RAF vessels had saved the lives of sixteen aircrew. The official report by Air Mshl Leigh-Mallory reflected that, in going beyond the protection of the fighter screen, and thus suffering casualties, the launch crews had demonstrated their devotion to duty and their contempt for danger.

In fulfilling their wartime tasks RAF marine craft were deployed whenever and wherever there was a need for them, from the frozen wastes of Iceland to the steaming jungles of Burma, and anywhere in

between. As soon as the war ended, however, the fleet began to contract and the number of units both at home and overseas was rapidly reduced. Nevertheless, it was some consolation that in 1948 HM King George VI granted the right for vessels of 68 feet or longer to be designated as His Majesty's Air Force Vessels – HMAFV – this being the equivalent of the Royal Navy's HMS. In 1947 the Marine Service was restyled as the RAF Marine Branch and became a Deputy Directorate, its status eventually being raised to that of a full Directorate in 1970.

While the branch continued to provide its traditional services in the post-war air force, by the 1950s its days were clearly numbered. The withdrawal of the last Sunderlands in 1959 removed one of its primary functions since it was no longer required to minister to the needs of flying boats and at much the same time the helicopter began to become increasingly effective in the rescue role, although it would be some years before they would have sufficient range and bad-weather capability to displace launches completely.

Meanwhile, while search and rescue remained a primary function at some overseas bases for a while, at Gan and Gibraltar for instance, the numbers of marine craft units continued to dwindle throughout the 1960s. By the 1970s, the main tasks were the support of aircrew training facilities – dinghy drills and helicopter winching exercises – and equipment trials. At much the same time, with the exception of a few 63-foot pinnaces and 43-foot range safety launches, most of the remaining timber-built vessels were withdrawn from service and replaced by larger steel-hulled, 24 knot, Mk III Rescue/Target-Towing Launches. The seven built were named after famous aeroplanes – *Spitfire*, *Hurricane*, *Lancaster*, *Sunderland* and so on. These were supplemented from 1972 onwards by three 120-foot Seal Class Long-Range Recovery Craft; each one bore the name of a notable seaplane to become HMAFVs *Seal*, *Sea Otter* and *Seagull*.

These two classes of steel vessels, and the surviving handful of pinnaces and range safety launches, sufficed to fulfil the remaining tasks which, apart from aircrew training, included other long-term staples, such as target-towing and torpedo recovery – sometimes from locations as exotic as the AUTEK ranges off the Bahamas. The testing of equipment also continued, one late example involving trials of a search and rescue locator beacon in Icelandic waters. Another residual



The 60-ton HMAFV Sunderland at speed, a little over 20 kts, off Mount Batten. (Donald Smith)

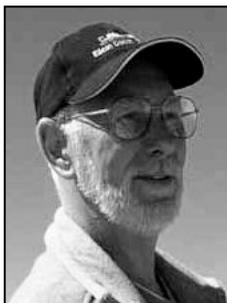
task could involve merchant ship pilotage, at least for those RAF Marine Officers stationed at Gan and Dubai.

But it all began to draw to a close in December 1984 when the Ministry of Defence directed that the Marine Branch was to be disbanded and its remaining tasks transferred to a civilian contractor. Under a 'GoCo' (Government-owned, Contractor-operated) contract, the James Fisher Group assumed responsibility for the provision of marine services to the RAF with effect from 1 February 1986, using the RAF's vessels but now commanded by civilians and sailing under a new flag. Finally, after sixty-eight years of service, it all came to an end on 31 March 1986 when the Marine Branch of the Royal Air Force ceased to exist.

Today, the air force ORBAT no longer features a private navy, but those of us who served in RAF marine craft will always remember the boats, and the men with whom we served, and our pride in that Service remains.

THE ASR AIR ORBAT IN WW II

Wg Cdr Jeff Jefford



‘Jeff’ joined the RAF in 1959 as a pilot but (was) soon remustered as a navigator. His flying experience included tours with Nos 45, 83 and 50 Sqns and instructing at No 6 FTS. Administrative and staff appointments involved sundry jobs at Manby, Gatow, Brampton and a total of eight years at HQ Strike Command. He took early retirement in 1991 to read history at London University. He has three books to his credit and has been a member of the Society’s Executive Committee since 1998; he is currently editor of its Journal.

In the beginning – of WW II – there were no flying units dedicated to air/sea rescue duties and this remained the case until July 1940 when a dozen of Army Co-operation Command’s, largely redundant, Lysanders were made available to Fighter Command on what amounted to a long-term loan. Deployed along the south coast – at Warmwell, Roborough, Pembrey (later Fairwood Common), Perranporth, Martlesham Heath, Hawkinge, Shoreham, Merston and Stapleford Tawney – this somewhat *ad hoc* organisation was eventually placed on a firmer footing in May 1941 when six more Lysanders were added, title to all eighteen aircraft being formally transferred to HQ Fighter Command. At the same time the status of these arrangements was regularised by the formal establishment of nine, later eight, un-numbered, Air/Sea Rescue Flights within Nos 10, 11 and 12 Gps. Following the pattern that had already been established, these flights were located between Pembrey and Perranporth in the west and Martlesham Heath in the east – effectively along the Channel plus a bit at each end.

By the late summer of 1941 the Directorate of Air/Sea Rescue had managed to acquire a few Walruses plus the odd Hurricane and in October the eight flights were reorganised and reconstituted to form the nucleus of three squadrons, Nos 276, 277 and 278, all of them still flying Lysanders.

The concept of the classic rescue was already well-established by

| Unit | HQ (Detachments) | Aircraft |
|-------------|---|---------------------|
| No 275 Sqn | Valley (Andreas, Eglinton) | Walrus, Lysander |
| No 276 Sqn | Harrowbeer (Warmwell, Perranporth, Fairwood Common) | Walrus, Lysander |
| No 277 Sqn | Stapleford Tawney (Martlesham Heath, Hawkinge, Shoreham) | Walrus, Lysander |
| No 278 Sqn | Matlask (North Coates) | Walrus, Lysander |
| No 279 Sqn | Bircham Newton | Hudson |
| No 280 Sqn | Thorney Island | Nil |

Fig 1. Deployment of ASR squadrons – late 1941.

this time. A Lysander would fly out to the last reported position, carry out a visual search, spot the survivor, drop whatever aids he could plus, perhaps, a smoke float, and summon a Walrus which would land and pick up the waterlogged aviator. It was fine in theory but the practice still left something to be desired.

The weakest link was the Lysander which was so vulnerable that it was originally confined to flying within twenty miles of the coast (later extended to forty) and restricted in its ability to provide practical assistance by its carrying capacity, which was limited to what could be fitted on the bomb racks.

Before the end of the year a fourth Walrus/Lysander squadron had formed within Fighter Command and two long range squadrons had been authorised for Coastal Command. The latter were intended to have Hudsons but these were in short supply and there were only enough to equip one unit. The position at the end of the year is summarised at Figure 1.

By the spring of 1942 the Directorate was pressing for the obsolete Lysanders to be replaced, ideally with the far more robust, and twin-engined, Beaufighter. Like the Hudsons, these too were in relatively short supply, however, and the best that could be done was to provide Defiants, which had the incidental merit of extending the useful lives of these aeroplanes which were then being withdrawn from night-fighter duties.

| Unit | HQ (Detachments) | Aircraft |
|-------------|---|----------------------------|
| No 275 Sqn | Valley (Andreas, Eglinton) | Lysander, Walrus, Anson |
| No 276 Sqn | Harrowbeer (Portreath, Warmwell, Fairwood Common) | Walrus, Spitfire, Anson |
| No 277 Sqn | Gravesend (Hawkinge, Martlesham Heath, Shoreham) | Lysander, Walrus, Spitfire |
| No 278 Sqn | Coltishall | Walrus, Anson |
| No 279 Sqn | Bircham Newton | Hudson |
| No 280 Sqn | Thorney Island | Anson |
| No 281 Sqn | Woolington (Drem) | Walrus, Anson |
| No 282 Sqn | Castletown (Ayr, Peterhead, Sumburgh) | Walrus, Anson |

Fig 2. Deployment of ASR squadrons – late summer 1943.

With a small rescue container under each wing, the Defiant's ability to offer practical assistance was little better than that of the Lysander, although it did go a bit faster and could go a bit further, because it had a notional self-defence capability – so long as it was running away at the time... Defiants began to be issued in May 1942 and they served for about a year.

The aeroplane that was really wanted was the much longer-legged, multi-seat, twin-engined, load-carrying Hudson but these were required for convoy escort, anti-shipping, coastal strike work and so on and very few could be released for rescue duties, most of those that were being assigned to 279 Sqn at Bircham Newton where, from early 1943, they were able to deliver the Mk I airborne lifeboat.

In view of the scarcity of Hudsons, Coastal Command's second long range unit, No 280 Sqn, had been making do with Ansons since the beginning of 1942 and from the spring of 1943, these began to be made more generally available. The Anson went some way towards extending the range of search cover, although vulnerability was clearly still a problem.

To solve that one, at much the same time, summer 1943, it was decided that those squadrons which were likely to encounter enemy opposition in the air should have their Defiants, and any remaining



In 1944 the early ASR Spitfire IIs were replaced by Mk Vs, like this one which belonged to No 278 Sqn.

Lysanders, replaced by Spitfires. Having been displaced in the front-line by the Mk V, about fifty surplus Mk IIs were reassigned to ASR work for which they were able to carry specially adapted survival gear in the flare chutes behind the cockpit – a pair of canisters, one containing a multi-seat dinghy, connected to the second by 75 yards of buoyant rope. This aside, it remained a Spitfire, complete with guns.

Figure 2 reflects the position in about August of 1943. The re-equipment programme was well underway; there were still a few lingering Lysanders, but there were now plenty of Ansons and reliable old Walruses, but all of the Defiants had gone and the two units that covered the Channel, Nos 276 and 277 Sqn, both had Spitfires. By this time there were eight ASR squadrons, which, allowing for a number of semi-permanent detachments, had permitted a substantial extension of coverage. Nevertheless, despite the provision of some hand-me-down Spitfires, the pattern is clear; ASR generally had to make do with second class aeroplanes, Defiants instead of Beaufighters, Ansons instead of Hudsons.

That said, there was one definite improvement in equipment in the summer of 1943 when a few Sea Otters began to replace the old 'Walrus' – although it never displaced them all. The Sea Otter was heavier but it had a much cleaner hull and an extra 200 hp (Mercury v Pegasus) which made a significant difference to its performance, but

| Unit | Deployment | Equipment |
|-------------|-------------------|----------------------------------|
| No 275 Sqn | Warmwell | Walrus, Anson, Spitfire |
| No 276 Sqn | Portreath | Walrus, Spitfire, Warwick |
| No 277 Sqn | Shoreham | Walrus, Spitfire |
| No 278 Sqn | Bradwell Bay | Walrus, Anson, Spitfire, Warwick |
| No 279 Sqn | Bircham Newton | Hudson |
| No 280 Sqn | Strubby | Warwick |
| No 281 Sqn | Tiree | Warwick |
| No 282 Sqn | Davidstow Moor | Warwick |

Fig 3. Deployment of ASR squadrons – D-Day.

even then the air force was having to scrounge them from the navy. The RAF eventually acquired 140 Sea Otters, almost half of the production run, but they had all actually been built against Admiralty contracts.

The next, and last, significant wartime development represented a substantial improvement in capability, although it could still be seen as a way of finding a use for an aeroplane that wasn't really wanted by anyone else – the Warwick. What the Warwick had going for it was that it was BIG, which, in many respects meant that it was better. They carried more people, which meant more pairs of eyes to search for survivors, and they could carry more survival equipment, not least the rather spectacular airborne lifeboat. Their much greater endurance meant that they could stay on-station longer and their greater range meant that they could be based on just a few airfields, rather than being spread out in numerous semi-permanent detachments, with all of the administrative and logistic complications that that implies.

The first Warwicks were delivered to No 280 Sqn at Thorney Island in October 1943 and by D-Day, in June 1944, they were also serving with Nos 276, 278, 281 and 282 Sqns. D-Day also provoked a major redistribution of resources and the ASR squadrons were concentrated between Cornwall and the Humber (*see Figure 3*), the only exception being No 281 Sqn which was stationed up at Tiree to provide cover over the North Atlantic.



The iconic Walrus, which, despite the introduction of more capable Sea Otters and Warwicks, continued to play a key role in ASR activities throughout WW II. This one belonged to No 277 Sqn.

After D-Day the need for ASR began gradually to decline, because a steadily increasing proportion of operations was being conducted by aircraft which were now actually based on the other side of the Channel. The increasing availability of airfields on the Continent also provided somewhere for damaged UK-based aircraft to land, rather than having to limp back across the North Sea. As a result there were fewer over water transits with a steadily decreasing proportion of these representing potential ditchings.

To provide a local service, in September 1944 No 276 Sqn moved across to the Continent where it remained until the war ended. Furthermore, by February 1945 the previously hostile air environment over the waters of the Channel was sufficiently benign to render the provision of fighters (the original Spitfire IIs having been superseded by Mk Vs during 1944) unnecessary, permitting the two UK-based Spitfire-equipped units, by then Nos 275 and 277 Sqns, to be disbanded.

There was still plenty of work for the remaining squadrons, of course, and, given the increased sophistication of the remaining

| Unit | Location | Equipment |
|-------------|--------------------------------|---------------------------|
| No 275 Sqn | Disbanded at Harrowbeer Feb 45 | Walrus, Spitfire |
| No 276 Sqn | Knocke-le-Zout | Walrus, Spitfire |
| No 277 Sqn | DB at Hawkinge Feb 45 | Walrus, Spitfire, Warwick |
| No 278 Sqn | Thorney Island | Walrus, |
| No 279 Sqn | Thornaby | Warwick, Hurricane |
| No 280 Sqn | Beccles | Warwick |
| No 281 Sqn | Limavady | Warwick, Sea Otter |
| No 282 Sqn | St Eval | Walrus, Warwick |

Fig 4. Deployment of ASR squadrons – VE Day.

aeroplanes – lots more Warwicks by now, plus the faithful old Walruses – that there will have been little reduction in the overall capacity of the rescue facilities on offer. What is apparent is that there was a significant shift in focus during the last months of the war, with frequent detachments to Scotland, mainly provided by No 279 Sqn, to support the, by now large-scale anti-shipping campaign being mounted by Coastal Command's Banff and Dallachy Strike Wings. The disposition of the six remaining ASR squadrons on VE-Day was as at Figure 4.

At this stage, it might be as well to stress that what I have been briefly summarising here is the evolution and deployment pattern of the handful of units dedicated to ASR. It will have been apparent, however, that while most of the aeroplanes they flew could be used to *find* survivors – and to deliver aid of some sort – the only one capable of actually executing a *rescue* was the relatively lightweight, single-engined Walrus which could sometimes have problems getting airborne again. So, while the ASR squadrons often located downed aviators, they were more usually plucked from the waves by passing trawlers or the far more seaworthy, and longer-ranged, Sunderlands and Catalinas of the general reconnaissance squadrons, or, and more commonly still, by motor launches of the RAF's own Air/Sea Rescue

Service or vessels of the Royal Navy.

While the ASR squadrons based on the west coast at Tiree, Fairwood Common and Portreath did operate over the Atlantic, there was a practical limit as to how far out they could go. So, to extend the available coverage, in May 1944, No 269 Sqn had been re-rolled from anti-submarine patrol to ASR duties and posted down to the Azores, retaining its original Hudsons plus a few Walruses to which Warwicks began to be added in the autumn. A couple of months later, in August, to plug the gap further north, the resident Met recce unit in Iceland, No 1407 Flt, became No 251 Sqn with its duties expanded to include ASR. Despite its change of role, however, it soldiered on with its Hudsons, its first Warwicks not arriving until as late as August 1945.

The last wartime – just – development occurred in September 1945 when No 279 Sqn moved to Beccles, near Lowestoft, where it was to receive lifeboat-toting Lancasters which it was intended to take out to the Far East to support the final push against Japan, a plan that was short-circuited by the early end of the war. Nevertheless, the programme was sustained for a while and, having been renumbered as No 38 Sqn, the unit finished up in Malta, complete with its boat capability. Although some trials were subsequently carried out with Mks 1 and 2 Shackletons these were not entirely trouble free and by 1953 the remarkable airborne lifeboat concept had more or less faded away.

Meanwhile, what of the overseas commands? In much the same way as had happened at home, they too had begun in a small way and scarcity of resources had meant that progress had been even slower. On the other hand, until late-1942, most operational activity was conducted in the Western Desert so the majority of incidents took place in a relatively confined area off the coasts of Cyrenaica and Egypt. Perhaps I should clarify some of that. By ‘confined’ I mean, compared to the area that had to be covered around the UK. And by ‘the majority of incidents’ I mean those involving a reasonable probability of rescue, because if you were obliged to ditch further afield – in the Adriatic or the Aegean, or off the coast of East Africa perhaps, your chances of being picked up would have been relatively poor in the early days.

The first, and for a long time the only, specialist outfit in the Middle East was the Sea Rescue Flight that was established in August

1941, initially at Kabrit, although it operated from a variety of airfields as far west as Benghazi, depending upon where the front line happened to be at the time. It had the odd Wellington and Blenheim for search duties, although any of the local squadrons would often be involved, especially if it was one of their own crews that was missing, but the unit had no seaplanes until November when it acquired the first of several ex-FAA Walruses, plus, uniquely, a single-engined Fairchild 91 and a twin-engined Grumman Goose. Both of these aeroplanes had been purchased second-hand by a New York-based charity and donated to the RAF – which is a mute comment on the supply situation at that time. As at home, the majority of pick-ups were actually made by motor launches but the little amphibians did, at least, their fair share, picking up more than twenty men during 1942 alone.

The picture began to change in the aftermath of Operation TORCH when, in the spring of 1943, No 283 Sqn formed in Algeria equipped with the ubiquitous Walrus. They were soon joined in theatre by No 284 Sqn which had been deployed to Malta in time for the invasion of Sicily in July, both squadrons moving to Sicily in August. Having spent some time in Corsica and Sardinia, in the spring of 1944 No 283 Sqn disposed of its Walruses in favour of 100% Warwicks and settled on Malta where it was to spend the rest of the war – although, to cover the Yalta Conference in 1945, it did mount a significant detachment in the Crimea. At the same time No 284 Sqn also acquired some Warwicks, although it stayed relatively mobile, being stationed successively in Sardinia, Algeria and eventually mainland Italy whilst mounting periodic detachments in Tunisia and southern France.

A third unit, No 293 Sqn, had joined the Mediterranean team in the autumn of 1943 when it had formed in Algeria with Warwicks. It is worth noting that the first twenty or so Warwicks sent out to the Mediterranean were so-called ‘bastard bombers’, which is to say that they had been built as bombers and only partially modified for ASR work in that they could carry Lindholme Gear but not a lifeboat. Later deliveries were fully ‘boat capable. In the spring of 1944 No 293 Sqn moved to Italy where it was substantially expanded by inheriting the Walruses given up by No 283 Sqn.

Meanwhile, the original Sea Rescue Flight had been redesignated (in September 1943) to provide a fourth regional unit, No 294 Sqn,



The Walrus' contribution to ASR operations was as critical abroad as it was at home. This one was stationed in Italy with No 293 Sqn.

which remained in Egypt with its Wellingtons and Walruses to which some Warwicks were eventually added a year later.

From the autumn of 1944 onwards the situation remained fairly stable with No 283 Sqn based on Hal Far, No 284 Sqn at Bone (Algeria), No 293 Sqn covering the west and east coasts of Italy from Pomigliano and Foggia respectively, and No 294 Sqn at Idku; all four units would, of course, mount detachments elsewhere as and when required.

Finally, the Far East. As with practically all other aspects of the war, India received the lowest priority in terms of ASR equipment. To begin with, rescue facilities were more or less confined to searches carried out on an *ad hoc* basis by whatever aeroplanes happened to be available, which would most commonly have been Blenheims in the early days, later supplemented by Wellingtons and, if you were lucky, an eventual pick up by a Catalina or a naval vessel, because it was the summer of 1943 – more than a year-and-a-half into the Japanese war – before the first regional marine craft unit was set up – a meagre pair of launches based in Ceylon.

SEAC finally got its long-overdue specialist ASR unit when

No 292 Sqn formed at Jessore, near Calcutta, in the spring of 1944. It was equipped, as always, with the Walrus, later supplemented by some Sea Otters, plus the Warwick. Some, probably all, of the unit's Warwicks were lifeboat-capable but there are no records to indicate that any lifeboats were ever dropped in far eastern waters.

Although it does not strictly come within the terms of 'ASR' it is worth mentioning that the jungle represented a particular hazard to crews operating over Burma and for the last six-months of the war in the east No 27 Sqn was specifically re-roled from attack to *Air/Jungle* Search and Rescue duties, its Beaufighters being modified to drop emergency containers from the torpedo slings.

Meanwhile, in February 1945, in order to be closer to the action, No 292 Sqn had moved up to Agartala but its fabric-covered Warwicks were not entirely satisfactory in the fierce climate and they were progressively displaced by Liberators. In the spring of 1945 the squadron was operating as five increasingly independent detachments. In June this situation was rationalised when the squadron was formally disbanded to be replaced by six autonomous flights, two stationed in Ceylon (Nos 1346 Flt at Kankesanterai and No 1350 Flt at Ratmalana) and four on the India-Burma border (Nos Nos 1347, 1348 and 1349 Flts at Agartala and No 1351 Flt at Cox's Bazaar).

So there you have it, a brief survey of the RAF's ASR *Air* ORBAT, and I stress 'Air' to make the point that this arm of the service could not do it alone; it was supplemented by the fleet, by VJ-Day the very large fleet, of RAF marine craft which did the lion's share of actually fishing people out of the sea. That said, generally obliged to make do with hand-me-downs and/or aeroplanes that nobody else wanted, one could say that the fine operational record established by the air/sea rescue squadrons demonstrated that they had succeeded in making silk purses out of these pigs' ears.

MORNING DISCUSSION

John Causer. The Warwick was the subject of some dismissive remarks; what was wrong with it?

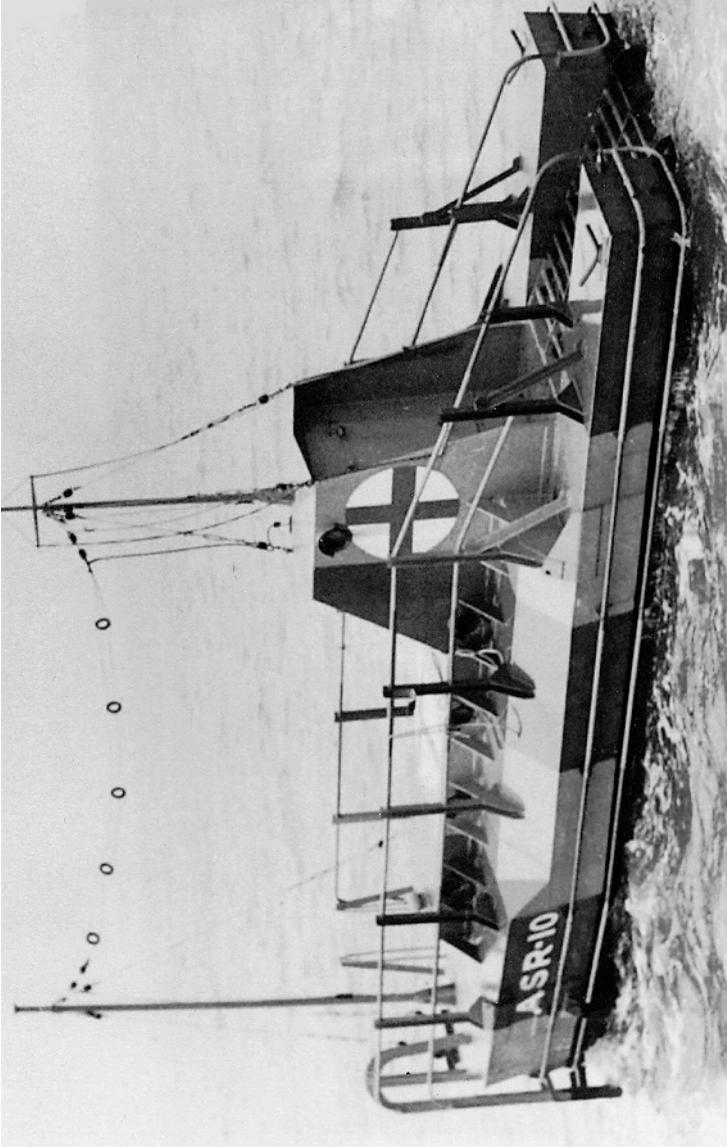
Wg Cdr Jeff Jefford. As a machine, nothing really, but it was already out of date before it became available. Intended as a 'heavy' bomber to complement the similar, but smaller, Wellington, by the time that it materialised it had been eclipsed by the much bigger, and far more capable, four-engined heavies. But, once an industrial programme has been started, it tends to run under its own momentum because, until a really worthwhile alternative presents itself, it is often considered preferable to continue to build a second rate aeroplane rather than accepting the disruption that would be caused by simply shutting down a production line – which is why we continued to turn out aeroplanes, like the Whitley, for instance, well beyond their sell by dates – and the question of switching production was particularly difficult with Vickers because their factories were committed to the unique geodetic form of construction.

So, with Warwicks rolling off the production lines, it became necessary to decide what to do with them. Some were adapted as makeshift transports and were operated as such with some success, although a bomb bay can never be as efficient as a proper freight bay. Others were modified for maritime reconnaissance work but the Warwick found its most useful niche in the air/sea rescue role. But it was really a make-do-and-mend arrangement; ASR had never figured in the original specification.

Mike Meech. Could anyone comment on the 'survival floats' that were moored in the Channel? Did they work?

Air Cdre Graham Pitchfork. They were quite sophisticated devices. They had a kind of ramp which was intended to enable, even injured, aircrew to haul themselves aboard, and they were well-provisioned with emergency rations and survival aids. A number of them were placed in the Channel, particularly in the Dover Strait, but there is no record of anybody, certainly any British aviator, ever actually using one and they were soon withdrawn. A good idea, but one which did not really come off.

Jefford. The main weakness in the concept would seem to be that



ASR-10 was one of sixteen such floats moored off the south and east coasts. Only a practical proposition if one could arrange to ditch or parachute into the sea next to one, they were checked daily by RAF launches but there is no record of any of them ever having been occupied. (Donald Smith)

you had to come down no more than a couple of hundred yards from a float if you were going to have a realistic chance of reaching it, so you would have needed to deploy literally hundreds of them.

Pitchfork. True – and the majority of people coming down at that time, 1940, were fighter pilots who didn't even have a dinghy, so getting to one of these things would have been a real problem.

Mike Dudgeon. Mention was made of the fact that the RAF's air/sea rescue activities were co-ordinated with the Navy. To what extent did this happen; how much support did the air/sea rescue organisation give to naval operations, particularly the Fleet Air Arm?

Pitchfork. As far as 'control' was concerned, co-operation was very closely integrated and, when an incident occurred, it was usually a question of despatching the most appropriate/immediately available vessel, regardless of the Service to which it belonged. There was, for instance, a flotilla of RN launches based on the Humber that did sterling work, particularly in the first half of the war, picking up Hampden and Wellington crews coming back from Norway and Denmark. Furthermore, rescue control centres were jointly manned and there were liaison officers from each service serving on the staffs of respective RAF and RN operational commands and groups. With regard to the RAF support of Fleet Air Arm activities. By their nature, most naval air activities took place well away from the UK and often in the middle of oceans. The majority that came down once clear of the enemy coast, crashed near the Fleet or during landing back on board a carrier when downed aircrew would be rescued by the parent carrier or other ships in the group. There were, of course, ditchings by shore-based naval aircraft and they came under the same rescue umbrella as those of any other flying service. When a man was down in the sea, no distinction was drawn regarding his Service and the most appropriate means of rescue was immediately tasked.

Gp Capt Hans Neubroch. During the invasion of Sicily, a number of British troop-carrying gliders were released prematurely, at night, and landed in a very rough sea. Were any of the personnel rescued?

Pitchfork. Very few, I think, and most of those that did survive would have been pulled from the sea by naval vessels of the assault force. There were ASR launches operating out of Malta but I don't

think that they would have been able to rescue many, if any. So far as the men were concerned, apart from the problems created by darkness and the sea state, they were encumbered with full kit – and I doubt that they would have had Mae Wests either, so their chances of survival really would have been pretty slim.

(Published figures vary but, according to Richards and Saunders in The Fight Avails, of the 137 gliders involved, no fewer than sixty-nine came down in the sea. Not all would have been packed with troops, of course; many would have been loaded with light field guns, jeeps or other equipment, but one commonly quoted figure puts the fatalities at 326. Ed)

John Davis. Reference was made to the use of Spitfires for air/sea rescue but I don't see why. After all they had neither range nor carrying capacity. I managed to squeeze a small haversack in with me on occasion, but that was about it.

Jefford. The Spitfires were specifically adapted for ASR use, or perhaps it would be better to say that the kit that they carried was adapted to fit the space available. The aeroplanes weren't really modified at all – the trick was to package the survival equipment in cylindrical containers tailored to go into the flare chutes that were a standard fit. That way it was possible to deliver a multi-seat dinghy plus two smaller canisters, one containing emergency rations, the other a buoyant rope to link the whole affair together. Range was not really a problem, because they were only intended for use where they were likely to encounter the enemy, which meant, more or less, the Channel. An Anson or a Lysander confronted by a Messerschmitt would have been pretty poorly placed, but a Spitfire could look after itself – because, apart from the relatively light, and internally stowed, load – so no extra drag – it was still a fully armed fighter.

Gp Capt Stephen Fosh. And, I would add that, even if it had been unable to take any action itself, a patrolling, or searching, ASR Spitfire would have been able to summon the surface rescue services.

Jefford. A point that I made in my presentation. The air/sea rescue squadrons were more to do with finding people, establishing their whereabouts and then bringing a ship out to pick them up, than actually fishing them out of the sea. That is not to say that ASR



The only significant difference between an ASR Spitfire and a fighter was that the former carried cylinders containing a dinghy and emergency rations in the flare chutes.

Walruses never did that; of course they did, but the majority of pickups were made by surface craft – launches, naval vessels, trawlers and the like.

Pitchfork. The Spitfires did make a substantial contribution. For instance, one case that I came across involved a Stirling crew that had come down in bad weather in the Channel. They were found by an ASR Spitfire and the squadron subsequently maintained a patrol over them in atrocious weather for the best part of eighteen hours before a launch could reach them. Had the succession of Spitfires failed to maintain contact, it is very doubtful whether the crew would have been saved. The point is that, while Spitfires may not have been able to deliver a great deal in terms of material aid, their speed of reaction and ability to summon more appropriate assistance was invaluable.

(The Spitfire IX having displaced the Mk V in front-line units, some of the latter were passed to the ASR squadrons during 1944 as replacements for their original Mk IIs and it is some indication of the fighting potential embedded within the ASR squadrons that, even using second-hand aeroplanes, No 277

Sqn was credited with the destruction of five V-1s. Ed)

Air Mshl Sir Freddie Sowrey. Do we know any more about the Savoia Marchettis that Stephen Fosh mentioned? Were they part of the transatlantic flight commanded by General Balbo? Did they have any organised air/sea rescue arrangements for crossing or did they simply rely on mutual self-support?

Fosh. I can only speak about the arrangements that were made at Londonderry and they were entirely the responsibility of the RAF, specifically Beauforte-Greenwood and Jinman who organised the provision of seaplane tenders, moorings, buoys and everything else that was needed, including, no doubt, one of the 24-foot W/T tenders that were used as a kind of floating control tower.

Jefford. I have not boned up on this, but I will do. For the moment my guess is that the Italian Navy would have been out in the Atlantic. If nothing else, I would have expected there to have been a destroyer every now and then to help with navigation. That was the way that a long sea crossing was done by a well-organised air force in the early 1930s – one's navy took part as well.

(The exercise in question was the remarkable Rome-Chicago-Rome flight led by General Balbo in July-August 1933, staging westbound via the North Atlantic and home via the Azores. Twenty-five aeroplanes set out; one crashed alighting at Amsterdam and a second in the Azores, but only two lives were lost. As I had suspected, the Italian Navy was heavily involved, committing six warships and two submarines in support of the westbound crossing, along with three temporary weather stations that were set up in Greenland. Ed).

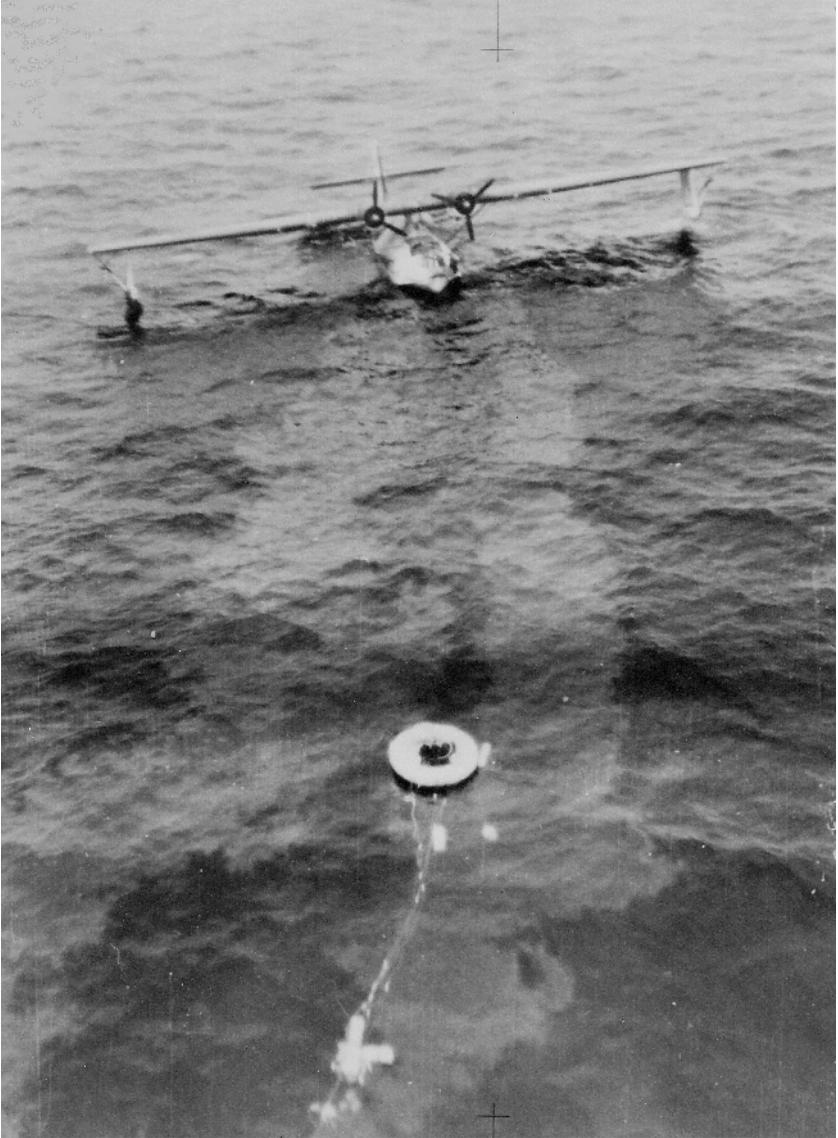
Humphrey Phillips. On 4 August 1942 my log book records a six-hour sea search, I think approximately over the Channel, in a Halifax of No 103 Sqn. Who would have organised this sortie and is there any record of Bomber Command's contribution to ASR?

Jefford. I do not recall having ever seen any official statistics on what Bomber Command did. I would expect the F540 of an individual unit to reflect such sorties; they should certainly have been recorded if they were classed as 'operational' – but were they? That said, however

they were categorised, it was not unusual for a unit to send out aeroplanes to search for their own missing crews if there was reason to believe that there might be survivors. This was less true in the UK, where an increasingly sophisticated professional rescue service was available to do the job, but it was a relatively common practice overseas where dedicated rescue resources did not really begin to make themselves felt until 1943 in the Mediterranean, and even later in India.

Pitchfork. Bomber Command devoted quite a lot of effort to ASR in the early days, because one of the critical deficiencies identified by the pivotal meeting chaired by DCAS in September 1941, that I referred to in my presentation, was the lack of a deep search capability. The end result was the Warwick but until they began to appear in the autumn of 1943, long range searches could be conducted only by misemploying aircraft of Bomber and/or Coastal Commands and there were many cases of crews being located by them. Thereafter bombers were used less often, but even then the rescue co-ordination organisation could, and would, call on Bomber Command if they felt that that was the only way of getting to somebody. As to whether any attempt has ever been made to record all of this activity – I doubt it. So, short of combing through the Operations Record Books of each squadron, and, I suspect, probably bomber OTUs as well, I don't think that we really know the scale of this effort. Even if one did try to do that, however, I am not sure that all of these sorties would have been classified as 'operations', in which case many would have gone unrecorded.

One of the pictures that I showed you, of a Catalina on the sea, was taken in July 1943 north east of Iceland, almost within the Arctic Circle, and it serves as a classic example of the sort of thing that was achieved. The incident involved a Fortress of No 206 Sqn which had been obliged to ditch after sustaining damage during a successful engagement with a U-boat. The first attempt at a rescue was made by an American Catalina which crashed while trying to alight in rough seas. Although its crew succeeded in taking to their dinghies, the two sets of survivors never linked up. Thereafter tabs were kept on the location of the RAF crew by a succession of aircraft, including Fortresses, Catalinas, Hampdens, a Hudson and a Sunderland. They



The crew of Wg Cdr Ron Thomson's Fortress of No 206 Sqn being picked up at 63°45'N 10°55'W on 13 July 1943 by a Catalina of No 190 Sqn captained by Sqn Ldr Jack Holmes.

were eventually picked up by the eleventh aeroplane, a Catalina of No 190 Sqn, but, sadly, the crew of the American Catalina was never found. What was significant about this incident, however, is that it had been too far out to be handled by the ASR resources available at that time, so, over a period of three-and-a-half days, the whole enterprise had been carried out by operational aircraft of Coastal Command diverted from their primary tasks and, I suspect, often being flown by volunteer crews.

Jefford. Reading between the lines of what you just said, one can get a feel for the scale of effort that was laid on so long as there was still a chance of saving someone. I was particularly impressed by one of the incidents described in your book,¹ involving the recovery of the crew a Beaufighter that had ditched off Crete in 1944. They were eventually picked up by a destroyer after four days during which five RAF rescue launches had participated in the operation and more than forty Beaufighter, Ventura, Baltimore and Wellington sorties had been flown to keep track of the drifting dinghy, one of the latter being lost in the process. My point is simply to underline the tenacity with which rescue operations were pursued, both at home and abroad, even when it meant incurring further losses.

Bill Beaumont. I am a satisfied customer of the air/sea rescue organisation. I suppose, like Irvin's parachutes, there aren't many *dissatisfied* customers! I was interested in the references to the slender resources allocated to the Far East. It was my misfortune to come down in the Sundarbans – the mangrove forest of West Bengal – and I can confirm that I was looked for and found by my own squadron. Even then it was a matter of luck and depended on someone spotting one's parachute snagged in the upper branches of the vegetation.

AVM Alan Johnson. We heard about the ASR coverage provided around the UK, but there was a great deal of transatlantic ferrying. Were any specific or formal arrangements made for that?

Jefford. My answer to that would be 'No', I don't think there were. There was, of course, a steady stream of eastbound traffic flying over

¹ Graham Pitchfork, *Shot Down And In The Drink* (The National Archives, London, 2005), pp 218-222.

the same route, and the westbound Liberator return ferry service taking pilots back to do their next run, so there would have been a fair chance of being sighted by a passing aeroplane, so long as one had come down close to track, although one would not have survived for long in the North Atlantic in winter, but it was the summer of 1944 before a dedicated ASR unit was set up in Iceland.

Pitchfork. I agree, I think that one was quite poorly placed flying across the Atlantic for most of the war. There were a lot of ships around, of course, and one of them might be diverted if you had been able to send an SOS message, because there were HF sites, in the UK and elsewhere, constantly listening out on the emergency frequency. Alternatively, a flying boat might be despatched to search for a crew, and there were a number of remarkable rescues, mostly involving Catalinas which were far more seaworthy than Sunderlands. In fact there were a number of incidents in which Sunderlands sustained damage alighting on the open sea to effect a rescue, with the crew and the survivors then having to be rescued in turn by a Catalina.

Trevor Price. Perhaps I could raise the issue of the Atlantic weather ships. I am not sure when they started, but I think the last four were withdrawn in about 1970. They had the ability to lay a flarepath, but I don't know if there is any record of how useful they were.

Jefford. It would hardly have been practical to have had ships at fixed locations with U-boats prowling around so I am pretty sure that the weather ships were a post-war innovation, introduced to support the increase in commercial traffic in the era of the DC-6, Constellation and Stratocruiser.

(I could not have been more wrong! The Americans actually set up their Atlantic Weather Observation Service as early as February 1940, the first two ships of the US Coast Guard being deployed between Bermuda and the Azores to support Pan American's transatlantic services. Shortly afterwards a third was sited to the east of Newfoundland to assist military aircraft being ferried to Europe. With the flood of Lend-Lease deliveries and USAAF aircraft being deployed to the UK from 1942 onwards, two more ships were added specifically for 'plane guard' duties, as well as for making weather observations, one

between Labrador and Greenland and the other in the Greenland-Iceland gap. By 1944 the US had eight ships permanently on-station with the British providing two more in the eastern Atlantic. Peak deployment had been reached by VE-Day when there were sixteen stations in the North Atlantic, eleven of them manned by the American Coast Guard, and nine further south manned by British and Brazilian crews. The ships involved had ranged from Coast Guard cutters, via worn out WW I destroyers to converted cargo ships, all of which were eventually superseded by newly built River-class frigates. Most, if not all, of these vessels were armed, but, perhaps surprisingly, only one weather ship was torpedoed, the USS Muskeget being lost with all 121 hands in September 1942. CGJ)

Richard Bateson. In 1941 HSL 143 was attacked by a German fighter, set alight and lost. The crew were rescued by an E-boat. Following this the Admiralty suggested that boats of the German rescue service, the *Seenotdienst*, should be similarly attacked. This was blocked by the Director Air/Sea Rescue Services on 26 June 1941 when he wrote to DCAS to express his concern that if the navy were to start engaging the enemy's rescue craft, we might well come off second best in the long run. I believe that British and German rescue vessels both wore bright yellow markings and that aircrew from both sides generally avoided attacking these boats. Is that correct?

Pitchfork. Yes, in the main it is. In researching this topic I turned up a number of interesting occurrences, like a Ju 88 that came across a British motor launch in the North Sea but, having evidently decided that a rescue was being effected, sheared off and flew away without making an attack. But whether this was policy, or simply chivalry on the part of individual crews, I couldn't say. I suspect the latter, although there were certainly some nasty incidents – during the Dieppe raid for instance.

Jefford. Playing devil's advocate, we know that the small craft involved in the Dieppe raid were well-intentioned and relatively harmless RAF rescue launches. But if you look at the picture from the German point of view it would have seemed rather different. After all,

there was a major invasion under way – perhaps *the* invasion – and there were all sorts of vessels out there trying to shoot you. So, from the German perspective it could well be that they didn't fire on 'rescue launches'; they were actually shooting at 'motor torpedo boats'.

Fosh. Air attacks aside, there were a number of events involving RAF marine craft being chased by E-boats (*Strictly speaking, S-boats. Ed*), and even some cases of pitched battles with them. Although some rescue launches had an Oerlikon in the stern, most were relatively lightly armed with .303 or 50-calibre machine-guns, so they were hardly a match for a motor boat, about twice their size, capable of better than 40 knots and armed with a pair of torpedoes plus 20, 30, and sometimes even, 40 mm cannon.

There was one particularly notable action. It was in June 1944 and involved a boat from No 24 Air Sea Rescue Unit at Gorleston-on-Sea, near Great Yarmouth. Three boats were already out looking for the crews of American B-17s that had ditched on their way back from their missions when a call came in for further assistance. Flt Lt George Lindsay, the off-duty captain of HSL 2551, who just happened to have been in the office at the time, took the call and, having gathered up his ten-man crew, they set off into the North Sea. They eventually picked up eight Americans from within a minefield close enough to IJmuiden harbour for the crew to be able to make out the coal-scuttle helmets of the German soldiers who were watching them, although they never opened fire. Air cover during the return journey was initially provided by a pair of USAAF P-38s but when shortage of fuel forced them to leave they were not immediately replaced. Shortly after that two enemy aircraft arrived and strafed the boat, setting her ablaze and leaving the crew with no alternative but to abandon ship.² A P-47 later dropped a life raft and the survivors were eventually picked up by HSLs 158 and 184 but two of the rescued Americans and four of the crew of HSL 2551 had either been killed during the air attack or had died in the sea, including the Captain who had died of exposure while trying to save the lives of others.

² There is some uncertainty over the type of aircraft involved but they were probably Me 410s of KG51. For more detailed accounts of this incident, see *Crash Boats of Gorleston* by Tony Overill (Woodfield, Bognor Regis, 2005), pps 81-103. **Ed**



Sister ship to the ill-fated HSL 2551, both were 63' launches built by the British Power Boat Co. This one has supplemented its two turrets, Anson-pattern Armstrong Whitworth glazed cupolas, with twin Lewis guns on pillar mountings either side of the wheelhouse and a 20mm Oerlikon in the stern. (Donald Smith)

Pitchfork. Just to round off that story, and to illustrate the sort of close co-operation and mutual respect that existed within the ASR community, George Lindsay's body had been recovered and two days later he was buried at sea. When the wreath was cast upon the waters it was in the presence of senior RN, RAF and USAAF officers, who had been conveyed to the scene by a flotilla of vessels including a number of RAF HSLs, a naval rescue motor launch, a motor torpedo boat and a motor gun boat, while, overhead, three Warwicks flew past in salute followed by three B-17s and three P-47s.

TRAINING AND SURVIVAL AIDS

Air Cdre Graham Pitchfork

Prior to the establishment of the Directorate of Air/Sea Rescue at the end of January 1941, there had been no formal training programmes to educate aircrew in the techniques for ditching and surviving at sea. Although eighteen months had passed since the opening of the war in Europe, most aircrew were still unfamiliar with the art of a successful ditching and uneducated in the use of the emergency dinghy and survival equipment. We heard earlier about the organisation of air/sea rescue and how marine craft and aircraft were used to rescue survivors, but none of these complex and expensive assets were of any use if aircrew in distress failed to make a successful ditching or parachute descent into the sea or to stay alive once in the sea. Equally, the safety and survival aids provided, or those that might be dropped to them, were useless unless aircrew knew how to use them.

Aircrew had to be trained, virtually indoctrinated, in survival and given the opportunity to practise escape and dinghy drills.

Staff at the Directorate prepared lectures and instructional pamphlets and drawings and the syllabuses at the ITWs and OTUs were modified to include lectures on the duties of aircrew before, during and after ditching. In April 1941 the first edition of a monthly memorandum on flying training, *Tee Emm*, appeared in the crew rooms of squadrons and other flying units across the RAF. Using the mythical and accident prone Pilot Officer Prune, it was an excellent medium for passing on important information on airmanship and training. Articles on survival and air/sea rescue appeared at regular intervals until it ceased publication in 1946. Three months after the first edition of *Tee Emm* had appeared, special air diagrams were issued to illustrate the ditching drills of the main aircraft types. These showed, in colour, step-by-step pictures of the main features of the drill, and were presented in a most attractive form in an effort to attract the interest of aircrews.

In spite of this training drive it was apparent from rescue results and the reports of survivors that insufficient time and attention were being paid to instruction in air/sea rescue techniques.

In March 1942, steps were taken to appoint at every station an



Not always a popular activity, but practical experience of dinghy drills was (and still is) essential. This is one of No 9 Sqn's wartime Lancaster crews at Bardney.

Air/Sea Rescue Officer responsible for all aspects of survival equipment carried on the aircraft of his station, and for the training of aircrews in dinghy drill and distress procedures. These Air/Sea Rescue Officers did their best, but the majority had insufficient knowledge themselves and had very little opportunity to undertake any training to gain experience. Furthermore, their functions and duties had never been clearly defined because of a lack of facilities for their own training. As a result, in the eyes of many aircrew, these dedicated officers lacked credibility. Some enterprising rescue officers invited those who had survived a ditching to visit their stations and brief the aircrews. There was no better way to convince doubting aircrew of the essential need to learn the appropriate drills than to hear the experiences of those who had survived such terrifying ordeals.

In February 1943, ACAS(Ops) gave authority for the formation of a School of Air/Sea Rescue. The school was formed at Blackpool near the airfield at Squires Gate. It was allocated three Ansons and the marine craft at Fleetwood were used for exercises and dinghy sea

training. The two-week course catered for twenty officers from the operational commands and the USAAF. The school opened on 30 May 1943 and both theoretical and practical training was given on rescue procedures and familiarity with all types of rescue equipment.

As the air/sea rescue organisation developed and the experiences of survivors were analysed, so the training programme for aircrew could be made more appropriate. With the rapid expansion of the air war, and with it the inevitable increase in losses, many of them at sea, survival techniques could be refined. The most important aspect was to disseminate this information to aircrew.

So, with the gradual establishment of a training system, what of the development of survival aids? The first inflatable dinghy, the 'A' Type, intended for a crew of three, had been developed for use by the crews of flying boats in 1925. Over the next ten years it was adapted for emergency rescue purposes. By 1935, a larger, circular pneumatic dinghy, known as the Youngman dinghy, was being produced in three sizes. Stowed on the upper wing of an aircraft, it was released in the event of ditching and floated, still attached to the aircraft, to allow the crew to embark and await rescue.

By 1940 the 'H' and 'J' Type dinghies had been developed to provide greater carrying capacity and increased stability. A modified version of the 'H' Type was used in heavy bombers. When the aircraft came to rest, sea water activated an immersion switch, which opened the valve of a CO₂ bottle and the dinghy inflated while automatically emerging from its stowage compartment. Scaled-down versions were developed to accommodate three people and by the end of 1940 all multi-seat aircraft had been equipped with dinghies.

On the other hand, a fighter pilot had to rely solely on his flotation jacket (Mae West) to keep him afloat until help arrived. The possibility of providing a dinghy had been carefully considered but the difficulties of stowing one in a small cockpit were such that the idea had to be abandoned. Pilots had been advised to bale out rather than try to ditch, so a dinghy was imperative. However, in the autumn of 1940, the availability of a German single-seat dinghy added new impetus to the idea, which led to the British 'K' Type. The 'K' Type was a boat-shaped dinghy, packed in a valise worn attached, either to the parachute harness, or to the Mae West. At the beginning of 1941, 12,000 of these were ordered for fighter pilots and Fleet Air Arm



The 'K' Type single-seat dinghy.

aircrew. Improvements to the original design were soon made with the inclusion of paddles, a telescopic mast, emergency rations and a flag to attract attention.

By August 1942, three years after the war had started, the issue of 'K' Type dinghies to fighter aircraft had been completed, with three different types developed to fit the various seating arrangements. By this time most had been modified with a protective apron and hood to shelter the occupant from the weather and the sea. The success of the 'K' dinghy prompted the authorities to issue them to crews in multi-seat aircraft who might be forced to bale out over the sea, and almost all aircraft except heavy bombers and trainers, received them.

In the winter months, some aircrew who had succeeded in getting into their dinghies, were found to have died from exposure before they were picked up. The Deputy Director of ASR was convinced that the introduction of a sail would not only increase the chance of survival, but the psychological effect of making the effort to sail home would contribute to a survivor's resistance to exposure. Only minor changes were needed to provide a 'K' Type dinghy with a sail and with this modification and the protective hood and apron it was considered

possible for some to have a chance of sailing to friendly waters – indeed, some pilots actually did just that.

Early in the war, before any attempt had been made to organise and co-ordinate air/sea rescue, a number of units developed their own survival aids to be dropped to their own crews in distress enabling them to survive until passing ships could pick them up. These were very much local improvisations and included many and varied items thought suitable by the individual units.

Three RAF stations, which lent their names to their individual solutions to the problem, made notable contributions towards devising locally produced survival equipment in 1940, as follows.

The Thornaby Bag consisted of a strengthened fabric parachute bag using the kapok pads from a Mae West life jacket for flotation. The advantage of these bags was that all the components were readily available on the station. Individual bags were made, which contained watertight tins of food, drink, cigarettes and first aid equipment. The bag was never a great success because it was liable to burst on impact and, even when it didn't, it was difficult to spot once it was in the sea. Nevertheless, it was better than no aids at all and some successes were achieved.

The Bircham Barrel overcame the weaknesses inherent in Thornaby's fabric bag by employing a rigid container which could be carried on the bomb racks of the searching aircraft. It was made from the tail unit of a 250 lb bomb with a reinforced inner frame and an inner canvas bag, all made watertight. Once again, all the components were readily available on the station. Later developments made the barrel more conspicuous once it was in the sea and also allowed the ditched crew to retrieve it more easily. By September 1941 clearance had been given for it to be carried on a wide range of aircraft.

The Lindholme Gear. It soon became apparent that distressed aircrews needed something more than emergency rations to keep them alive until a ship arrived. Gp Capt E F Waring, the Station Commander at RAF Lindholme, and who was to play a major role in the air/sea rescue arena throughout the war, invented and perfected an apparatus comprising a series of five containers. The

largest of these, which was the tail unit of a 500 lb bomb, held the dinghy. The four smaller units contained, as in the Bircham Barrel, water, food and protective clothing. All five containers were linked together by floating ropes, which ditched aircrew could grasp and haul in. The advantage of this apparatus was its scale, and in particular the provision of a much larger dinghy of more robust construction, which was better able to withstand rough seas.

Following a successful rescue, with the aid of a Thornaby Bag, of a Whitley crew that had been in a dinghy for 72 hours, DASR suggested that all Coastal Command stations should produce them for their own rescue attempts. The Lindholme Gear soon proved its superiority, however, and it was decided that they should be commercially produced.

Once ditched aircrew had successfully boarded a dinghy, their chances of rescue were greatly enhanced, but the most difficult operation was to locate them. Distress signals received from aircraft enabled a triangulated D/F (direction finding) fix to be obtained, but its accuracy would be dependent on a number of factors such as distance, the weather and the quality of the bearings. Often there was a significant time delay before a rescue craft could arrive at the scene, by which time the dinghy might have drifted a considerable distance from its original position. Sometimes the crew did not have time to transmit an SOS before ditching. It was essential, therefore, that survivors were provided with location aids to assist searching aircraft.

The most effective location aids were visual and radio. The RAF copied the German idea of providing yellow Mae Wests and skull caps. Fluorescence bags were included in the dinghies, which, on immersion, stained the sea yellow. The 'K' Type dinghy also had a telescopic mast with a flag and the Directorate of ASR encouraged the development of waterproof and more effective pyrotechnic signals. However, the most important development in the early days was the dinghy wireless set, which the rescue craft could home onto. Another rescue aid used in the early days was a cage of homing pigeons that could be released, once the survivors were in the dinghy, carrying a message giving the position of ditching. A Beaufort crew was picked up after the safe arrival of one of their pigeons at its loft near Leuchars.

Experimental work, with the aim of creating a radio suitable for use by ditched aircrew, started in the middle of 1941 but progress was slow. After the capture of a German set, it was clear that it was superior to the British prototype, which was duly scrapped in favour of an order for 2,000 modified examples of the German version. The transmitter (the T1333), which operated on the international distress frequency of 500 Kc/s, was encased in a waterproof floating container and the aerial was a telescopic mast – experiments were also conducted with a view to using a kite to provide additional height, and thus increase the range. The radio was too big to be stored in the dinghy pack so it had to be stowed loose in the aircraft and taken out by hand after the aircraft had ditched. Unfortunately, a series of technical difficulties delayed introduction of the transmitter and none had been delivered by the following summer. In view of this grave situation, an immediate demand was submitted for 1,000 examples of an American dinghy radio (an exact replica of the German set).

In order that marine craft could home on to a dinghy transmitter, RAF high speed launches and the Royal Navy's rescue motor launches (RML) were equipped with the widely available R1155 wireless receiver and a D/F loop.

During the summer of 1943 large numbers of British and American dinghy radios were issued. By the end of the year it was evident that the American set (the SCR578) was superior and it was agreed to standardise on this model, the US authorities being asked to provide no fewer than 12,000 of them.

All of the rescue apparatus in use or proposed during the early years of the war was no more than a temporary means of sustaining life in the sea. Unless the dropping of dinghies and food was quickly followed up by the arrival of rescue craft, a crew's chance of survival was poor. As the range of flying operations increased, some aircrew were forced to ditch or bale out in places too far from the coast to be rescued by marine craft or small amphibian aeroplanes, so it was necessary to devise some other form of rescue vehicle, ideally a boat of some sort, that the crew would be able to sail towards friendly waters where they could be rescued more easily.

Soon after the war started, a number of ideas were put forward, including a glider-type boat and a 32-foot motor dinghy to be dropped from a Hampden bomber. Neither was really feasible as it stood, but

the concept of an aircraft carrying a boat and dropping it to survivors clearly showed promise. While still commanding Lindholme, Gp Capt Waring had been working on this idea with a view to devising a means of carrying a motor driven lifeboat and dropping it by parachute. When he moved to the Air Ministry in September 1941, where he was to take charge of air/sea rescue, he continued to develop his scheme with the support of Lt Robb RNVR. Robb, a boat-building expert, sketched a 20-foot long boat powered by sail, oar and/or a motor and capable of accommodating up to seven people. To overcome the problem of a boat descending by parachutes drifting downwind (and probably out of reach of the survivors), it was to be fitted with a rocket-fired weighted drogue attached to the bows to act as a sea anchor. The GQ Parachute Company devised a suitable parachute release gear. To prevent the boat's capsizing, buoyancy chambers were provided, these being inflated by a mechanism, triggered by the deployment of the parachutes, which opened the valves on CO₂ bottles. It was foreseen that, in a rough sea, a crew might not even be able to see the lifeboat and, if they did manage to reach it, they could well find it impossible to remain alongside. To solve this problem, a rocket, which fired automatically upon impact with the sea, was installed on both beams, each rocket carrying 200 feet of buoyant line which was ejected on either side of the boat, the idea being that the survivors could simply allow their dinghy to drift downwind until they reached one of the lines which they could then use to haul themselves to the lifeboat.

Waring's ideas did not attract a great deal of interest at first but Uffa Fox, the well known builder of small sailing craft, heard of it and he devised a very similar scheme. He submitted his version and in January 1942 he was authorised to proceed with the development of a practical rescue boat. He was subsequently asked to incorporate a number of features of the Waring/Robb project and the resulting design was virtually identical to their proposal, although their contribution received little recognition, as it became popularly known as the Uffa Fox Boat.

In February, approval was given for Hudsons to be modified to permit them to carry the boat. Preliminary tests in August were successful and by October, before the ASR Hudson had even become operational, it had already been decided to replace them with



A Mk II airborne lifeboat being loaded onto a Warwick of No 269 Sqn in the Azores.

Warwicks, which meant adapting the lifeboat to fit the new aircraft. Nevertheless, in view of the urgency attached to the introduction of a lifeboat capability, it was decided to sustain the Hudson programme as an interim measure, twenty-four Mark I boats being ordered pending development of the version intended for the Warwick.

No 279 Sqn's Hudsons eventually became operational with lifeboats in January 1943. They were well provided with signalling aids plus sufficient food, drink and comforts, including waterproof suits and first aid kit, to cover seven day's requirements for a crew of seven. To assist the survivors on their voyage, a compass and charts were provided along with appropriate materials and tools to effect repairs. All of this equipment was stowed in the boat's lockers, together with petrol, oil, sails, masts and rigging together with instructions to enable survivors with little sailing experience to operate the boat and navigate safely.

There were the inevitable teething troubles but the majority of

these had been resolved by the late spring, by which time No 279 Sqn was well provided with airborne lifeboats. The first operational drop was made to a Halifax crew on 5 May and its success proved the validity of the idea. The second successful drop, which was made in far more demanding circumstances, provided further proof of the effectiveness of the concept. This incident had involved the crew of a Wellington flying their last trip, a leaflet-dropping sortie, at an OTU. They were obliged to ditch, close to the French coast just north of the Seine estuary, where they were located at dawn by a Hudson, accompanied by Spitfires. The Hudson dropped its lifeboat which the crew duly boarded. They managed to start the engine and get under way, top cover being provided by Typhoons until they were met by a high-speed launch, with its own fighter escort, which took them aboard.

The longest recorded rescue involving a lifeboat occurred when a Mosquito crew ditched 200 miles south of Lands End after a combat with Ju 88 fighters. They were located in their dinghies by a Warwick which dropped a lifeboat. They got the engine going and headed north before encountering gale force winds. Eventually the engines were swamped, obliging them to resort to the sail. On the third day they were picked up by a Royal Navy rescue launch, by which time they were just 15 miles off the Scilly Islands.

Finally, I should mention a South African pilot, Roy Veitch. He flew Mustangs in Italy and during April 1945 he was shot down into the Adriatic no fewer than three times. On each occasion he was found and a lifeboat was dropped to him. He sailed out of the minefields into which he had fallen and was eventually picked up, twice by a Walrus and once, on the third occasion, by a USAAF Catalina. This unique series of events earned him the DFC and the AOC, AVM 'Pussy' Foster, appointed him the 'Honorary Commodore of the Desert Air Force Sailing Club.'

RECOLLECTIONS OF SERVICE WITH ASR SQUADRONS

Flt Lt Tony Richardson



Having enlisted in the RAFVR in 1940, Tony Richardson served until 1946. He began flying as a sergeant air gunner in Wellingtons of No 108 Sqn, followed by a tour with No 228 Sqn on Sunderlands, his final operational experience, by which time he had been commissioned, being on air/sea rescue duties with Nos 277 and 279 Sqns. Tony was a founder member of this Society, and served on its Committee for the first half of its life, and he is still an active member of the Council of the Friends of St Clement Danes.

There have been quite a number of navigators on this rostrum over the last twenty years or so, not to mention a plethora of pilots, but until now, never an air gunner. We were an odd breed, dead weight for many a trip but when a Ju 88 stuck its nose up your tail we were just the chaps to have on board.

Air/sea rescue was different, in that it was the air gunner who made it all work, because he was the chap who would actually pull you out of the drink. Having said that, effecting a rescue in a Walrus was a closely co-ordinated exercise, the pilot needing to possess a very high degree of skill – both as airman and seaman – in order to manoeuvre the aeroplane alongside the client without overrunning him. Once in position, the man in the bow was able to grab him and float him back along the hull to the chap mid-ship who pulled him on board – but I am getting ahead of myself.

I would love to tell you tales of derring-do but, while my relatively brief RAF career, spanning 1940 to 1946, was interesting, to me, it was pretty much totally undistinguished. Two tours at the sharp end, one on Wimpey Ics, with a solitary combat in the course of thirty-eight sorties, and then haemorrhaging to Coastal Command – one of Sir Arthur Harris's major annoyances – for a tour on Sunderlands, and finally to Fighter Command for air/sea rescue duties.

How did I get into air/sea rescue? Quite simple really; I just asked. And lo there came a telegram from the Air Ministry directing me to report to No 277 Sqn at Shoreham-by-Sea on 27 November 1944. By this time the war was moving quite rapidly and I was really indulging a whim in asking for air/sea rescue, but I felt that it was still a worthy front line occupation and I preferred that to going back for yet another tour as an instructor.

Reporting to the guardroom at Shoreham, I really should not have been surprised to learn that the squadron had left for Hawkinge quite some time ago. Hawkinge was a brilliant station (and the nearest to occupied France – ten minutes to the Pas de Calais) and the ubiquitous Supermarine Walrus was, so far as its crews were concerned, a brilliant aeroplane.

Known as the ‘Shagbat’, the Walrus’ pedigree stretched back to before I was born. It was a bit on the slow side, even for those days, but it could do miraculous things in a dauntingly rough sea. Even the great Shagbat had its limitations, of course, but even then it could still make an important contribution. For instance, on 23 December 1944 we had five Walruses and seven Spitfires in the air on search sorties. Although there were no actual rescues that day, two bomber-type dinghies were sighted, together with a number of bodies. The sea was far too rough for even a Walrus to land, so one aircraft circled the spot until an HSL (High Speed Launch) arrived to retrieve them.

A Walrus crew comprised a pilot, a WOp/AG and a straight air gunner. I was a little surprised to find that all of our pilots were Royal Air Force or from the Dominion air forces. The only remaining naval aircrew when I joined the squadron were a couple of leading hand TAGs (telegraphist air gunners), although I understood there had been some FAA pilots in the past.

Hawkinge presented me with something of a cultural shock in that it had a pre-war mess, accommodating a relatively small number of officers. Having spent practically all of my time prior to this on stations operating large multi-engined aircraft, which meant enormous officers messes, I really was rather taken aback. The station I had just come from had been home to three squadrons of flying boats, and, for some reason, the crews of flying boats always seemed to have a higher ratio of officers to NCOs than other types, which meant that that mess had to cater for very large numbers of officers. Another bonus

associated with the move to Hawkinge was the relaxed atmosphere on the squadron which contrasted sharply with the rather stuffy attitudes I had encountered on flying boats – which I always put down to a naval hangover from the RNAS.

When I joined the squadron there was a feeling in the air that the European war was nearly over. As it turned out, this was wishful thinking, of course, but it enabled us not to think too much about Bomber Command and the terrible losses that it would continue to sustain for quite some time yet. A contributory factor to this feeling was a falling off in the demand for our services in the Channel. There was still work to be done, however, and I was given no time to settle in before my training started.

Since all aircrew assigned to air/sea rescue duties were already experienced in their individual category, most of them having some operational flying to their credit, training was done in-house on the squadron. The Spitfire search and escort flight was manned by fighter pilots ‘on rest’. On rest?! I never understood how anyone could construe searching the seas at low level in poor visibility in a single-engined fighter as ‘a rest’, but the pilots never complained – and I have to say that they were very good at partying, but that’s another story.

Training was begun with some urgency because, despite some reduction in trade, there was still work to be done. The first trick that had to be learned was how to start the engine. Imagine yourself balancing on the lower wing of a little Walrus biplane, while it bobbed up and down as only a short-arsed amphibian can in a choppy sea, and then cranking the inertia starting handle until your arms felt like dropping off until the pilot finally pressed the starter button. If he did it at the right moment, the engine fired, caught, and all was well; if not, you had to do it all over again. This was a prime requirement for the crew as there was not much point in picking a chap out of the sea only to have the Pegasus die on you and not be able to start it again. Do you remember how wonderful it was to be young and fit, with more energy than you knew what to do with? Well you needed all of those reserves to start a Pegasus.

The second lesson involved the business of actually getting a client out of the Channel quickly and neatly without cracking his skull with the boat hook as you balanced yourself in the forward hatch and tried



Most of the handle that had to be cranked to re-start the Walrus' pusher Pegasus can be seen in the top left hand corner of this picture.

to hook his Mae West; alternatively you could quite easily drown the poor chap by turning him over, face-down, as you released the hook from the shaft, allowing him to drift, now attached by a rope, down the side of the 'boat to the aft hatch. It sounds like a fairly straightforward exercise, but I can assure you that it really wasn't very easy to do.

The other crew member, the wireless operator, would be waiting at the aft hatch to haul the survivor aboard. At least, that was the theory. In practice, it was virtually impossible for one man to haul a sodden, possibly unconscious, airman out of the drink on his own. This necessitated the man in the bow coming aft to help and I can testify to accumulating bruises and hacked shins in the charge through the

cluttered hull to get aft in quick time. Once there, if you wanted to avoid getting an impromptu short back and sides, one had to be very aware of the pusher propeller thrashing about just behind your head.

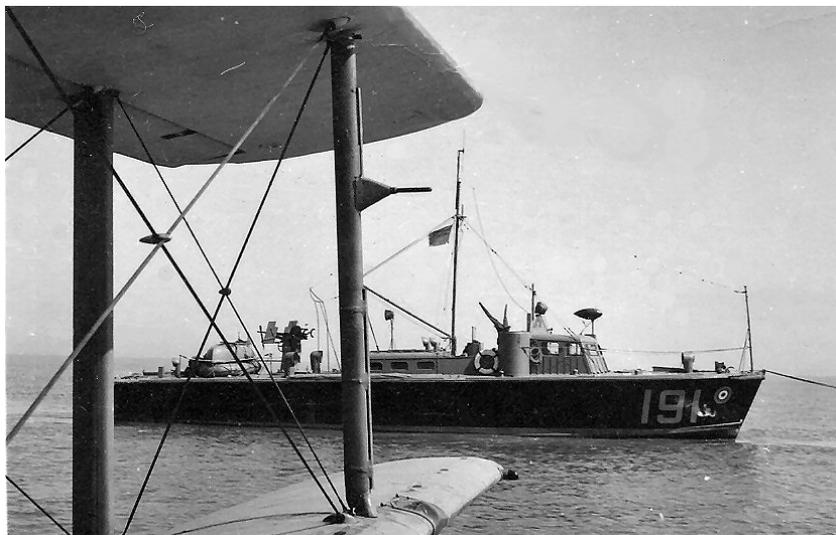
Once inside the hull there were plenty of blankets to wrap around the poor chap but, strangely, I have no recollection of any towels – mind you this was the 1940s. Amongst the emergency rations there were goodies for the survivors, like chocolate and biscuits, and there was an ingeniously designed can with a central fuse that, when lit, fizzed briefly to provide boiling hot soup – my personal favourite on a cold early morning patrol was oxtail!

As we were always in fairly close proximity to one of the great number of southern aerodromes or a high speed launch our survivors could be in hospital, or at least on dry land, quite quickly. Although we practised transferring a rescued airman to a launch, not an easy process, I can assure you, I never had to do it for real, as incidents involving large crews from multi-engined aircraft really belonged to the previous year. Our main customers were now single-engined chaps or the occasional Mosquito or Auster, so we were usually dealing with two men, or three at the most, which was well within our take off load.

Training was continuous with practice sea landings a daily occurrence, usually off Folkestone pier or, during a standing patrol when, if we came across a naval MTB, we would put down alongside, because it was well known that they carried bottles of gin and were not averse to parting with the odd one. It was a very tricky business, but naval seamen were very skilled at getting a line to us.

Crews at readiness spent hours and hours playing handball. These games lasted all day with off-duty people playing for a while and then leaving as others joined in. The plus side to this was that I maintained a quite remarkable degree of fitness. While this was going on there were always a couple of Spits and a Shagbat nearby. When a call came in, you grabbed your Irvine jacket, Mae West and helmet and by the time we reached the aeroplane, the groundcrew would already have the inertia starter whining its head off.

Having previously spent many hours searching the Western Approaches and the Bay of Biscay for U-boat periscopes, I thought that spotting a downed airman would be easy but it really wasn't. Even with a small sea, that is one without a big swell and white horses, spotting a dinghy, even with marker dye, was very difficult.



A Walrus of No 277 Sqn moored alongside an RAF launch. HSL 191 was the lead boat of a series of 125 67' launches built in a number of shipyards to a design by John Thornycroft.

As for the poor chap with just a Mae West, you had to be very lucky to see him. But it did happen, more times than you might think, mainly due to accurate vectoring by the controllers who knew where he had gone down and who were co-ordinating the rescue effort.

A short anecdote, which I usually tell at great length and embellish with gay abandon at after dinner speeches, but will reduce here to the bare bones. While on a standing patrol, we were vectored onto an aircraft in trouble coming up the Thames estuary, only to be stood down when it was finally identified as a V1 flying bomb; I am sure that we were not the only ASR crew to which this happened.

I recall one more anecdote relating to No 277 Sqn. Two Walruses, patrolling off Beachy Head on 30 December 1944, spotted wreckage and bodies but there was also a live customer waving. Flt Lt Robertson landed but, despite repeated attempts in a really bad sea, his efforts were continually frustrated so that the air gunner, Fg Off Kennedy, eventually went into the sea to assist. Sadly, the customer died and Kennedy, totally exhausted, was only just hauled on board after much effort by the wireless operator. (*Sadly, the squadron's*



Standing behind the pilot, Flt Lt C G Robertson, is Fg Off C G Walker, RAAF, with FSgt W Shaw in the rear hatch (note the proximity of that four-bladed propeller). On 12 December 1944 this crew carried out No 277 Sqn's 598th, and last, successful rescue when they picked up a P-51 pilot, Lt O'Quinn of the 359th FS, 356th FG; the sea was so rough that they had to taxi most of the way back.

diarist neglected to record the name of the third crew member on this sortie. Ed) An HSL was directed to the position to collect the bodies and the Walrus, taking off cross wind, only just managed to get airborne. I cannot remember if any awards were made, but I doubt it. This sort of thing was simply expected of Walrus crews.

By early 1945 most incidents were occurring in the North Sea and off the east coast, rather than in the Channel, and it was eventually decided that we had outlived our usefulness on the south coast so, after one hell of a party in the Sergeants Mess, dear old No 277 Sqn went into liquidation on 15 February, followed by Hawkinge's being reduced to a Care and Maintenance basis in November.

Before we moved there was the occasional light relief due to our



Clearly an extrapolation of the basic Walrus design, improved hydrodynamic and aerodynamic characteristics and a more powerful Mercury engine gave the Sea Otter a much better water take off performance than its predecessor.

proximity to London because our little Walrus amphibians were in great demand to take VIPs to and from the Continent. As a result, I happened to be in Brussels the day after it was liberated and I thoroughly enjoyed being feted as a hero by our Belgian friends.

While our postings were being sorted out we spent a couple of weeks at Thorney Island attached to No 278 Sqn. My main recollection of that episode is that, because the mess was so close to the taxiways, I had very little sleep because the navy always ran a lengthy night flying programme and their Barracudas had brakes that squealed constantly – and very loudly.

Early in April, a pilot, a wireless operator and myself were posted to No 279 Sqn, a Warwick lifeboat-dropping outfit at Thornaby-on-Tees, where we were to form and develop a Sea Otter flight. The Sea Otter was much the same as a Walrus, although it had a bit more power from a Mercury engine which drove a tractor airscrew.

I was not unduly impressed by the station and I well remember a permanent pall of smog hanging over Middlesborough. After

Hawkinge and the south coast it was not a happy start, but when the first Sea Otter was delivered life began to become more interesting. I flew in this first aircraft standing beside the pilot with Pilot's Notes at the ready; he had never flown one before, which made it quite an exciting exercise.

Most unusually for an air gunner, I was appointed Deputy Flight Commander. As more crews and Sea Otters arrived the training programme gathered pace with practice sea landings being carried out on the River Tees. A safety boat was required for these and a pinnace was duly provided by the navy. It turned out to be manned (ladies?) by the pick of the Northern Command WRNS and you will understand that, despite the fact that it was a very boring job, I considered it my duty to volunteer, with marked regularity, to accompany the crew as Safety Officer.

I have a strange mental block about the Warwicks and their lifeboat-dropping. I would have thought that I would have been interested enough to have flown with them to familiarise myself with their techniques. Apparently not, but I have no idea why – perhaps I really was too busy!

We worked up the Sea Otter Flight; VE-Day came and went, as did VJ-Day in August and then demobilisation numbers began to be published. Mine was fairly early, which was a bit awkward as it had been announced that it was intended to post the squadron out to the Far East in September. I had no wish to be stuck in India waiting to get back again, so that I could commence my new career – which involved becoming a captain of industry and making a lot of money.

Fortunately for me, No 279 Sqn was back in Coastal Command and the Command Gunnery Leader was a friend of mine. He promptly arranged a posting as Gunnery Leader at 4(C) OTU at Alness, or Invergordon as it was often still known. I flew a training sortie on 1 April 1946, followed by night flying and the next day my war finally ended. I left for the demobilisation centre to be discharged after just short of six year's service and three weeks before my 22nd birthday.

In closing, I should say that I never did become a captain of industry, but I did have a hell of a lot of fun trying.

MOUNTAIN RESCUE

Frank Card



During his National Service Frank Card became a member of the Mountain Rescue Teams at Montrose and Edzell and he has maintained his links with the Service ever since. He was a founder member of the RAF Mountain Rescue Association and launched its annual journal, On The Hill, which he still edits. His professional career was in the field of credit management until 1985 since when he has continued to write about it while also finding time to publish Whensoever – 50 Years of the RAF Mountain Rescue Service.

Until WW II, there was no mountain rescue movement, military or civilian, at least not in the sense of permanently-established teams as we know them today. Rescues had been made, of course, but they had been organised on an *ad hoc* basis – someone would take a fall or go missing, and willing helpers would turn out. That sufficed for the relatively small amount of recreational climbing that was done before the war but the massive increase in flying after 1939 changed all that, because much of it was being done over mountainous terrain.

Even so, in the early days of WW II, the arrangements were pretty informal, amounting to little more than an expectation that the nearest RAF station would do whatever was necessary if an aircraft crashed. The SAR part of the operation was usually left to the local Medical Officer, along with his orderlies and any other airmen who could be roped in. It was a very lucky station that had an MO who also just happened to be something of a mountaineer. One such was Flt Lt George Graham who was posted to RAF Llandwrog, on the edge of Snowdonia, in 1941. Graham, who had taken up climbing as an undergraduate and had experience in Switzerland, began training his scratch teams as best he could in search party techniques and elementary mountaineering. They had no proper equipment and were walking those dangerous hills in standard blue/grey service dress, greatcoats and rubber boots. Nevertheless, Graham persevered and in the course of 1942 he managed to persuade Command HQ to provide

more suitable vehicles and equipment. During that year his team attended eleven crashes, recovering twelve survivors and thirty-five bodies.

What would prove to be a pivotal event in the annals of RAF mountain rescue began on 14 January 1943 when Plt Off Ken Archer took off from Llandwrog in an Anson. Problems with the radio meant that the crew became uncertain of their position and, flying in darkness, the aircraft eventually hit high ground in Wales, coming to rest in a gully at about 2,300 feet. Archer and the navigator survived, although injured; the other two crewmen were killed. This incident was to teach many lessons.

The next day Archer managed to find a farmhouse, and the farmer phoned Llandwrog which brought Graham and two orderlies to the scene. Archer was too shocked and confused to provide a precise description of the crash site, so Graham's party searched far into the night, until a snowstorm forced them to call a halt. Another thirty men joined the search at dawn but their heavy truck was unable to negotiate a mountain track, obliging them to walk the remaining eight hard miles, at a cost of some four hours of search time. A Beaufighter of No 456 Sqn from Valley was sent to help in the search, but there was no way that the crew could establish radio communications with the team on the ground. The General Service stretcher proved to be far too heavy for mountain work, and the available ambulance could not climb the steep track without the help of a civilian vehicle.

Despite these handicaps, the Anson was eventually found, with the severely-injured navigator still alive. In the wake of this incident, Graham submitted a formal proposal for the establishment of a dedicated team, his paper specifically dealing with the need for appropriate vehicles, communications, equipment and techniques. His proposal was approved, and the first trial was held in February 1943. The Llandwrog team was officially launched in July, shortly after Graham's MBE 'for services to mountain rescue' had been gazetted. Once established, the Mountain Rescue Service expanded so that there were ten teams by the end of 1944: two in Wales, four in England and four in Scotland. Some idea of the scale of the operation can be gauged from the fact that during that year assistance was rendered at fifty-four crash sites from which forty-nine of the 226 aircrew involved were rescued.



Flt Lt George Graham photographed in 1943 at the press launch of the Mountain Rescue Service.

Meanwhile, George Graham had been posted to India where, having joined No 357 Sqn, he led a rescue expedition which involved a long march through Burma into China, dodging the Japanese; an exploit which earned him a DSO.¹

While the RAF continued to sponsor a number of Mountain Rescue Teams (MRT) after the war, the massive contraction of the Service meant that they received little further attention until 1947 when it was decided to investigate the potential of the helicopter in the field of search and rescue. An exercise was organised in which three Mountain Rescue Teams participated with the aim of assessing the practical possibilities represented by a pair of Sikorsky Hoverfly IIs. The Hoverfly was no Sea King, of course, lacking both capacity and a winching mechanism. Nevertheless, the exercise clearly demonstrated

¹ For a more substantial account of George Graham's crucial contribution to the initial establishment of the RAF's involvement in mountain rescue, and of the incident that took him into wartime China in search of the crew of a lost Hudson, see the article by Frank Card in this Society's Journal No 24. **Ed**

that any helicopter, even a relatively primitive one, could make a crucial contribution to the saving of life, because of its ability to convey people and equipment directly to a crash site in difficult terrain and/or to evacuate stretcher cases, thus saving the hours of trekking that could well prove to be fatal for an injured survivor. The limited capabilities of early helicopters meant that it would be several years before their potential could be fully realised and it was 1951 before the fortunes of the post-war mountain rescue community received a real boost, largely as a result of a series of high profile incidents.

The winter of 1950-51 had been a hard one in North Wales, making the hills so dangerous that five climbers lost their lives between January and Easter. Fg Off Mike Mason had recently taken over the MRT at Valley, where he had instigated a vigorous training programme while submitting urgent demands for equipment and clothing. The Valley team was out on exercise over Easter weekend when, in the early hours of Good Friday, two of the team were deemed to be overdue back at the camp site. A search party went out into the night to look for them. Shortly afterwards the overdue pair returned, but, with the available radio equipment, it was impossible to make contact with the search party in order to recall them. They finally returned under their own steam, only to find everyone, including the two 'missing' men, fast asleep.

This hiccup aside, over Easter weekend the Valley team recovered three bodies and four casualties from the sites of three accidents and were on stand-by to attend a fourth which was eventually handled by a civilian team. In addition, they probably prevented other tragedies by giving advice and assistance to other climbers and walkers, including a party that was attempting to cross an icy stretch on the Snowdon Horseshoe – without ice-axes. Their efforts were commended by the leading civilian mountain rescuer in North Wales, the late Chris Briggs of the *Pen-y-Gwyrd Hotel*, who maintained a mountain rescue post there. Valley had seen more action over this long weekend than in the whole of the previous year. In mountain rescue folklore, it has become known as 'Black Easter'.

Meanwhile, the MRT at Kinloss was also having a busy time in 1951. It began on 13 March, when a Lancaster, captained by Flt Lt Harry Reid of No 120 Sqn, left Kinloss on a navigational exercise. A radioed position report put the aircraft about 60 miles north of Cape



The Kinloss MRT at Beinn Eighe 18 March 1951.

Wrath at 0127 hrs, but nothing more was heard. An air search was instigated but it was four days before the crew of an Oxford located the wreckage on the north face of Beinn Eighe, one of the highest peaks in the area.

When it reached the site, the Kinloss MRT found the aircraft lying in a corrie backed by a massive wall, stretching up 1000 feet at its highest. Three colossal overlapping buttresses occupied the greater part of the western end of the corrie, disappearing into the mist. At the foot of the buttresses lay the Lancaster's port wing and undercarriage, two engines and various cowlings. Four of the party tried to climb the gully between the central and western buttresses, but ice and mist forced them back.

Although the team had, perhaps unwisely, declined an offer of assistance from two local mountaineering clubs, other help was at hand and the first body was eventually found by two members of the RN Mountaineering Club. The search proved to be a difficult and lengthy undertaking and it was not until 30 March that the Kinloss team returned to the area to find a second body, three more being

recovered over the next few days. Several subsequent attempts were made but it was 27 August – 5½ months since the crash – before the last body was found. The search party then pushed the remaining large pieces of fuselage and wing down into a gully, where they could do no harm. It is now known to climbers as Fuselage Gully.

The crew are interred in the grounds of the ancient abbey at Kinloss; one of the Lancaster's propellers, bent and twisted, stands outside the Mountain Rescue Team building at RAF Kinloss.

In the past the Service had, on more than one occasion, declined to accept the RAF Mountaineering Association's (RAFMA) offers of assistance with training. Despite their eventual success, what the high profile events of Black Easter and Beinn Eighe had demonstrated was that, despite their enthusiasm, the MRTs had exhibited some crucial deficiencies and it was clear that they could not go on as they were. Recruiting was not a problem; people were prepared to join the MRTs, but many of them lacked professional expertise and much of the available equipment was inadequate. In short, the RAF had to decide whether to invest in its MRTs, laying down standards and procedures and accepting the advice of expert rock-climbers, or to withdraw from the mountain rescue business altogether, leaving it to others and consigning the RAF's participation to a footnote to WW II. To the Service's eternal credit, it chose the former.

One of the Navy climbers who had found the first body on Beinn Eighe had written a highly-critical letter to the President of the RAFMA, which found its way onto the desk of Wg Cdr Tony Smyth, the Chairman. This eventually led to a conference at the Air Ministry, attended by all MRT officers and NCO team leaders and this time the expert assistance of the RAFMA was expressly requested. The conference's most important recommendations were as follows.

- a. Whenever possible, RAFMA members should be posted into teams, some – sergeants or flight sergeants – specifically as team leaders, with assurances that their careers would not be impaired.
- b. An officer should be appointed to oversee the Mountain Rescue Service.
- c. Two training courses, one in winter and one in summer, should be held annually, in either Wales or Scotland.
- d. A manual was required.

The decisions taken by that conference in 1951, all of which were implemented, proved to be both wise and of long-standing, and they still represent the foundations upon which today's MRTs rest. We still have teams with only a core of permanent staff, the majority of their members being volunteers who are unpaid for their mountain rescue work which they do in addition to their RAF duties. The manual, incidentally, was eventually written by Mike Holton, a civil servant who, during his National Service, had been a founder-member of the RAFMA. He was transferred to the Air Ministry where he stayed for the rest of his career. Sadly, he died in 2006, but his manual is now in its seventh edition and he could have no better memorial.

One of the participants at the 1951 conference, and thus one of the architects of the rejuvenated Mountain Rescue Service, was the RAF's leading mountaineer and rock-climber, Flt Sgt Johnnie Lees, a PTI. With Mike Holton, he designed and ran the early courses and maintained his involvement with mountain rescue until his retirement.

In 1958 five members of the Army Mountaineering Association, with two teenage sons, were climbing the Amphitheatre Buttress on Carnedd Llewellyn when one of the party, Maj Hugh Robertson, fell and landed on a ledge about 200 feet from the bottom, sustaining serious head injuries. A companion managed to get to him and keep him on the ledge but the party could find no way of getting the injured man down. Assistance was requested from RAF Valley, where Johnnie Lees was the Team Leader at the time. On reaching the scene, Lees decided that there was only one way to get the injured man down safely. The badly-concussed casualty, thrashing and fighting, was lashed to Lees' back with a rope cradle, and the two of them, a total weight of some 400 lbs, were lowered on a rope. For this feat Lees was subsequently awarded the George Medal and, when he recovered, Major Robertson visited the team to express his gratitude and to present them with a Tragsitz harness, a piece of equipment that would do, much more efficiently, what the makeshift rope cradle had done for him.

The first overseas team had been established in 1954, at RAF Nicosia, and 1959 it saw the Service's first high-altitude callout. An Avro Tudor freighter had been on its way from London to Woomera when, on 23 April, contact was lost on the Ankara-Bahrain leg. There was official concern because of the classified nature of the cargo, and

the proximity of the Soviet border to the crash site in Turkey. A Hastings of No 70 Sqn spotted the wreckage at about 13,000 feet on Mount Suphan. In the interests of security, it was decided to destroy the remains of the aircraft, along with its cargo, after the remains of the crew had been recovered and buried.

Accompanied by a doctor, Nicosia's MRT was flown to Turkey in a Hastings, and the Turkish Air Force helped them to set up their base camp. Only one member of the team, Sgt Jack Emmerson, had had any previous high-altitude mountaineering experience and the team was not really equipped to operate in this sort of environment. As a result, the Inspector of Mountain Rescue, Sqn Ldr Sandy Gordon Cumming, found himself summoned from a hydraulics lecture at RAF Leeming to be given an urgent message: 'The team needs crampons'. He arranged for an Air Ministry representative to call on a mountaineering equipment supplier, Robert Lawrie, where he was to buy a large random selection of crampons which were promptly flown out to Turkey.

The team had taken with them a demolition expert, but, in the event, he had been unable to cope with the altitude. Two of the team had, therefore, been obliged to set the charges, but one of them failed to detonate so SAC Gordon Hercod, courageously went back into the wreck and reset the fuse. This had been the Mountain Rescue Service's biggest operation to date, involving the greatest risk to the largest number of people, in the most extreme conditions, at the highest altitude. As such, it helped to focus the Service's attention on the problems involved in hard mountaineering. It still holds the record for awards: an MBE, three BEMs, a Queen's Commendation for Bravery and two AOC's Commendations.

This was no one-off event, however, and early in 1960, a US Navy Martin Mercator crashed, again in Turkey, this time on Mount Karanfil, at over 3,000 metres. This operation involved, in addition to Nicosia's MRT, the US Navy and Air Force, and the Turkish Army.

We last came across Tony Smyth in 1951, as chairman of RAFMA, when the Mountain Rescue Service was being reorganised after the crash on Beinn Eighe. In 1956, when he was Station Commander at Kai Tak, he began recruiting volunteers with a view to starting a local mountain rescue team. For some reason, it was five years before the Hong Kong team was formally recognised, the



Members of the Khormaksar MRT in Iran during a joint exercise held in 1962.

catalyst being its involvement in the post-take off crash of a USAF C-47 in November 1960. Two years later, several members of the team were killed by Typhoon Wanda. The Kai Tak team, as such, proved to be short-lived, however, and defence cuts led to its disbandment in 1967. The RAF maintained its influence, however, as it continued to assist and inspect the rescue facilities offered by Hong Kong's Civil Aid Services which had assumed responsibility for mountain rescue. Indeed, RAF personnel continued to participate in the training and inspection of the team after sovereignty over Hong Kong had been transferred to the People's Republic of China.

At various times between 1960 and 1975 the RAF sponsored three Mountain Rescue Teams in the Middle East, all of them offering, in addition, a desert rescue capability. The Khormaksar team attended a particularly demanding incident in 1964 when it was called out to assist a party of three army officers who were on a photographic expedition involving some rock-scrambling. The site was a steep, 3,000-foot rock face close to the Yemeni border. Having sustained a long, and fatal, fall the body of one of the party, a 2/Lt Barclay, could be seen caught on a ledge. Reaching it was very difficult, but, Sgt



Routine local training exercise, Aden 1962.



Soft sand was a problem in many parts of the Middle East – the Khormaksar team dealing with a bogged Land Rover.

George Paterson and his deputy having made a dummy run on the first day, the recovery party reached the body the following morning. It took them 4½ hours on the baking cliff face to attain their objective and the return journey was even more difficult and dangerous, because the granite was unstable and, at one point, they were edging over a pool infested with bilharzia. When AVM ‘Johnnie’ Johnson subsequently visited the team to thank them for the efforts, and to congratulate Paterson on the award of a BEM, he told him that a bullet had been found in the body – which is some indication of just how close the team had been to the Yemeni border.

Apart from its training and inspection visits to Hong Kong, the RAF’s involvement in mountain rescue activities overseas ended in 1976 when the last of its teams, the one in Cyprus, by then at Akrotiri, was disbanded.

Meanwhile the six UK teams continued their programme of weekly exercises punctuated by frequent call outs in response to crashed aircraft, lost walkers and fallen climbers. One of the most harrowing incidents occurred in November 1971. It involved a party of six children and two instructors on a two-day walk across the Cairngorms. They encountered trouble on Day One, when the weather closed in leaving the group in a total white-out with no form of shelter. On the

second day they were reported as being overdue and the MRT from Kinloss was called out to search for them, assisted by RAF and RN helicopters. Conditions were such that at one stage, the team leader, Sgt George Bruce, was walking ahead of the helicopter to break the white-out for the pilot, who followed him by moving forward in short hops. The party was eventually found but both of the instructors and all but one of the children were already dead.

Before closing, I will briefly mention three major call-outs that took place within just two months. The first was the case of 15-year-old Anna Humphries who was reported missing on 8 November 1988. The search involved RAF MRTs from Valley and Stafford, civilian teams, helicopters of No 22 Sqn, 100 policemen, dogs, divers, coastguards, soldiers and civilian volunteers. It was eleven days before any of Anna's belongings were found, and three weeks before her body was discovered. Her murderer, one David Evans, was eventually arrested in France. From a purely professional point of view, the main operational problem that had been encountered was the incompatibility of communications because of the large number of agencies involved.

The second call out began on 5 December when a PanAm Boeing 747 exploded at 30,000ft over Lockerbie. Among the many military units and civilian agencies that became involved in the search for, and recovery of, bodies and wreckage were the MRTs from Stafford, St Athan, Leuchars and Linton-on-Ouse, along with helicopters from Nos 22 and 202 Sqns and the RN.

The third, and last, incident occurred on 8 January 1989 when a Boeing 737 of British Midland Airways landed short at East Midlands Airport and crashed on the M1. The Stafford and Linton-on-Ouse MRTs were summoned, along with the usual support from SAR helicopter units.

Finally, I will stress two important points. First, and most unusually for the armed services, from its inception in 1941, the Mountain Rescue Service was, and it still is, an essentially bottom-up creation, not top-down. Secondly, with its largely volunteer personnel and its public service ethic, the MRTs are an excellent PR asset for the Royal Air Force.

DESERT SURVIVAL TRAINING 1958-60

Air Cdre Mickey Witherow



Commissioned into the RAF Regiment in 1956, Mickey Witherow's service included stints in Aden, the Gulf, Libya, Belize, Northern Ireland and Germany. He commanded No 26 Sqn, No 3 Wg, the Regiment Depot at Catterick and in 1963 he was the first Regiment officer to attend the RCDS; staff appointments included stints at both Ramstein and Rheindahlen, and as Director of Personnel (Ground) and Director RAF Regiment. After leaving the RAF in 1990 he joined Coutts Consulting Group, retiring as its Director of Information Technology in 2001.

The Desert Survival courses instituted at El Adem in 1958 constitute a virtually unknown chapter in the annals of the RAF. I shall first set the contemporary scene and then explain the way we tackled the task.

The Environment

RAF El Adem lay twenty miles directly south of Tobruk in the province of Cyrenaica. No 1 Sqn RAF Regiment was there, primarily to clear wartime mines prior to development of the airfield for large transport aircraft and V-bombers. As a result, we became expert in mines and the Cyrenaican minefields. Our war tasking, unusually, was akin to that of the wartime Long-Range Desert Group; that is to say, reconnaissance and harassment of enemy lines of communication in the event of an Egyptian invasion. Our training required us to operate anywhere in the Libyan desert, on a self-sufficient basis for weeks at a time. SASO HQ NEAF, AVM Bower, was favourably impressed and decided that this qualified us to teach desert survival techniques to aircrews – a leap of faith perhaps, but no-one else was available to do it and there was certainly a need to be fulfilled. Sqn Ldr John Spencer, my Squadron Commander, was tasked accordingly. We gulped!

But why Libya and why 1958? First, by 1958 Libya was the only remaining 'friendly' desert country in which survival theory could be practised. Secondly, until the 1950s, our main strategic routes to the Far and Middle East and Africa had been across to the Gulf and

eastwards, or down the Nile and the Red Sea. Thus Iraq, Transjordan and the Gulf Protectorates presented the principal desert overflight areas. Accordingly, until 1958, RAF desert survival doctrine, albeit in contemporary Air Publication form, was still based upon what I shall refer to, if not entirely accurately, as 'Mesopotamia', which differs somewhat from the Sahara.

Even away from the Euphrates and Tigris, however, the Mesopotamian deserts do still have water, if you know how to find it. Consequently, they are relatively well-populated, with active trading routes, indigenous settlements and, until the mid-1950s, British garrisons and RAF stations within relatively easy access of virtually anywhere. Even our Arabian routes followed the populated, British-protected fringes of the Arabian Peninsula. There was therefore always a chance of fairly swift succour or rescue.

By contrast, Saharan routes cover thousands of miles of virgin desert. In Libya fifty years ago, our forces comprised: RAF El Adem; an infantry battalion for internal security duties stationed at Benghazi, 300 miles to the west; and, 700 miles further west, in Tripolitania, tiny RAF Idris. The indigenous population was 1.5 million, fewer than Wales has today, in a country as big as Western Europe, inclusive of the British Isles. Cyrenaica covers about half of Libya and most of the people lived in a thirty mile-wide coastal strip.

There are three significant oases in Cyrenaica, each accommodating a few hundred people, and lying hundreds of miles apart. Only Jaghbub, 120 miles south of Tobruk, had a demarcated desert track linking it to Tobruk. At the time, there was no significant trans-Saharan trading. A 1,000 mile single-carriageway asphalt coastal road connected Tobruk, the King's seat, with Benghazi and Tripoli.

Let us now consider the topography. In eastern Cyrenaica, after rising in a series of four terraced plateaux, running parallel to the coast, each atop a low but steep escarpment about five to ten miles wide north to south, to a maximum total elevation of about 220 feet ASL, the desert lies largely flat for 180 miles to the south. El Adem lies on the third escarpment. The vegetation, most of which is confined to a 50 mile-wide belt running parallel to the coast, becomes sparser on each plateau until pastoral life is unsustainable.

Continuing south, the *Serir*, or gravel desert, begins where the Libyan equinoctial south-easterly desert wind, the *Ghibli*, blows

incessantly night and day, for up to a month at a time in its seasons, usually at about 35 knots or more. It can be dangerous, for, apart from dehydrating the body, in the *Serir* it inflicts the torture of perpetual sand-blasting up to about waist height, so denying sleep where there is no shelter, as well as abrading the exposed skin. If a vehicle or aircraft is your shelter, you can also suffer whacking shocks from static electricity generated by the friction.

The *Serir* gives way after about 60 miles to an irregular twenty-mile deep band of a 'moonscape' comprising 20- to 60-foot high limestone outcrops and networks of irregular crevasses of like depth below the surface, roughly 20 feet in width, creating a terrain like a gigantic unassembled jigsaw puzzle. It extends from 10 to 20 miles further south and can only be traversed by descent into the crevasses, which effectively form a giant maze without an escape plan. Moreover, the crevasses contain many concentrations of *fesh-fesh*, an amalgam of fine clay and limestone of the consistency of talcum powder lying in bowls of a few inches to about 2 feet deep, but often many yards long and wide, concealed under a treacherous, but invitingly crisp, smooth surface. Difficult to spot, its strength is unpredictable, but like thin ice on a lake, it will invariably break sooner or later, whether under a footfall or a laden vehicle. Apart from the intense choking dust thrown up by the least movement, *fesh-fesh* is very difficult to drive out of and is a notorious hazard to travellers anywhere on the Saharan plains, from the Atlantic to the Nile. We soon learned to avoid this area by tracking some sixty miles to the west to reach the Great Libyan and Kalansho Sand Seas and, having once been there, we never returned to the moonscape.

The Sand Seas, which are about the size of the whole of Ireland, lie about 10 miles further south. They are in constant motion from the wind, but the *Ghibli* is the main sculptor, for the huge dunes fuel sandstorms, rendering them virtually impenetrable for much of April and September. These dunes rise from 200 to 600 feet or more, above hard ground level.

Across all this varied terrain in Cyrenaica there are different climatic characteristics. Along the coastal strip, about 30 miles wide, it is typically Mediterranean; hot summers, warm and (relatively) wet winters, with some low, but not freezing, temperatures in winter. Further south, as rainfall progressively reduces, the temperature spikes



Dunes in the Sand Sea.

become increasingly extreme, including freezing winter nights, whilst summer temperatures often rise to over 50°C (122°F) – and there is no natural shade whatsoever.

More than 50 miles inland, it hardly ever rains. As result, ground water is seldom, if ever, obtainable. We reconnoitred almost every recorded well in eastern Cyrenaica outside the oases, but never found any accessible water. Nor did we ever find any by digging at the inside of bends in dry *wadis*, one of the key survival tips from the Mesopotamian era.

Because the region is so arid, traditional nomads or camel caravans simply did not exist, nor did ‘native guides’. The Libyans, apart from the few who lived in the oases, were terrified of the desert. Moreover, oil exploration was then in its infancy and only once did we ever come across an (American) oil camp. That was it. No accessible water in the interior, so no herds, so no people and thus no likelihood of succour for a downed aviator.

We had learned all these things the hard way, but little of it was known to our aircrew students when they came to us.

Developing the Course

We were given three months to design, prove and establish a syllabus and programme, so that the first (one-week) course could commence in late July 1958. Starting from scratch, working closely with the Institute of Aviation Medicine (IAM) and HQ NEAF's Air Staff, we jointly constructed an acceptable syllabus.

In May 1957, El Adem's OC Flying had run out of fuel in the Station Flight Pembroke and had been forced to land in the desert, not too far from the airfield. This had done no good, either to the aeroplane or to his career, as he was court martialled for having failed to check the fuel state before taking off! However, the written-off aeroplane, which was recovered, suited our needs as a practical training aid. For each course, it used to be loaded onto a 'Queen Mary' and trucked about 40 miles out into the desert and then recovered when we had finished with it. Had we left it on-site, of course, it would very quickly have been stripped by scavengers.

The syllabus was tested with two trial courses in April (amid a *Ghibli*) and late May, with ourselves and a Medical Officer acting as the survivors during the active phase. This resulted in a week-long programme, Friday to Friday. Two day's intensive classroom instruction were to commence early on Saturday morning, followed by a 2.00 am awakening on the Monday. The trainees were to be driven in darkness to the site, kitted as for flying, but without a personal locator beacon. The Pembroke would also be provisioned with water and other such survival ancillaries as might be expected for a multi-seat aircraft. In anticipation of any real emergency, signal flares and a small HF field radio on a preset locked frequency would be provided, which we, the supervising RAF Regiment team, would monitor permanently. One trainee would be appointed as Captain of the aircraft. Three day's practical survival was to end with 'rescue' at dawn on Thursday, return to El Adem and sleep. De-briefing was on Friday morning, returning to Cyprus in the afternoon.

HQ NEAF approved the package and we were ready early in July, but Kassem began his Revolution in Iraq on 14 July 1958 and everything was suspended for several weeks. The first course eventually began in late September – needless to say in the Autumn *Ghibli* season!



The harsh environment aside, the countless landmines left over from WW II represented another significant hazard in the desert.

Running the Course

Training began in the classroom, with a briefing on the characteristics and known dispositions of Libya's minefields and other ordnance hazards. This subject was first on the programme, in order to ensure the trainees' safety while on the course, but it was also a practical necessity should they ever come down over Libya. We also covered Libya's geography and the characteristics of the desert. El Adem's MOs provided instruction on the physiological and mental problems associated with desert exposure, particularly dehydration and ways of minimising water loss. These lectures proved mutually beneficial because they elicited, for example, comparisons with the sea survival disciplines with which the trainees were already familiar.

To ensure the safety of the course during the practical phase in the desert, and to permit us to study their behaviour, we kept them under constant, logged, observation from well-concealed hides at about 500 yards from the Pembroke hulk. The trainees never spotted us, although post-exercise we always revealed that we had been watching. About five miles away, over the horizon, we set up a small base camp with communications to El Adem, water, basic food supplies and an appropriately equipped medical orderly. From there we ran a 24-hour surveillance roster and at night the observers moved forward to within earshot and, again, the trainees had no idea how close we had been until after they had been 'rescued'.

Lessons Learned

The IAM were enthusiastic supporters of the course, because it provided them with opportunities to learn how typical aircrew might fare in real desert conditions and they seized on any new ideas.

One early instance is particularly interesting. Few people, even at El Adem, knew that the large white expanses visible from the air over



The snails, which are common in some areas were thought to be a potential source of fluid, but they proved not to be a practical proposition.

Libya are largely made up of shells (mainly empty) of a snail. Called the *Eremina ehrenbergi* Roth, they are about the size of a common European garden snail. During the first course, one of the trainees, finding his thirst unbearable by the third day in the desert, decided in his distress that the live snails might be a source of fluid and sustenance. He consumed quite a number without our realising it until he began to vomit, so we promptly evacuated him to El Adem's Sick Quarters. Happily, the snails were not toxic; he had simply nauseated himself (and us) at the thought of what he had done! But we did not know that at the time, and neither did he. Almost inevitably, on the day that we could really have used El Adem's one and only Sycamore, (detached from No 103 Sqn at Akrotiri) it had flown to Benghazi with a medical case for the BMH, so our snail man had a bumpy ride back.

Having determined that no harm had occurred, the Medics were excited that a new source of fluid and protein might have been found and the IAM embarked upon an extensive trial involving thousands of snails which we had to gather for them. The theory proved right, but whilst the snails could usefully assuage thirst for short periods, the effort required to find, harvest and crush sufficient numbers of live snails rendered them impractical for human survival. A comprehensive medical paper on the trial was subsequently published by the IAM, extracts from it subsequently being reproduced in *Air Clues*.

The RAF learned a lot about the ability, and the limitations, of men who were unused to the desert to withstand the extreme conditions, albeit without the trauma of a crash or serious injury and knowing that their exposure time was finite. From the Instructors' point of view, we had feared that in the early days we might actually cause casualties by misjudging something, but in my remaining time with the unit we only

had to evacuate trainees to El Adem on three occasions; one was the snail man; one was a case of heat stroke; the third was suffering from psychological strain. The latter was the most unexpected and medically interesting case. It was quite a serious incident but, whilst the trigger had been exposure to the desert, the real problem proved to lie elsewhere.

Consequences

SASO liked this course, and feedback from most trainees was very favourable. Word soon spread and HQ Near East Land Forces (NEARELF) asked if soldiers might be permitted to attend the course. This was agreed and the squadron was provided with additional material resources and some extra tradesmen, including MT mechanics, medical orderlies and a clerk. After I had left, the SAS sent an observer which led, not to their participation in survival training as had been expected; their interest was in our own long-range patrol training procedures and desert navigation techniques – but that is another story.

Finis

When No 1 Sqn moved to Butterworth in 1961, responsibility for Desert Rescue, which we had provided until then, was assumed by the station, along with the survival training remit, but with far fewer resources in terms of men and kit and I do not know how the courses were actually handled after that.

Incidentally, our CO, John Spencer, became something of a legend. His achievements included finding and recovering the remains of aircrews from three SAAF Blenheims that had been forced to land in the desert during the war, far to the south-east, near Kufra. An historian, he conducted battlefield tours for all ranks of the RAF and Army, winning acclaim from HQ NEARELF. At the end of a four-year tour of duty he was awarded an MBE and promoted to wing commander for his pioneering desert work. He was also admired by the Libyans as an intrepid desert man. Three years ago his widow, accompanied by the widow of the OC Flying who had crashed the Pembroke, visited Libya out of nostalgia. Standing outside her former house in Tobruk, she asked a Libyan what they now called the place where she stood. He replied, 'This is Spencer Corner. Why do you ask?'

JUNGLE SURVIVAL TRAINING 1964-65

Flt Lt Roger Annett

Having first won an RAF Flying Scholarship in 1957, Roger Annett, spent 1959-62 at Cranwell, acquiring a BA in the process. He spent his first tour in FEAF on Argosies and his second as a QFI with London UAS but RAF life began to pall and a Defence Review provided the opportunity to leave to begin a new career within the fledgling computing industry. He recently published Drop Zone Borneo, a personal account of his experiences with No 215 Sqn. Because he was suddenly indisposed, Roger's paper was read by AVM Baldwin.

In August 1963, fresh from 81 Entry at Cranwell, advanced flying training on Varsity at Oakington and Argosy conversion at Thorney Island, I am posted as a flying officer co-pilot to No 215 Sqn at Changi, Singapore. The squadron had been re-formed in a hurry to reinforce the provision of supplies by air to the British and Allied troops fighting in Borneo for the newly-federated Malaysia in the, so-called, 'Confrontation' with Indonesia, which will last almost four years, from 1962 to '66.

Out in Borneo, some 20,000 British and Allied troops are holding down the thousand-mile border with Indonesian Kalimantan, and rely upon the RAF (and Royal Navy helicopters) to supply all their requirements: victuals, bulldozers, fuel and bullets. Argosies, Beverleys, Valettas and Hastings, and RNZAF Bristol Freighters, parachute and free-drop the supplies to forward bases whence Twin and Single Pioneers, helicopters and long-boats haul them up to the front-line.

Despite having to find our way through the tropical storms and the unmapped forested mountains to find the, sometimes tiny and inaccessible, DZs, and making risky drops at low-level, sometimes under Indonesian small-arms fire, we transport crews know we have four Rolls-Royces or Bristols to take us home. But what of the plight of the soldiers, under the dark jungle canopy, bitten by insects and snakes, in the pouring rain and steamy heat, vulnerable to ambush at any time by guerrillas wielding knives and carbines?

Early in 1964 my colleagues and I have the chance to experience

some of that discomfort for ourselves – we are sent on Jungle Survival Training. Early on a Monday morning we report to the Far East Survival and Parachute School for our seven-day course. The school, in its collection of *basha* huts down on Changi Beach, is run by half-a-dozen hard-as-nails RAF Physical Education Branch instructors, known familiarly as ‘phyzzies’. Their officer is naturally nicknamed Jungle Jim.

We trainees are three dozen aircrew of all ranks. Gathered in the classroom for briefing, we hear out on the verandah, the clucking of chickens. ‘That, gentlemen, is your lunch,’ says Jungle Jim. In teams of seven we are shown how to build an oven from hot stones buried in sand. So far so good, but it soon dawns on us that killing and preparing the meat is down to us – and the ill-fated fowls. Some do better than others. First, as they say, catch your chicken. Our team is blessed with an AQM from a farm in Wales and before we know it, our lunch is caught in his powerful hands and humanely throttled. He can cook too, and although a bit gristly, our chicken-in-sand meal is delicious. But there is a lot of blood and grease around and those of us mistakenly in best khaki drill wish we weren’t.

The next day, dressed in our oldest jungle-green flying-suits, we are briefed on the flora and fauna of the jungle – their edibility and, conversely, their inclination to bite. It sounds as if there is plenty to eat – beetles, grubs, grasshoppers, lizards, snakes and, for the squeamish, shoals of fish and flocks of birds. For the vegetarian there is breadfruit, sweet potatoes, bamboo shoots and coconut. ‘But watch out,’ we are advised, ‘for the strychnine plants, physic nuts and castor-oil beans. They, and a lot of other stems, leaves and roots can leave you dead within hours – or bring on diarrhoea so violent that you wish you were.’

We are taught about the different kinds of jungle terrain. In the *ulu*, the usually uninhabited and exposed country up in the headwaters of the rivers, we are warned to look out for blowpipe hunters – supposedly friendly. In the *ladang*, jungle cleared for cultivation – often *padi* (rice) up in the highlands – we’d find long-houses and people – headhunters – hopefully even more friendly. In the *belukar*, abandoned *ladang* where the undergrowth has grown back into thick secondary jungle, we should be more likely to find animals, fruit and maybe vegetables. But hacking through it is hell. And then there’s

primary jungle, the *bundu* – miles of it, where the trees are tall and the canopy intact, and not much grows below.

We are also briefed on the wildlife of the jungle – pigs, honey-bears, scaly anteaters and white rhino, tigers – and snakes. Snakes get a whole lesson to themselves. There are evidently over forty types on Singapore island alone and many more in the jungle up-country. Generally speaking, we are told, they are not aggressive, except for the King Cobra, but they attack you only if you attack them – by accidentally stepping on them, for instance.

We are alerted to water-borne diseases such as leptospirosis, with its fever and violent headaches, and we practise building jungle shelters from the simple one-person A-frame type to the more complex seven-man lean-to hut. We use banana leaves, and bamboo in pre-cut lengths – not, we suspect, so readily available out in the jungle.

Finally we are briefed on the next stage: four days and three nights as teams in an area of jungle ninety-odd miles up into Malaya near Mersing. We wonder a little about the usefulness of this training. According to the manual, ‘The jungle does not offer much in the way of forced-landing areas.’ From what we have seen, they can say that again.

We are also advised to ‘Look for beaches, clearings, paddy fields, lakes and rivers – do not land on treetops.’ So far, over Borneo we have seen precious little but trees and, in an emergency, we would have no option but to crash-land, because transport crews do not wear personal parachutes. But we are issued with Escape and Evasion kits, including a two-foot-square map of Borneo, beautifully printed on parachute silk, showing masses of detail, but only on the Indonesian side of the border – the Dutch left good maps. A phrasebook introduces us to some basic Malay, the lingua franca of the tribesmen. The bag of silver Maria Theresa dollars we are given is to provide a goodwill offering or effective bribe. This old Dutch money is apparently welcomed as currency among the natives over in Kalimantan. So, we are told, are the British sovereigns paid out as bounty in the last war and still in circulation – the gold is popular for capping teeth.

Later on in the campaign we are instructed to wear canvas jungle boots and side-arms – and parachutes. Jungle boots, yes, but heavy

'chutes? We reckon that bailing out would leave us suspended in the tree canopy with our new boots 300 feet off the ground. And revolvers? In a freighter? So, after negotiations with the Flight Safety Officer, the whole lot is consigned to a sturdy box bolted to the Argosy's floor. Honour is satisfied all round.

Next morning, as we arrive at the school clutching our 'few personal items' – cigarettes and matches, boiled sweets, and condoms for protection from leeches – there's an unexpected twist. After our stint in the jungle we are to be dumped individually in the wilds for an escape and evasion exercise. Chased by the RAF Regiment we are to find our way down the Malay peninsula back to the Survival School at Changi. If we are captured the Regiment will practise on us their renowned interrogation techniques.

But first the group exercise. After a hot and bone-shaking three hours in a 3-tonner, we tumble out into a forest clearing by the East Coast Road. At ten-minute intervals, teams set off into the bush in varying directions. There is a phyzzie with each group, leading the way and marching along a well-defined track. Soon, however, the track peters out and we are making slow progress through thick undergrowth, taking turns with the *parang* to cut a path through tough, rope-like liana creepers, giant tree-ferns, bamboo clumps and nettle-trees that set our skin on fire. Visibility is no more than twenty yards so we go on a compass bearing, clambering up and down the steep gullies that bar our way, making no more than a couple of hundred yards in an hour. It starts to rain. We have been issued with poncho capes but the torrential downpour bounces up off the ground and gets underneath them – we are soaked to the skin and blinded by sweat. The heat is intense. Squelching through streams and swamp, our jungle-boots are sodden and leeches get through the eye-holes. There are ants everywhere and they bite. It is absolutely bloody awful.

After some hours we come out into primary jungle in the gloom under the canopy. The going is easier but we are still clambering hand-over-hand up steep slopes and plunging headlong down the other side. And it is still raining.

We stop in the afternoon to set up camp, choosing a glade by a stream for drinking and washing. We make sure there is no dead animal rotting up-stream and that we are above flood level. The water can rise thirty feet overnight in the storms and we do not fancy being

swept away in a raging torrent.

A crew sleeping-platform has to be built before dark. There is plenty of bamboo and creeper but, sure enough, cutting it out here is far from easy. After much cursing we manage to get some sort of structure up. It is raised on poles off the wet ground, and away, we hope, from the snakes, beetles and ants – nightmarish soldier ants an inch-and-half long. They are not the ones that bite though – it is the little quarter-inch devils that eat you alive.

With no time left now to look for those promised shoals of fish and bunches of breadfruit, we make some semblance of a fire from the sopping undergrowth and cook up our survival rations. Famished, we wolf the tasteless mess, washing it down with muddy water flavoured with halazone purifying tablets. Our phyzzie has insisted that we use water from a stagnant puddle – ‘for experience’.

The smoke from the fire keeps the worst of the mosquitoes away and wet, muddy and dead tired we crash out in our seven-man shelter. I doze off but suddenly I am bolt-upright with a fierce pain in my crutch. Leaping out of the *basha* I rip down my soggy drawers – and in the light of the embers see a bloody great leech hanging off my scrotum.

I am shocked and horrified. The foul creature has got its teeth into me – it is sucking my blood and already the size of a tennis-ball. I remember what we have been told to do. Never pull them off – that will leave the little blighter’s jaws in you and the bite will fester. You burn them off with a lighted fag-end or squirt them with iodine. I don’t fancy the red-hot cigarette option on the balls, so go for the iodine. A couple of squirts does it. The wretched thing falls off, still swollen with blood, and drops down into my blasted trouser leg.

God, I hate this place!

We get little sleep on the first night but at least we have each other’s company – as on the second night, when after another day’s forced march, we pair up in smaller bamboo and liana lean-tos. But on the third evening we make single A-frame shelters and really find out what a night in the jungle is all about.

It has been quite a pleasant day, relatively speaking. The rain has given us a break, and the dawn was magnificent. I noticed that the sun does not come *up* in the jungle, it comes *down*. The first rays hit the tree canopy and then creep down the massive trunks until they reach

you in your shelter and warm you up until you are ready for action. On the march again, we find, after more hours of jungle-bashing, a clear stretch of river and, throwing off all our clothes, we submerge ourselves like so many hippos in the cool, sun-dappled water. No leeches here in the fast-flowing stream, and to hell with the hornets and sandflies. It was absolutely bloody marvellous so we set up camp and for our meal had some of those promised fish. Just for a while the jungle was a great place.

But then we go to bed. We have been forced to set up our bivouacs at least twenty yards apart. That is a long way in the jungle night – cold, damp with condensation, and noisy. The only animals we have seen on the whole trek have been a couple of gibbons, an outsize lizard and a few birds. But tonight I hear screams and hooting, rattles and booming, rustles and slithering – the lot. Is something getting ready to pounce on me? Or creep up from underneath? Now the imagination really gets going. What about deadfall trees? We have been warned that when a dying jungle giant decides to fall, it drops like a thousand-ton brick. Bang – just like that. Did I check there were no tottering tree-trunks about to demolish my puny shelter? I am in a cold sweat, not certain I shall ever see daylight again.

I eventually nod off – only to be jolted awake by a fearsome racket in the undergrowth. Is this what a charging rhino sounds like? Nothing happens; the commotion subsides and I try to drift off again. But, what seems only moments later, there is a blood-curdling scream – a human one for sure. Or has the rhino come back? Once again silence descends.

From time to time I half wake to the crash of dead-falls out in the forest but eventually the night passes. Still tired, wet and hungry, we cluster round the breakfast fire. ‘Anyone else hear that rhino?’ ‘Rhino – what rhino? If you mean all that clattering about in the middle of the night, that was me,’ mumbles an embarrassed flying officer. It turns out that he had made himself a hammock from several parachute panels, with spreaders made from branches at either end lashed to tree trunks, and his poncho overhead for shelter. To avoid falling out, he had strapped the parachute panels round his ankles, a device that worked well for half the night. But then the spreader at the head snapped, the whole contraption collapsed and he was left suspended by his feet, like a bat.

‘Was that you as well – yelling blue murder?’ No, it wasn’t. That had been a chastened squadron leader who confesses that his arm, curled around the back of his neck, had gone to sleep. Suddenly waking up, and convinced that he was being strangled by a python, he screamed in sheer terror. Shame-faced we realise that, wild beasts or not, no one had had the nerve to move out of his A-frame to investigate.

We now face the dreaded Escape and Evasion. But miraculously, the phyzzie receives a message on his short-wave radio. Reprieve! The exercise is cancelled. We cheer. The powers that be have decided that, given the security situation, there is a real danger that we might be mistaken for insurgents and shot.

We are delighted to have got out of that bit. One of our navigators, Geoff Walker, who had done it, told us all about it. The Regiment was given a helping hand by Australian pilots from Butterworth who roared across the treetops in Sabres laying down flares. Conspicuous in green fatigues, jungle boots and hat, Geoff managed by walking, borrowing a bike and hitching a lift in a plantation lorry, to get down to Johore, across the Causeway and down to Changi Beach. There, in the dark, he hid up under the Casuarinas Hotel. Then, at first light, he took to the water. As he was staggering ashore, just yards from the Survival School – a hand on the shoulder and a polite: ‘Good morning, Sir’.

The Regiment stood him against a wall, arms aloft, put a wet sack on his head and poured water over that for an hour or so. Then they locked him up in an old Japanese bread oven and beat a tattoo on it for the rest of the morning. Geoff didn’t break – just number, rank and name and nothing else – but he saw a famously tough sergeant who did and, hardened campaigner though he was, he came out shaking and in tears.

So it is a dishevelled and shambling, but happy, crowd that treks out of the *bundu*. We join up with the other teams and share stories. Nobody found much other than fish to eat, and nobody saw much wildlife. Animals saw us coming and scarpered – except for the monkeys, but they ate all the fruit. Apart from attacks from thorns, ants and leeches, and the odd bruise or two, we are all in one piece – but not out of danger yet.

We are still in thick undergrowth but on a well-marked trail and off

our guard, when we hear a deep, menacing roar. Not ten yards away in front of us on the path sits a very large tiger. Everyone freezes. Jungle Jim slowly draws his revolver, aims between the animal's eyes and squeezes the trigger. But the gun fails to fire. At the same moment, there is another roar from further off – and lazily, the tiger gets up and trots off to join her mate – a close call.

We make it to the rendezvous with the 3-tonner and there in the clearing, waiting for us, is the Magnolia Man on his bike with ice-cream, sodas and chilled fresh pineapple juice. We fall on his cold-box like wolves. The mysterious jungle telegraph has told him exactly when and where we'd turn up.

Showered, fed and rested, our rotted jungle clothing in the dustbin, we proud survivors gather in the Officers' Mess bar. If we had not treated the course seriously at the outset, we sure as hell do now. The jungle is beautiful yet terrifying – and always uncomfortable. We agree that we are unlikely to put the training to much use – surviving a crash-landing in Borneo terrain would be nigh-on impossible. Even if we did, we would reckon to switch on the SARBE and trust to the brave chopper boys to lift us out – pronto.

But we have been given an inkling of what it must be like down there for the soldiers we drop to and we are in awe. We now know how wearying it is just staying alive, and that is without having to track, recce, carry a pack and rifle – and fight. Jungle Jim told us a four-man patrol takes three days with their *parangs* just to make a clearing for us to drop into. If we miss it by twenty yards they abandon that container – cutting through the undergrowth to recover it is just not worth the effort, and it would probably be up in the trees anyway. We have some idea of how tough it is for the blokes down there – clothes disintegrating within a week, wet, cold and lonely at night, bitten to pieces – and shot at into the bargain.

Each time we're over the DZs, we remember that.

THE DEVELOPMENT OF THE SEARCH AND RESCUE HELICOPTER

Wg Cdr Peter Chadwick



Peter Chadwick joined the Service in 1963 and spent virtually his entire career in the rotary-wing world. Before retiring in 1994, staff appointments aside, he flew with Nos 230, 202 and 84 Sqns, as a QHI at the SARTU, as OC 202 Sqn and, ultimately, as OC SAR Wing 1987-89.

My presentation will trace the employment of helicopters in the Search and Rescue role in the UK. Although the RAF also conducted SAR operations with helicopters overseas, of course, apart from one notable exception, to which I shall refer, this activity generally mirrored what was happening at home.

Shortly after the end of the war, Coastal Command's Air Sea Warfare Development Unit (ASWDU) was tasked with looking into the feasibility of using the helicopter, with its amazing ability to hover above the action, in many different maritime roles including Air/Sea Rescue – ASR – as it was then still known. As an aside, we should remember that the 'raison d'être' of the ASR force then was, and as far as I know still is, the recovery of downed military aircrew on land and at sea.

The unit acquired its first Hoverfly in January 1946 to investigate the techniques and practicalities of rescue from the sea. The Hoverfly did not have a startling performance and the trials were not an unmitigated success. Many different techniques were tried, some of which would be considered inappropriate today, including offering rope ladders to survivors or trawling a strop along the surface for the survivor to grab. There was a trial with a rudimentary winch powered by the flap actuator motor from a Flying Fortress, but this was deemed unsuccessful. Within ASWDU there was a Royal Naval element, No 703 Sqn, which was also experimenting with helicopter rescue, but there seems not to have been much liaison between the two Services even though, at the time, they were at the same place, on the same unit and had the same aircraft. The naval element moved to Lee-on-Solent

in May 1948, whilst the rest of ASWDU moved to Ballykelly after which there seems to have been little further helicopter activity until 1952, when the unit moved again, this time to St Mawgan.

Meanwhile the Navy, driven perhaps by their propensity to drop aircrew into the sea off carriers, continued with the Hoverflies and then the Dragonfly. The Dragonfly could just about manage to carry a pilot and crewman and they experimented with the extended intercom cable, later adopted by the RAF, and the Sproule Net. The Sproule Net, developed by a lieutenant commander of that name, was similar to the net offered to the NASA astronauts after splash down from moon missions. The principal being that the net was trawled through the water towards the survivor, who was scooped up in passing. This, however, was a tricky procedure, since, badly handled, the stiff bar, which held the net open, could easily render the 'survivor' unconscious – if he wasn't already. The Sproule Net was adopted by the RAF; I am not sure whether we ever used one in anger, but I can remember using them in training as late as 1970.

The success of the Far East Air Force (FEAF) Casevac Flight out in Malaya probably reawakened RAF interest in SAR helicopters. The unit was formed to evacuate wounded or injured troops from forward positions in the jungle during the Malayan Emergency, clearly a job for helicopters. At the time, the RAF simply did not have any suitable helicopters and three Dragonflies destined for the Navy were diverted to equip the flight in May 1950. It operated very successfully for three years before, in 1953, being expanded to become No 194 Sqn.

As I said, from 1948 until they received their first Sycamore, ASWDU appear to have ceased all investigations into helicopter rescue. Their acquisition of a Mk 12 Sycamore in 1952 was probably a consequence of the success of the FEAF Casevac Flight.

Although better than the Dragonfly, the Sycamore still had severe limitations, not least its very basic navigation fit – compass and stopwatch – which certainly served to concentrate the mind when out of sight of land. There was also a shortage of space in the cabin and a lack of power, but it did at least have a winch. Its power plant was a 520 hp Alvis Leonides radial engine, a far cry from the 3,000+ shp available to the current Sea King. It should be remembered that the Sycamore had been designed as an 'executive transport', to convey businessmen in suits from the yet-to-be-built Heathrow airport to the

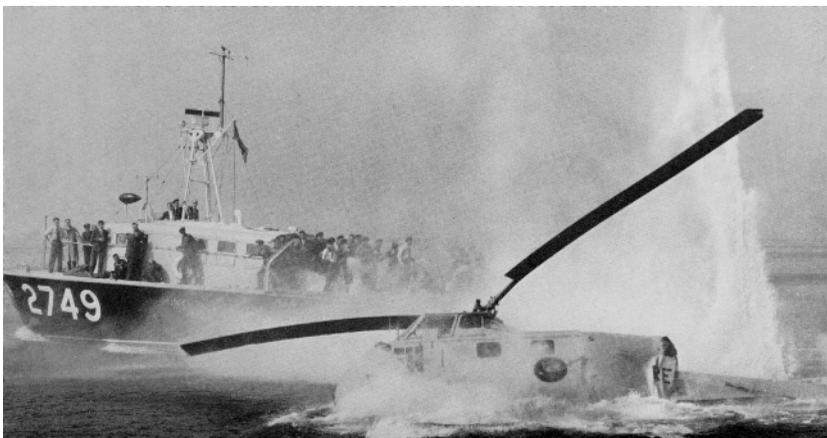


A Sycamore HR 14 of No 275 Sqn in 1958. (MAP)

equally unbuilt Westland Heliport in London. It had an interesting design feature intended to keep the cabin floor level when in cruising flight – a 74° advance angle of cyclic control, as opposed to the more usual 90° – and a rather quaint system which allowed water to be pumped fore and aft to adjust the CofG.

After the ASWDU trials the first dedicated SAR Unit, No 275 Sqn, paradoxically a Fighter Command unit, was formed at Linton-on-Ouse in April 1953 with Sycamore 14s. Capability was still limited; there was little spare power to be had and the small cabin, which limited the crew to two, meant that winching was difficult. If the navigator stayed on board, it meant the survivor had to fit his own strop – assuming he was *compos mentis*. If he was unconscious, the nav had to go down on the wire leaving the pilot to operate the winch as well as maintain the hover. I have already mentioned the extended intercom lead which permitted the crewman to continue to direct the pilot, even when he was suspended beneath the machine, and you will probably have heard of the ‘polished Humber hub cap’ which allowed the pilot to see what was happening below and manoeuvre accordingly. I suspect that this may actually have been a convex mirror, but it makes a good story anyway.

No 275 Sqn moved from Linton to Thornaby and then to Leconfield, where they became No 228 Sqn and then, in 1964, No 202



A Whirlwind HAR 2 of No 22 Sqn which, on 30 August 1955, suffered a rather embarrassing engine failure while carrying out a winching demonstration for the benefit of representatives of the press assembled aboard a 68 ft Vosper RTTL. There was a very similar incident only four weeks later and a failure to employ the 'Up Gently' technique could also have ended up looking rather like this.

Sqn. Meanwhile, No 22 Sqn, a Coastal Command unit, had reformed at Thorney Island in 1955, initially also with the Sycamore and then with the Whirlwind Mk 2 and 4. It was during this period, the mid-1950s, that the detached flight system began to develop. No 275 Sqn's early deployments involved its having flights at Acklington, North Coates, Leuchars, Horsham St Faith, Chivenor and Aldergrove, while No 22 Sqn's flights operated initially from Martlesham Heath, Felixstowe and Valley. This deployment pattern has changed over the years, but the two UK-based SAR squadrons still operate on a detached flight basis today.

The Whirlwind, while suffering from a lack of power and reliability from its 600 hp Pratt and Whitney Wasp, and still not having much in the way of nav aids, did have a much larger cabin than the Sycamore which allowed a third man to be added to the crew. Although the efficacy of the double lift had already been established during the Sycamore trials, the advent of the three-man crew meant that, whilst the winchman was on the end of the wire, the navigator/winch operator still kept the pilot company!

During this period techniques, procedures and equipments were developed and these were to remain in use, relatively unchanged, for many years. A particularly significant technique was the 'Up Gently' which evolved in the wake of a number of incidents in which, because of insufficient power, the winch operator had very nearly winched the aircraft *down* into the sea, rather than winching the crewman and survivor *up* out of the water. The answer was to establish that there was sufficient excess power available to complete the lift by climbing the aircraft until the hook and its load were clear of the water *before* engaging the winch.

Another early innovation was the adoption of the Neil Robertson (NR) stretcher, as used in mountain rescue. Essentially a full body splint, the NR was first used, not in mountain rescue, but aboard ship in the early 1900s when its official designation was: 'Hammock for Hoisting Wounded Men from Stokeholds and for Use in Ships whose Ash Hoists are 2 feet 6 inches in diameter'. It has undergone many modifications over the years, but, still looking much as it always has done, it is still in use today.

Improvements in navigation equipment in the late 1950s made life much better for SAR crews – the introduction of the DECCA Navigator, a development of the hyperbolic radio navigation aid first used during WW II, meant that being out of sight of land was much less of a trial. The system worked by measuring the phase differences between continuous signals from a master and three slave stations. Plotting a line of constant phase difference between the master and each slave took the form of a hyperbola which was overprinted on a chart, the three master/slave combinations resulting in a lattice of three interlaced sets of hyperbolae. 'Decometers' provided a read-out of the aircraft's position with respect to each set of hyperbola, although there was some scope for confusion because each set was subdivided into 'lanes' and 'zones' and one needed to be careful to avoid ambiguity – this took a little practice but in good hands it was a reliable and remarkably accurate system. I can, for instance, recall recovering to Acklington, in quite bad weather, at the weekend when ATC was closed, of course, by following a convenient, slightly curved, DECCA lane, which coincided with the runway threshold.

There was also, of course, TACAN. Not the beacon equipment with which most of you will be familiar, but Take A Competent Air



The Whirlwind HAR 10 was the RAF's standard SAR helicopter from the early 1960s until the late '70s; this one is wearing No 202 Sqn's motif on its tail boom. (MOD)

Navigator! I can well remember heading out into the North Sea one day, with a horrendous amount of drift on, to hear the navigator say that we had a drift of 16° to the left. I was perplexed as to how he could be quite so accurate in this assessment when I looked down to see that he had a Douglas Protractor held against the cabin door sill and was tracking the white caps as they went past!

The advent of SARAH, and subsequently SARBE, made finding a downed airman bobbing about in the North Sea somewhat easier and finally gave the SAR Helicopter Force, as it had then become, a respectable capability.

The early 1960s saw the Whirlwind 10 introduced throughout the SAR world, and it remained in service for well over ten years. The Mk 10 was powered by a single Bristol-Siddeley/Rolls-Royce Gnome gas turbine, very much more reliable than the previous piston engines and with a very much better power-to-weight ratio – we are now up to 1000+ shp. But navigation aids and equipment remained largely unchanged – still the DECCA and the three-man crew, which by now had crystallised into pilot, nav and, as crewman, an air signaller or air electronics operator (AEOp) – the air loadmaster (ALM) had not yet been invented. But, with one or two notable exceptions, it was still essentially a day/VMC operation. One of those particularly 'notable exceptions' was the *Sea Gem* oil rig rescue in late 1965, when John Reeson won a George Medal for a very difficult rescue at night in

atrocious conditions. But, normally, operations over the sea at night were not lightly considered.

The Whirlwind was, for all its limitations, a very nice aircraft to fly – with its complete lack of feel. For those of you who are unfamiliar with the Whirlwind, the stick was completely sloppy; if you let go of it, it would simply fall over into one corner of the cockpit or another, with consequent drastic effects on aircraft attitude – but, it could be hovered on a sixpence and very smoothly too. Given power in hand, it was good in the mountains, very manoeuvrable and, with its ability to hover precisely, an excellent platform for mountain rescue. But, with a radius of action of only 90 miles in still air, there was still a lot of sea not covered – and in the 1960s there were not too many oil rigs to refuel from.

It was during this period that demand for SAR began to expand virtually exponentially. Military facilities still provided the basis of the service but more and more organisations began to call on Nos 202 and 22 Sqns for all sorts of activity – all the way from the Coast Guard wanting casevac from merchant vessels to the RSPCA wanting cows lifted from the base of cliffs. It was becoming necessary to communicate with all sorts of other agencies and the poor old ARC-52 UHF was simply unable to cope. We acquired numerous FM radios, mountain rescue radios, police radios, maritime radios to talk to ships and lifeboats, to such an extent that the rear cabin became virtually its own radio rack. Few of these additional radios were integrated into the aircraft system and the winch operator would often have to go off intercom to plug himself into another radio to talk to, say, the police or ambulance, and then plug back in to tell the rest of the crew all about it. The one thing we were crying out for was a helmet-mounted radio for the winchman so that he could talk to us when he was on the end of the wire – something which has still not been achieved with any great success, I believe.

As with the Sycamore, throughout the Whirlwind era the most significant ‘pucker factor’ was, despite its proven reliability, the fact that we had only one engine, particularly when 90 miles out to sea. It was routine for detached flights to operate a second standby system, whereby, whenever the first aircraft was launched on a rescue – the second crew would man up. There was much divided opinion about whether this was to continue to provide the published SAR cover in



A Wessex HAR 2 of No 22 Sqn in 1993. (MAP)

the absence of the first standby or whether it was actually to cover for our mates in the first crew in case they went in.

This limitation was eventually overcome with the introduction of the Wessex with its twin Gnomes – already the workhorse of the SH force, its introduction to the SAR force was very welcome. Nevertheless, although the single-engined issue had been overcome and the much greater lifting capacity – we are now in the 2000+ shp class – meant that the ‘Up Gently’ technique was no longer necessary, SAR remained an essentially day/VMC business. Furthermore, the Wessex had very little extra radius of action – 100 miles as opposed to 90 – and the navigation equipment was little better than that of the Whirlwind. As a result, we were able to transfer the well-tryed Whirlwind standard operating procedures and techniques to the Wessex, pretty much lock stock and barrel.

The sea change in SAR capability came with the introduction of the Sea King in 1978. Hitherto, we had utilised helicopters already in use elsewhere and adapted and re-equipped them, somewhat piecemeal, for the SAR role. The Sea King was already in use elsewhere, of course, but the Mk 3, the RAF version, was specifically bought and equipped with SAR in mind. I will not rehearse the trials and tribulations of the procurement process, since that was very well covered by Fred Hoskins at the previous helicopter seminar (See

Journal 25. Ed). Suffice to say that, despite the Navy's blocking attempts, the procurers did a superb job and we ended up with, what we felt to be, pretty much the ideal SAR helicopter.

We still had the twin-Gnome engine configuration, but now with 3000+ shp, and we now had a radar, albeit a steam driven, raw model, which required an experienced operator to interpret. I could never make head nor tail of it myself, but our AEOps and ex-Shackleton air signallers were in their element. Additional fuel capacity, compared to the RN's Sea Kings, gave us 6 hour's duration, or a 300 mile radius of action, and with a plethora of oil rigs to refuel from, we now had all of the North Sea, and a fair bit of the Atlantic, covered. A comprehensive, and integrated, radio fit permitted us to talk to pretty much anyone, and, although we still had DECCA, we no longer had to interpret the old 'Decometers' because we had a TANS computer which did the job for us, converting all that hyperbolic business into a meaningful read-out of navigational information. We also had a Doppler radar which gave us a ground speed indication of up to 40kts in all directions on a hovermeter, allowing us to maintain a pretty accurate hover without any visual reference, and this, together with a radar altimeter coupled into the stabilisation system, permitted us to let down in IMC to a fully automatic hover over the sea. The first time one experienced this for real, hands off, on a black night with no lights, was quite something – moreover, once in the hover the winch operator could adjust the aircraft's position by using a small 'joystick' at the main cabin door. Strictly speaking, he was not 'flying' the aircraft, as such; he was actually introducing false errors into the auto hover which were then corrected by the system, but it amounted to the same thing in the end.

We had a full IFR fit, ADF, VOR/DME, ILS, etc. requiring full procedural instrument ratings – very useful if you were going for a civilian licence, and quite a few did. We could legally fly airways. I recall transiting to Lossiemouth from Culdrose one day, and choosing to fly in the bottom of the airway which crosses Scotland, talking, of course, to Scottish Centre, when the somewhat indignant captain of a passing BA 748 asked them if they knew that there was a helicopter in the airway! One of my concerns, as a Squadron Commander, was that now that we had a helicopter that could pretty much get there, no matter what, on reaching their objective a crew might encounter



Even after close to thirty years of service, the Sea King is still a very capable SAR helicopter. This one was flying with No 203(R) Sqn in 2002. (MAP)

winching conditions in the ‘too difficult’ category, but, because they were there, they would press on and get themselves into trouble. Luckily, my fears proved to be unfounded.

The one bit of kit which got us brownie points with our passengers was the coffee machine – actually, just a water boiler, but to be able to serve someone a hot drink en route was really quite novel in that environment. When we got into the oil rig protection game, we were the transport of choice for the Royal Marines.

There was some concern expressed by the Wessex brigade, almost a re-run of the Whirlwind-to-Wessex changeover, that the aircraft was *too* big, had too much downwash and was not as manoeuvrable as its predecessor. It was not actually all that much bigger than the Wessex and, at comparable fuel weights, it was just as manoeuvrable. We did, however, hover a little higher to acknowledge the fiercer downwash – which, in turn, led to the introduction of the winchman’s earthing cable, as a result of the tendency for a more spectacular static discharge caused by the higher hover.

It is worth pausing here to review how the crewing of our SAR helicopters has changed over the years. At first we had the two-man Sycamore crew of pilot and navigator, the latter doubling up as winchman when necessary. The Whirlwind allowed us to expand to a three-man crew: pilot, navigator and crewman. The original crewmen

were AEOps and air signallers but the latter were progressively displaced by, mainly, helicopter-experienced ALMs transferred from the SH force. The navigator still did the navigating, but both he and the crewman were dual trained as winchman or winch operator. The crewman was expected to be the First Aid operative and in the early days this was little more than fairly basic St John Ambulance stuff. But, by the early 1970s, the crewmen, especially the rather younger ALMs, were starting to become more professionally skilled in caring for injured survivors and they were actively pursuing additional training, attending Accident & Emergency departments – even riding with ambulance crews to gain experience. The more mature AEOps and signallers were rather less enthusiastic about getting too involved in the blood and gore, and, I have to admit that, as a pilot, I was extremely glad that I could stay clear of that sort of thing too! This crew pattern was repeated on the Wessex, but few if any signallers were still around by then.

The advent of the Sea King added a fourth member to the crew and a reallocation of duties within it. There were now two pilots who could easily handle all of that marvellous navigation equipment, which made the navigator redundant, although we did retain one with each detached flight to ‘oversee navigation standards’. The AEOps now handled the radar and the winch, while the crewmen, by now exclusively ALMs, were free to develop their first aid skills to the extent that they are today full blown paramedics in their own right.

Since then, the Sea King has been steadily improved. It now has: a digital radar, which even I could manage; a better navigation fit, including GPS; better detection aids, including Forward Looking Infra Red (FLIR) and Low Light TV; an autopilot, rather than mere autostabilisation; and it still remains a most capable SAR helicopter, despite having been in service for nearly thirty years.

So, that is the story so far. As to the future, which I don’t suppose should be of any consequence to an ‘Historical Society’, I have to say that I sincerely hope that the forthcoming ‘civilianised’ version of the SAR service does not forget the priority that needs to be afforded to the downed airman bobbing about in the waves!

AFTERNOON DISCUSSION

Jefford. Was it a matter of policy that bodies should always be picked up? What I mean is, did one risk an aeroplane to pick up someone who was clearly already dead?

Flt Lt Tony Richardson. Normally we wouldn't. We would call up a launch. If there were *any* signs of life, of course, we would do whatever was necessary. But, one way or another, bodies were recovered whenever it was possible.

Bill Beaumont. I was on Liberators in India with No 355 Sqn and all we ever had in the way of jungle training was a one-hour talk by a former tea planter. The only tip he gave us which turned out to be of any use was to mark out our territory – using the method practised by animals....

Stephen Mason. Air Cdre Pitchfork referred to the *ad hoc* use of survivors to sell the idea of air/sea rescue. Was a systematic attempt ever made to develop this idea? Do we know whether, or how, the Americans did it?

Pitchfork. I think it was very much up to the individual stations, although all survivors were thoroughly debriefed, of course, and summaries of individual experiences would be circulated both within the air/sea rescue organisation and to all stations, so the word was spread in that way. Survivors would also be sent to the Air/Sea Rescue School to give first hand accounts to students. As losses mounted, there was tendency for interest in ASR to increase at squadron level among those who kept coming back.

The Americans had even more of an uphill struggle because many of them had never seen the sea before enlisting and, having been trained in the mid-West, their air force experience had done nothing to make them aware of the hazard that it could represent. I am not sure to what extent they developed the theme themselves later on, but in the early days there were certainly instances of RAF survivors being invited to talk to USAAF aircrew.

Richard Bateson. In February 1941, when German troops first arrived in North Africa, they were totally unprepared; they didn't even have the correct maps. Rommel had to use a He 111 to reconnoitre the



This rather tatty Fi 156 of the Luftwaffe's desert rescue unit was among the many enemy aircraft found at Gambut when it was reoccupied in December 1941.

area himself, yet within six months they had set up a Desert Rescue Squadron – the *Wüstennotstaffel* – at Benghazi, equipped with the Fiesler Storch. Why did we not do something like that?

Pitchfork. We did. In the early days, the Sea Rescue Flight, which Jeff talked about this morning, sometimes landed in the desert to pick up crews, and other aircraft, Blenheims and Lysanders for instance, would go out to recover crews once they had been located. There are also some quite well known stories of single-seaters, particularly Kittyhawks, landing in the desert to pick up a colleague and flying back with him on the pilot's lap. Some of this activity, particularly the Kittyhawk-style exploits, was clearly mounted on an *ad hoc* basis, but some will have been co-ordinated by Cairo or perhaps a Group HQ.

It is also worth considering that, while the Germans were feeling their way in North Africa in 1941, the British had been in Egypt for years and had well-established facilities in Cairo and elsewhere which permitted MI9 to set up a very comprehensive evasion network, using Sanussi tribesmen and the Long Range Desert Group. Using this system there were cases, of a Wellington crew for example, of people returning to base after having been in the desert for as long as twenty-eight days. So, overall, I think that we were probably actually better off than the Germans.

Gp Capt Jock Heron. What sort of search and rescue arrangements

were in place to support aircraft being ferried across the Atlantic from the USA to Africa and then on to the operational area – and eventually India.

Witherow. Much of the Trans-Saharan route was comprehensively covered by the French. Although Algeria stayed with Vichy, France's West and Central African territories sided with De Gaulle, which permitted the pre-war commercial route to be extensively developed with airstrips and refuelling points.

Pitchfork. The reinforcement route began at Takoradi where aircraft delivered by sea were assembled prior to being flown across to Khartoum and then on up to Egypt. To support aircraft arriving by air from the USA, there were four or five Sunderland and/or Liberator squadrons stationed on the west coast of Africa. Their primary roles were anti-submarine patrol and convoy escort, but they could, of course, be given air/sea rescue tasks as and when required. There were also marine craft units in the Gambia, Sierra Leone and the Gold Coast, so there was quite good provision out to a few hundred miles off the West African coast – and the Brazilians would have provided some cover on the other side.

AVM Nigel Baldwin. When Sir John introduced Stephen Fosh, he referred to the Mount Batten experience being seared into the memories of many aircrew. It certainly is mine. I did the Sea Survival Course four times during my V-Force career and, by an extraordinary coincidence, it was always in January! 'Protection, location, water, food' is permanently imprinted on my memory, especially 'protection', because on the first three occasions that I did the course, they threw us in the sea without immersion suits, and I have never been so cold – but it did impress upon me the need to get the dinghy canopy up, and why protection comes first on that list. As I recall, probably some time in the late 1960s, someone died of exposure in the water and it was that incident that led to the subsequent provision of immersion suits. Can anyone expand on that?

Wg Cdr Colin Cummings. I was actually on that course, it was in 1966 and the chap who died was MPlt David Howarth, who came from Gaydon. We had done the single-seat drills the previous day, Howarth, who was 43, a heavy smoker and not particularly fit, went

into the water for the multi-seat drills and suffered a massive heart attack. There was no safety launch. There was no one on the staff suitably equipped to offer assistance. The other life raft – the one I was in – was left to drift off unsupervised down the Sound in the gathering gloom. It was, to put it plainly, a total cock-up and it resulted in many changes.

AVM Alan Johnson. At that time the physiopathology of immersion was not well understood. At the Institute of Aviation Medicine we had a navy doctor who did an awful lot of work in that field. I won't go into the pathology of it, but sudden immersion in water, particularly of a chap who is not as fit as he should be, can certainly be a cause of death. That incident did result in provision of immersion suits as standard, but it is a complicated subject. People think that if you end up in the water you will eventually drown, but there is a lot more to it than that – you can die in water from many other causes.

Perhaps I could say something about desert survival. A colleague of mine, John Billingham, did the work on the snails that Mickey Witherow spoke about. He did it in the climatic chamber at Farnborough where he subjected himself to desert conditions for six days, living on squashed snails. He vomited after the third day so, as a concession, he was given orange powder, with no sugar in it, to flavour the snails but at the end of the trial it was concluded that snails were not a practical proposition!

I can also offer a comment on the Mount Suphan incident that Frank Card spoke about. I was in Cyprus at the time and a member of the NEAF Parachute Rescue Team. We were initially called out to attend the Tudor that was down in Eastern Turkey but we were stopped from going – the drop zone was at 14,000 ft incidentally – but, if we had tried it, I don't think that we would have made it because the Turkish authorities had no control over their border guards who had instructions to shoot all parachutists on sight! In the end, the Mountain Rescue Team went instead and I'm happy to say that they weren't shot.

Finally – the jungle. When Roger Annett did the course, I was the Medical Officer at the Survival School and a member of the Jungle Rescue Team. My only comment is to observe that young aircrew used to attack the jungle like Errol Flynn. The *parang* was mentioned.

The best place for a *parang* is in its sheath, because, if you try to hack your way through the jungle, you will be exhausted on Day One; the older and wiser would pick their way through.. What the course demonstrated, very convincingly, was that civilisation is a thin veneer – it takes only 24 hours for the sophisticated young man who lives in the Officers Mess and has his shoes cleaned, to revert to being an animal!

Jefford. I can offer another anecdote about the Jungle Survival Course. I did it in 1962, shortly before the Confrontation began, when the only trade was provided by new crews joining the resident FEAF squadrons. There was a Danger Area of about two miles radius centred on a road bridge near Mersing, which is where you came out of the jungle to skinny dip in the river. The river ran west to east on its way to the sea while the road ran north/south. It was standard practice for every squadron that had students on the course, the latest crew to arrive, to send an aeroplane up there to do a fly past at about 1100hrs on a Friday – when the course would be at the bridge. Beyond the possibility of the odd surreptitious pre-take off phone call, you could hardly deconflict this sort of activity, because it involved flying through restricted airspace. Nevertheless, when my course emerged from the jungle we were treated to *very* low fly bys by Canberras, a Hunter, a pair of Javelins, a Twin Pioneer, a Hastings and a Meteor, some following the river, some the road. Plus, of course, the only aeroplane that was allowed to be there, a Pioneer that dropped a couple of cases of ice cold Tiger beer. This happened whenever a course was run, yet nobody ever got into trouble and nobody bent an aeroplane – or not very badly anyway.

Air Mshl Sir John Curtiss. Well we seem to have overrun our time, so I am going to draw these proceedings to a close by thanking, very sincerely, all of our speakers for all that they have given us today and our Chairman and his team who have planned this very successful event. And, of course, thank all of you for coming.

THE RAF MOUNT BATTEN EXPERIENCE

Flt Lt Philip Mill

In 1989 Flt Lt Mill became the first RAF Regiment officer to serve as an instructor at the, then, School of Combat Survival and Rescue. He returned for a second tour before leaving the Service in 1996 and has been on the staff of the SERE (Survival, Evasion, Resistance and Extraction) Training Centre at RAF St Mawgan since 1998.

The survival instructor says, ‘You are flying over the sea at 500 feet, you have a birdstrike and lose both engines. Eject. Eject. Eject.’ You inflate your Life Preserver (LP) and adopt the parachute position. A hand then pats you rather firmly on the back and you step off the back of the boat.

Your feet hit the sea and suddenly the cold water of the English Channel envelope your body and slaps you in the face. Despite the waterproof immersion suit, you have time to notice just how cold that water is before a sudden, more pressing matter demands all of your attention. As if caught in a gust of wind, your parachute starts pulling you through the water. You kick frantically to roll onto your back and settle into a stable position. The water continues to splash over your head, but now you have a chance to breathe. You register the fact that your Personal Survival Pack (PSP) is now at the full extent of its lanyard, and a bright orange and black dinghy is bursting from the confines of the pack. The drag through the water starts to slow and you turn and squeeze the harness quick release fitting. All that is left to do is board the single-seat liferaft, finish the drills and await the Sea King which is booked to pick you up at half past the hour. It’s time to sit back and enjoy the scenery while noting that this latest visit to the School of Combat Survival and Rescue at RAF Mount Batten represents another tick in your two-yearly training commitment.

Why Mount Batten?

The original School of Air/Sea Rescue was formed at Blackpool in 1943. In 1945 it moved to Calshot where it became the Survival and Rescue Training Unit before moving again in 1946, to Thorney Island, where it disbanded in April 1949. In January 1950, its place was taken by the Survival and Rescue Mobile Instruction Unit (SRMIU), also



Until it was withdrawn in October 1958, Thorney Island was served by a detachment from Newhaven's No 1107 MCU. The shallow waters called for some slightly unusual boats like this ex-wartime Landing Craft Personnel. (C Silman)

based at Thorney Island. Thereafter training in search, rescue and survival techniques relied on whatever was provided on basic aircrew training courses, responsibility for post-graduate continuation training usually resting on the shoulders of the local Station Navigation Officer – who, since he had been given no specialist training, was unlikely to know much more about the subject than anyone else. For stations in the UK and Germany (but not elsewhere) some assistance was provided by an annual two-day visit from the SRMIU, but this was hardly sufficient to stem what amounted to a rising tide of ignorance. The inadequacy of this approach was finally recognised in 1954 and this led to the establishment of a three-week course ‘for GD officers appointed to Search and Rescue posts throughout the Service.’ The course was to be run by the Search, Rescue and Survival School which was set up in the autumn of 1955 to operate as an embedded unit within No 2 Air Navigation School, using the staff and accommodation previously allocated to the SRMIU.

Heavily reliant on the helicopters of the resident No 22 Sqn and locally based marine craft, despite attempts to plug the gap with launches operating under civilian contracts, the withdrawal of the

latter in October 1958 created insuperable training problems. These were eventually solved in June 1959 when the school was moved to Mount Batten,¹ on the outskirts of Plymouth, by which time fifty-nine courses had been trained at Thorney Island.

On arrival at Mount Batten the unit was restyled the School of Combat Survival and Rescue (SCSR), this change of name reflecting a significant additional task. The emphasis was now not merely on survival, but on survival *in a combat environment*, including the recovery of aircrew from behind enemy lines.

The majority of the courses run at Mount Batten fell into three main categories: 'conversion to type' courses, where aircrew were introduced to the survival equipment carried on aircraft with which they were hitherto unfamiliar; CSRO (Combat Survival and Rescue Officers) Courses, whose graduates became station and squadron survival instructors; and training for survival in foreign climes.

Survival Courses

Training for 'conversion to type' provided the majority of the courses at the SCSR. Two three-day courses ran each week with shared lessons and facilities on the Wednesday. The course was largely theoretical with only the sea drill providing relief from the blackboard, 35mm slides and overhead projector transparencies. There were three general categories of conversion course catering for the users of ejection seats and parachutes, the crews of large multi-engine aircraft (ie those without parachutes), and helicopter crews.

The parachute user's sea drill started with a drag behind or alongside a motor launch at speeds of 6-10 kts. This was intended to represent the situation where, although the survivor had landed in the water, his parachute was continuing to drag him. Even with the widespread introduction of water pockets (a fold of material at the periphery of the canopy designed to fill up and produce a rapid collapse of the canopy once it touched the surface of the water) in the 1980s and '90s, there was still a chance of a drag lasting several seconds. Before the introduction of the water pockets there had been

¹ RAF Mount Batten has no connection to Lord Louis Mountbatten; its name derives from Capt Batten, an English Civil War commander who defended the hill overlooking the city of Plymouth.

several unfortunate deaths attributed to the survivor's inability to get out of the harness when parachuting into the sea for real.

Before dispensing with his parachute, the survivor would have had to release his PSP – the Personal Survival Pack which contains his liferaft – from its attachment point on the harness. Once clear of the harness, the survivor could inflate the liferaft and, after a struggle, board it and commence the drills to empty it of water and to inflate the floor and canopy. The Tornado PSPs of the early 1990s were the first to have automatic devices to separate the PSP from the harness and to inflate and deploy the liferaft. This innovation, coupled with automatic inflation of the life preserver, meant that the survivor had only to free himself of the harness and board the liferaft. The cost of this sophisticated equipment precluded the automatic devices being used widely on SCSR courses, although the lack of an automated liferaft deployment device is still representative of a PSP designed for extreme cold weather conditions where the space is taken up by a vacuum-packed sleeping bag.

Helicopter crews were lucky enough to avoid dragging through the water, but had their own challenge. Entry into the water was arranged so as to provide disorientation, as if the crews had escaped from an upturned or sinking helicopter. This fitted in nicely with the point at which the 'Dunker' training at RNAS Yeovilton finished. As the launch sped through the sea at up to 20 kts the aircrew would jump into the turbulent wake, often in unusual attitudes. Unlike the parachute users, the helicopter crews would enter the water without their LP inflated. Sometimes several anxious seconds would elapse before they surfaced.

Depending on wind and sea conditions, the crews of multi-engine aircraft would frequently start their drill with a 'righting' of a liferaft. Larger liferafts, such as the MS26 and MS33, were particularly awkward if there was any wind to pull against, and the prospect of pulling a large and seemingly heavy object over their heads, thus forcing themselves underwater, was a frightening prospect to most trainees. Once righted, and once the 'righters' had extracted themselves from under the liferaft, boarding could commence. When everyone was aboard (apart from the obligatory 'lost survivor' who had to be rescued by a volunteer swimmer with a quoit) the painter line would be cut and the liferaft would drift, buffeted by wind and



An MS 26 liferaft being righted.

wave, until a rescue helicopter appeared. Even then the ordeal was not over as the last few survivors would frequently be pitched into the sea as the downwash from the helicopter tipped the lightly loaded liferaft over once again.

In the early days, clothing for the drill was simply a set of denims or a flying suit. Later the wearing of immersion suits became routine for fast-jet and helicopter crews. Few multi-engine aircraft carried waterproof survival suits, so most of the sea drills for their crews were conducted in normal flying suits. This continued until the 1960s when, following a death in training, all trainees were given an immersion coverall whenever the sea temperature was below 15°C. The end of the drill and the sail back to Mount Batten was usually celebrated with a steaming mug of tea or coffee with a generous splash of 'Woods' rum. The rum issue continued throughout the school's time at Mount Batten, well beyond the demise of the Royal Navy's tot. With the move to St Mawgan, however, the dead hand of accountancy finally made itself felt and the rum ration was withdrawn.



One of No 22 Sqn's piston-engined Whirlwind HAR 4s which, until they were replaced by Mk 10s in 1962, provided practical experience of helicopter lifts for courses run at both Thorney Island and Mount Batten. (MAP)

Recovery of the aircrew from the sea was usually effected by helicopters from Chivenor, although St Mawgan and Culdrose also provided the rescuers on occasion. The sight of a Wessex or a Sea King looming out of the low clouds over Plymouth was a considerable relief to those suffering from sea-sickness. Having been winched up by the helicopter, if they were lucky, the survivors would be flown directly to the lawn outside Mount Batten's Officers Mess. Those less fortunate would be winched back down onto the launch, giving the helicopter crews an opportunity to practise working over a rolling and heaving deck. For the survivor, sea-sickness was quickly forgotten, priority now being focused on avoiding the array of guard-rails, stanchions and other pointed objects that surround the swaying deck.

The launches for the sea drill were provided by the RAF Marine Branch. The General Service Pinnacle was the preferred vessel, since its broad and obstacle-free deck was easy to use, compared to the cluttered work area and engine fumes associated with the faster and more exciting looking RTTLs. Sadly, the RAF Marine Branch was disbanded in 1986, although the strong professional working

relationship that had existed between the SCSR and the boat crews continues to the present day as, despite privatisation, the facilities required by the school continued to be provided by the same vessels, and many of the same boat crews, albeit sailing under the flags of a succession of different contractors. It was only with the new millennium that the old pinnaces were finally replaced with a new class of vessel which now provides the luxury of an enclosed cabin, toilets and a galley.

CSRO Courses

From the start of survival training within the RAF it was appreciated that it would be impossible to train all personnel to the highest standard and that for the system to work well, the SCSR would require a representative on each squadron and unit. Where practical, it was considered that this person should always be aircrew, since they would be in the best position to apply the principles of survival to the needs of their own units. These personnel would also serve another vital function, that of being the conduit through which operational experience was fed back to the school.

The Combat Survival and Rescue Officer course replaced the Survival Officer course when evasion and conduct after capture (CAC) techniques were added to the curriculum. The CSRO syllabus evolved through a series of two- and three-week courses. One element of the course involved teaching the CSRO how to conduct his own unit's sea and pool drill training with liferafts, the other part provided an opportunity to put newly acquired evasion skills into practice, culminating in a thoroughly unpleasant CAC exercise at one of Plymouth's many Napoleonic era forts. This, very politically and publicly sensitive, training was subject to very careful control after a number of 'excesses' had occurred in training elsewhere in the late 1950s. That said, the general format of practical CAC training was to remain unchanged until the late 1990s.

The principle underpinning the original CSRO course was that one 'learned by practical experience', gained through a physically demanding evasion exercise followed by the considerable stress involved (even under simulated conditions) in imprisonment and interrogation, all of which was very different from the 'training the trainer' philosophy of current courses. Depending on the time of year

and the weather, the challenge could be extremely tough with flying clothing making a poor starting point for practical outdoor survival. Adaptability was the key. A waterproof layer could be made from cutting up a liferaft, and parachutes could be transformed into a shelter, a very thin sleeping bag and gaiters.

Survival Courses in Foreign Climes

The Winter Survival School

The most significant overseas establishment with which the SCSR associated itself was RAF Germany's Winter Survival School (WSS) in Bavaria. The first courses were run in Austria at the end of WW II, but the school moved to Bad Kholgrub in 1948 where it continued to operate until 1996. A visit to Bavaria certainly provided a respite from the demanding routine of defending Western Europe, but it also extracted its 'pound of flesh' from the participants. Throughout its forty-plus years, the course syllabus and exercises, and even the accommodation (the *Zur Post* hotel, with its cold showers in the cellar), changed very little, as demonstrated by the short promotional SSVC film, *The Survivors* (1957). As the numbers of aircrew serving in Germany dwindled, places on the course were offered to other commands and extended to other nations. Despite the shortcomings of the accommodation, the course gave aircrews a chance to practise survival in a cold and demanding environment whilst attempting to evade capture by pursuing German and British forces. As an incentive, anyone who was apprehended was subjected to an unpleasant conduct after capture exercise.

After a dialogue with land owners in the area permission was gained to run much larger evasion exercises. In the 1980s this consisted of a one-night event that set the evaders moving through a series of manned checkpoints. Despite the heavy hand of Health and Safety requirements, this aspect of training has become both more robust and safer. By 1992, GPS and radios enabled instructors to monitor the progress of evading aircrew at a distance over a five-day exercise.

A more welcome challenge was the opportunity to try the exotic sport of downhill ski-ing as part of an 'R and R' package that helped to condition the aircrew for the rigours of evasion in sub-zero temperatures while waist deep in snow. Initially the instructional staff

for the course was provided by CSROs stationed in Germany, but as the RAF's presence on the Continent reduced, the SCSR began to play an increasingly prominent role, eventually providing the majority of the instructional staff. Since the 1960s five courses have been run each season. The strong links that were forged with the local community in the early years are still maintained today, although the accommodation has now moved to the picturesque town of Oberammergau.

The Aircrew Jungle Survival Course

In the 1970s, with the demise of theatre-specific aircrew survival courses run by regional RAF commands, the SCSR was tasked with providing jungle survival training for aircrew. The course was run in the jungle of Brunei for sixteen years. Here the main enemy was provided by the alien environment with heat stress, leeches, mosquitoes and giant centipedes proving a more substantial hazard than the snakes, wild pigs and the deadfall of trees. Learning the skills of survival and navigation in the jungle involved considerable weight loss, each two-week, twenty-four-man course sweating out the equivalent weight of two of its members. The ordeal of the jungle would culminate in an evasion exercise against Gurkhas (dressed in the appropriate 'black pyjamas' of the Vietnam era) and other personnel from the British Army Training Team in Brunei. The odds were stacked against the aircrew with few of them escaping the attentions of the jungle trackers.

As an incentive, and as a reward for the hardship, the acclimatisation and 'R and R' period was usually spent in Hong Kong. Although, from my personal observation, little actual acclimatisation seemed to have been achieved in the air-conditioned bars, tailor's shops and restaurants that the students frequented during the week of 'training' prior to deployment to Brunei. The last few years of the Brunei-based jungle survival courses had a more 'regimented' approach with the acclimatisation being spent living in atap huts in the jungle, and being lead through a series of ever more challenging activities by some of the excellent instructors from Physical Education Branch who had joined the staff of the SCSR. Only one course was held each year.

Desert Survival Training

Unlike the jungle, the desert did not feature on the list of courses

run by the SCSR. While the Malayan Emergency, the subsequent Confrontation with Indonesia and the American experience in Vietnam provided the impetus for maintaining skills in the jungle, desert survival training received far less attention. Only a month before Iraq's invasion of Kuwait, the author's request to attend a desert survival course run by the Americans in Saudi Arabia was turned down by the MOD on the grounds that, 'There is currently no perceived requirement for RAF aircrew to train in desert survival.' Only after the first Gulf War did the SCSR start desert courses in Southern California in association with the US SERE (Survive, Evade, Resist and Escape) School at San Diego.

This did not, of course, stop commands and squadrons from establishing 'environment specific' training using their own CSROs. In fact the system positively encouraged CSROs to provide whatever training their unit required. Although SCSR instructors often trained with these units and attended courses run by other nations, other than a few minor courses held in Cyprus (not really all that desert-like) no centralised training for desert survival was ever organised by the school.

Survival Training in Norway

RAF personnel, of all branches and trades, not just aircrew, taking part in exercises in Norway each winter were required to complete Arctic Survival Training. As a precursor to the periodic Exercise HARDFALL, for instance, the CSRO of each of the helicopter squadrons being deployed to Norway would conduct a five-day survival exercise. Members of the SCSR staff were attached to these courses to gain experience and to assist with instruction.

This training managed to achieve a high throughput and packed a great deal of information on the provision of shelter and other survival skills into a short, concentrated course. For most participants, the highlight was the night spent in a snowhole, the most comfortable and spacious of the four different types of shelter constructed during training. There was a real sense of achievement after making a warm (just on zero degrees – any warmer and the shelter would start to melt), light and airy shelter from just burrowing into the snow.

Other Survival Courses

In addition to the mainstream courses, several specialised forms of

instruction were provided by the SCSR at Mount Batten on an occasional basis. These included: a course for airmen being trained as air stewards; the Survival Rescue Assistants Course, for those members of the Physical Education and Safety Equipment trades who worked with CSROs; and the highly entertaining CAM (Centre of Aviation Medicine) Course.

On the CAM Course a diverse group of doctors, holding both military and civilian appointments, would attend a week of training as an element of their Diploma in Aviation Medicine. Their visit to the SCSR was in part designed as a break from their academic work while, at the same time, providing them with some impression of the physical and mental stresses with which aircrew would be faced if they actually had to use any of their survival training. The doctors were always a delight to work with as their lack of prior aircrew survival training would lead to interesting and difficult questions. After witnessing their attempts to use the cutting tools available to survivors (axes, Wilkie knives and razor blades) one could only hope that they were better with their scalpels.

SCSR Instructors and Staff

Initially officer and NCO aircrew provided most of the six instructional staff at the SCSR during the Mount Batten years. They were supplemented by experienced Parachute Jumping Instructors from the Physical Education Branch who provided clarity and credibility in all matters relating to ejection and parachute descents. They also brought years of experience of instruction and of the organisation of practical training. By the 1980s two Physical Education officers had also joined the staff, replacing two of the aircrew and turning them into a minority.

The school's CO had always been an aircrew officer since this obviously helped to maintain the correct focus. This was to remain the case until the mid 1990s. The administrative staff comprised one SNCO and two SACs who between them managed all the typing, bookings, transportation and even served the students mugs of tea during the scheduled breaks.

Survival Equipment Section

The large numbers of sea drills that were conducted could not have



Dinghy drill – a ‘survivor’ is winched aboard a Sea King of No 203(R) Sqn. (Crown Copyright/MOD reproduced with permission of the Controller HMSO.)

been achieved without the unstinting support of the members of the SES (Survival Equipment Section). These ‘squippers’ had to be current in the preparation and packing of every item in the diverse range of survival equipment carried by RAF and Army aircraft. In addition to packing the kit, three members of the SES would also attend each sea drill, checking, fitting and recovering the equipment. Often the liferaft would contain a fair amount of vomit, as the combination of excess alcohol from the run ashore in Union Street the night before, and the roughness of the sea in Whitsand Bay would get the better of the survivors.

Trials of Survival Equipment

The officer in command of the SES was also the Trials Officer with responsibility for testing all new and/or modified survival equipment for all three Services. The most disliked of the trials were undoubtedly the mandatory high-speed parachute drags behind the pinnacle. For some reason these tests were conducted at double the usual dragging speed. The report on the test of the parachute harness, life preserver and PSP for the Hawk as it entered service noted that, ‘At speeds of 16 knots it was hard for the tester to breathe as the majority of the drag was conducted with the tester being held underwater.’

Closure of RAF Mount Batten

With the transfer of all Nimrods to Kinloss in 1992, AOC 18 Gp was keen to close down some minor units and concentrate them at, the now largely empty, St Mawgan. Despite the boats having to remain in Plymouth harbour, the SCSR vacated its old huts on the waterside at Mount Batten in August 1992. The old RAF station has since been extensively redeveloped and is now home to a hotel, apartments, restaurants and a public house. The two large flying boat hangers remain, along with the old Warrant Officers and Sergeants Mess (which is now a water sports training centre) and the two imposing married quarters, ‘Port’ and ‘Starboard’, still flank the road which leads down the hill to the waterside.

FEEDBACK

Members will recall that, on page 52 of Journal 39, I corrected a statement made elsewhere by pointing out that the first aeroplane to land in France after D-Day was a Typhoon of No 245 Sqn which made an unscheduled arrival on 10 June. Barry Moores has trumped me by pointing out that the first aeroplanes to arrive had actually been Auster Mk IVs of Nos 652 and 662 Sqns. So why had they been overlooked? Perhaps because, like most RAF folk, I tend not to think of the AOP squadrons as being RAF units. But, until 1957, they most definitely were, and, even if their aeroplanes were being flown by soldiers operating under Army control, a large proportion of the groundcrew were RAF men.

In this instance, the ORBs note that advance parties from both squadrons landed on the beaches on D-Day itself, a day *before* the first of the RAF's Servicing Commando Units, the first of them as early as H+90 minutes. Their landing grounds having been secured, under fire, the aeroplanes began to be flown across on D+2. The first four Austers of No 652 Sqn's B Flight landed in France at 0815hrs on 8 June to be followed that evening by the first aircraft of No 662 Sqn. The latter had a relatively exciting crossing, as the ORB records: 'At 1930hrs, led by a Walrus of the Navy, the 5 Austers, in filthy weather, set off one behind the other across the Channel. About 16 miles out from the coast the weather cleared, and we spot away in the distance on our left Havre, and away down below us on the right lines and lines of shipping. (...) The Navy, 'God Bless Them', deciding that we must be some sort of secret bomb, opened up with their AA. It is hard to believe that they cannot by this time recognise a Walrus, but nevertheless it is apparently true.'

No 652 Sqn lost no time in becoming operational and, despite having only one flight available, it had conducted seven shoots before the day was out. No 662 Sqn joined in on the 9th, its first sortie being to control the fire of a cruiser lying off shore. No 652 Sqn flew a further ten sorties that day, some of them reconnaissance but four directing artillery fire, in the course of which it suffered its first casualty when Capt Pugh's aircraft was engaged by five Fw 190s. Having successfully evaded two attacks, he was eventually shot down and fatally wounded.



Not the more extensively glazed, Lycoming-powered Auster Mk IVs flown to France by Nos 652 and 662 Sqns, this is a Gipsy-engineered Mk III of No 38 Gp Comms Flt but it is clearly sporting the high visibility 'invasion stripes' that the squadrons hastily discarded on 10 June following the loss of an aeroplane to Fw 190s on the 9th.

All of this activity had taken place before the arrival of that first Typhoon.

The squadron was convinced that the presence of Capt Pugh's aircraft had been revealed to the enemy pilots by its high-visibility black and white recognition markings. Intended to prevent friendly fire incidents, the AOP pilots preferred to take their chances and on the 10th, HQ 83 Gp authorised their removal, permitting the Austers to regain the relative obscurity conferred by their camouflage.

ERRATUM

With reference to the abbreviations listed on page 5 of Journal 39, Vic Pheasant has pointed out that FFI actually stood for Free (not Freedom) From Infection.

BOOK REVIEWS

Bomber Boys by Patrick Bishop. Harper Press; 2007. £20.00.

This is a slightly odd one as it falls somewhere between an historical account and a social study. A promotional note on the jacket claims that the author ‘captures the character, feelings and motivations of the bomber crews and pays tribute to their heroism and determination’, and this he does, I think, very successfully. In order to provide the contemporary context, however, it was more or less inevitable that he would also have to tell the story of the bomber offensive – again. So we have: the failure of the early daylight raids; the ineffectiveness of the early night campaign; the introduction of the four-engined heavies and electronic aids; the ‘Thousand Bomber Raids’; the Dambusters; changing directives; the interplay between Churchill, Portal, Harris *et al*; Pathfinders and Master Bombers; the differences between USAAF and RAF tactics; the Battle of the Ruhr; the Battle of Berlin; Dresden and so on.

While the numerous Notes at the end of the book tend to create the impression that it is an academic history, some turn out to be rather wanting if you actually try to use them. For starters, because one is constantly flicking back and forth between the page one is reading and the Notes, it would have been helpful to have had the current chapter number printed at the top of each alternate page, rather than the author’s name – there is no doubt who wrote this one. As to the references themselves, there are many instances of ‘op cit’, but there is no bibliography (a significant omission in a work that draws heavily on secondary sources) so you may find yourself trawling back through several pages of previous Notes in the hope of coming across the ‘op’ that has been ‘cited’. Then again, some of the references are more than a trifle vague – if you try to find ‘PRO AIR 2’, for instance, you are going to have your work cut out, because that embraces many thousands of files and ‘PRO AIR’ probably runs to several hundreds of thousands. Incidentally, the book includes an unattributed reference to one of this Society’s publications – there’s that lack of a bibliography again – it would be nice to be acknowledged.

So far as the ‘history’ is concerned, I would not take issue with the general themes as presented, but there are some niggling errors in the detail, which leads one to question just how familiar the writer really

is with RAF matters. For instance, he describes incidents involving Nos 54 and 89 Sqns when he clearly meant 44 and 83 – we are talking bomber units here, not fighters – and he tells us that No 102 Sqn was an RCAF unit (which it wasn't). He quotes Air Cdre Sir (*sic*) John Slessor in April 1940 (Slessor 'got his K' in 1943 as an acting air marshal). The decision to dispense with second pilots in bomber crews was taken in March 1942 (not 'late in 1941'). The RAF's 'heavies' did not have 'glistening black surfaces' (they had a matt finish) and were dog tags really made of metal? (I thought that they were produced from a fibrous material, one green and one red). The statement that No 2 Gp was 'removed from Bomber Command in May 1943 and attached to the American (*sic*) Second Tactical Air Force' also serves to undermine one's confidence.

There are about thirty photographs, many of them familiar but including a number of portraits of individuals whose stories feature in the text. Unfortunately, the picture of Frank Blackman has been printed as a mirror image and, in view of the many photographs of later-model P-51s that are available, it was a singularly poor choice to use a picture of a very early Allison-engined trials airframe to illustrate the 'Mustang long-range escort'.

Many of the references are to material held at the Imperial War Museum, much of it the written and oral memoirs of some of Harris' 'old lags' and it is this source which the author has skilfully exploited to good effect to do exactly what it says in that blurb. Although there are, as one would expect, accounts of the stress involved in flying an operational mission – including the impressions of crew members other than pilots – these recollections address much else besides. There are, for instance: descriptions of the, often primitive, living conditions at bleak bomber stations; observations on LMF, 'the twitch' and the contrast between the calculating of the odds on survival by some individuals and the resigned fatalism of others; reflections on the morality and effectiveness of area bombing; tales of off-duty activities, including some touching accounts of wartime romances, all too often doomed to end in tragedy; and much more

The author is a professional writer by trade, a war correspondent, and his skills are very evident because these evocative stories are told in a faultless, easy flowing prose. But again, there is that hint of a lack of awareness. A writer who really understands the flying game is

unlikely, for instance, to report that a crew heading for Milan in August 1943 ‘set course towards the setting sun’. Similarly, one of the accounts extracted from the memoirs of a veteran simply didn’t ring true and a little investigation indicated that he was far more likely to have been a WOp/AG than the pilot that he claimed to have been. I was sufficiently confident of this to express my reservations to the IWM authorities only to find that someone had got there before me and that the file had been withdrawn pending an investigation into its veracity. My point? This story should not have passed muster in the first place.

But I have done it again. It’s all Smart Alecky pointing out the problems. I do have some reservations over the real depth of Patrick Bishop’s knowledge of the RAF but he presents a well-balanced and easily assimilated account of the bombing campaign – ‘Webster and Frankland lite’ probably sums it up – and I thought that his sympathetic rendering of the stories of individuals was masterly. So, *Bomber Boys* re-tells Bomber Command’s story in an easily assimilated fashion while focusing on the ‘ethos and character of the men who fought this most extraordinary war.’ There is little that is new here, apart from the personality-oriented presentation, but I liked it. It would certainly be a good read for the layman and it will do no harm whatsoever to Bomber Command’s reputation.

CGJ

Best Of Breed – The Hunter in Fighter Reconnaissance by Gp Capt Nigel Walpole. Pen & Sword; 2006. £25.

Best of Breed is Nigel Walpole’s account of the short career of the RAF Hunter FR10 and Sir Sandy Wilson, himself an experienced Hunter recce man who served under the command of the author, has written the excellent Foreword, which could serve as a book review in its own right. The author’s assertion that the Hunter FR10 was the ‘best of breed’ could be challenged by those who flew other marks of this famous aircraft but his fighter reconnaissance (FR) pedigree is second to none, so his perspective cannot be ignored. His earlier book *Swift Justice* was a worthy account of the troubled gestation of the Swift and its subsequent FR career in 2ATAF and at first glance, and indeed in the first two thirds of the book, *Best of Breed* follows the same enjoyable format. Understandably, the author has chosen not to

cover the development of the classic Hunter in quite the same depth and the creation of the FR10 is contained within one short introductory chapter covering the important modifications, mainly to the cockpit and nose, to adapt this fine fighter to its new environment.

He addresses the potential survivability of the Hunter in Germany by talking to retired officers from the defunct Warsaw Pact, who seem to have had some respect for NATO's FR capabilities, before going on to review the role, concepts of operation and operating procedures of fighter reconnaissance. Here the author's considerable experience as a recce pilot, Squadron Commander and staff officer justifies his criticism of traditional reliance on photography compared to the speed of the classic In Flight Report. For example, is it necessary, some time after overflight, to inspect the construction details of a 'three-span, deck-type, masonry arch' in a photograph when all that is needed is timely knowledge of whether or not the bridge is still serviceable? The author argues persuasively that sound teamwork and an appreciation of aircraft and equipment limitations were much more important features of the tasking chain.

The excellent quality of training for the FR pilots at Chivenor is covered in a single chapter describing the style and methods of some of the big personalities on the staff who set these high standards. The author describes how emphasis was placed on map reading, timing, and the recognition of military vehicles and ground systems, all of which had to be done without access to the actual FR10, all of which were required for duty elsewhere. As a result, until 1967, when Chivenor finally acquired its first FR10, most sorties were flown in the F6 with a staff chase.

The majority of *Best of Breed* dwells on personal recollections and extracts from the diaries and Operational Record Books of Nos 1 and 4 Sqns at Gütersloh. Here the author describes the busy pace of life, both socially and professionally, on both units during the 1960s and although sometimes repetitive, these anecdotes from the cockpit, crew room and bar are amusing, informative and entertaining. However, it is in the final third of the book that the Hunter FR10 story comes alive and the many accounts of action in the Aden Protectorate in the mid-1960s make gripping reading. For almost two years Hunters of the Khormaksar Strike Wing were in action against rebels in the Radfan and elsewhere in and around the protectorate where the FR10

provided vital offensive air support with cameras and guns alongside its more numerous stable mate, the FGA9.

The last two brief chapters bring into welcome focus the ground support teams in Germany and Aden, embracing the photographic interpreters and the ground crews, both essential to the operational success of the Hunter. It is to the author's credit that he has been able to trace many of these men who have been able to tell their stories without the risk of anyone being put on a charge!

There are a few critical observations, for instance, the assertion on p83 that the Hunters of No 4 Sqn had been beaten by 'the more experienced French Mirage team' in the 1961 Royal Flush competition, which cannot be true as the first FAF Mirage recce squadron did not form until the spring of 1963. Although illustrated profusely, the quality of some of the photographs is disappointing but, as many are copies of those in squadron diaries or reproductions of F95 or gunsight camera images, this is hardly surprising. There are a few editing errors, such as that on page 1, where the camera-equipped Hunter F4 trials aircraft (WT780) is also identified as a modified F6, and there are some misspellings, such as 'Lochspeiser' (p4) and 'Pembray' (p25). However, these are minor criticisms within an excellent account of the short life and times of the Hunter FR10.

The majority of the 1,900 plus Hunters manufactured at the height of the Cold War were F6 variants and of these only thirty-three were converted to FR10 standard for the Royal Air Force as replacements for the Swift FR5. The type served for ten years in the front line and, although its career in the recce role was twice as long as that of the Swift, it was remarkably short in comparison with modern aircraft types; its interceptor contemporary, the Lightning, for instance, entered service a few months before the FR10 and soldiered on for thirty years. Despite the small numbers involved, and its relatively short career, the title *Best of Breed* applies, not only to the Hunter FR10 itself, but in equal measure to the handful of pilots who flew Hawker's finest and to the ground crews who supported it so successfully in Cold War competitions and on active service in the Arabian peninsula; it was the skill and spirit of these men that secured a place for the FR10 in the annals of the RAF.

While £25 may be a typical price for a specialist book, it is expensive and casual readers may choose to borrow it from the local

library. However for any Hunter enthusiast and, in particular for those of the FR fraternity, *Best of Breed* is highly recommended for the personal bookshelf.

Gp Capt Jock Heron

Slessor: Bomber Champion by Vincent Orange. Grub Street, 2006. £20.00.

When researching *High Commanders of the RAF* in the late 1980s I was surprised at the absence thus far of a biography of Sir John Slessor, one of the most influential of all the Chiefs of Air Staff. On the other hand, I knew he himself had been a prolific writer about air power, drawing considerably on his own experiences, and I described his book, *The Central Blue*, as the best book written by a former CAS. That opinion still stands – though admittedly there has not been very much competition. At the same time I have always felt that he ought to have a proper biography and am pleased to see that Vincent Orange has had a go at it – he is a brave man!

Unfortunately, however, I am not sure that he has entirely pulled it off. My doubts relate in part to presentation. Right from the start the reader searches to little avail for the precise sources on which much of the detail is based. Admittedly there is an alphabetical list at the end of the book, but the almost complete lack of footnotes or endnotes relating to the actual text often makes it impossible to check the precise origins or accuracy of what one is reading. To quote just one place where I searched in vain, on page 211 the author allots the Lockheed Neptune firm pride of place over the Shackleton in the strengthening of Coastal Command when Slessor was CAS – a highly misleading statement made without reference and certainly not supported by Thetford's *Aircraft of the RAF*. Are there more? I wonder. It is certainly difficult in many places to establish whether the narrative is being drawn from Slessor's own books or papers or from independent sources; much of the story emerges without obvious identification and has to be taken on trust. Bearing in mind the excellent endnotes that accompanied the author's previous biography of Tedder I am most puzzled by their absence here.

Also disconcerting are the all too frequent switches from one topic to another without any clear linkage other than chronology. There is too some overemphasis on background material that does not relate

closely to Slessor himself. The story would be easier to follow if particular themes were treated separately from one another. The section on the Battle of the Atlantic provides a case in point, and the two chapters covering the CAS years switch all too frequently between unconnected themes. Just one typically disconnected page comprises a *pot-pourri* ranging from Anglo-American defence expenditure to the situation of the Air Attaché in Paris, problems in Pakistan, a dinner to remember the first jet flight, and the oil crisis in Persia.

Whatever one thinks, however, about the author's handling of the Slessor story, it is impossible not to admire the mass of material which he has researched and assembled. The story opens in the First World War and in India, after which our hero is destined to spend no less than 21 of his next 30 years in staff or teaching appointments – an unusual and almost unique career pattern for a future CAS. So from his very earliest days Slessor was mixing in highly influential circles, contributing with his tongue and pen to the thinking about air power and publishing his first major book *Air Power and Armies* in 1936. Then, as he steadily rose in rank, he urged his strongly held beliefs (and those of Trenchard, his mentor) in the critical significance of aerial bombing should there be another war. He ended up before and during World War II as one of the RAF's key planners, as an operational commander in No 5 Group, as AOCinC Coastal Command and as the RAF chief in the Mediterranean. Orange covers these and various other activities in detail, with much supporting information and considerable comment on many of the personalities with whom Slessor came into contact. These range from the RAF's own commanders to those of the Navy and Army, to politicians from Churchill downwards, to key United States contacts, and just about everybody else who was anybody. The author is ever willing to insert his own observations on such figures – favourable or otherwise. Nor has he any qualms about criticising Slessor's own opinions as expressed in his many writings, and these sections of the book make good reading – even if one does not always agree with his verdicts.

Orange is similarly frank in his coverage of Slessor's final seven years in the RAF, when he held the appointments of AMP, Commandant of the Imperial Defence College and Chief of the Air Staff. Since much less is on record elsewhere about this post-war

period, a somewhat fuller coverage might have been useful, especially of his time as AMP. Finally the author brings us to Slessor's so-called retirement years near Yeovil. Here he was both his own biographer and also an influential commentator on the multitude of defence issues of the 1950s and earlier '60s. Hardly any subject was beyond the scope of his typewriter or voice, and Orange provides valuable outlines of the various books he wrote, including *Strategy for the West* (1954), *The Central Blue* (1956), *The Great Deterrent* (1957) and *What Price Co-existence – A Policy for the Western Alliance* (1962). Sir Michael Howard, as the author effectively brings out, was among Slessor's great admirers for his many contributions to the ongoing defence debates lasting into the late '60s.

If I am thought in this short review to be somewhat over-critical of his biographer's efforts I feel bound to be honest. Nevertheless the subject is a particularly complex one and I only wish that my friend Vincent had been able to devote rather more time to its sequencing and referencing. The end result I feel sure would then have told the story better.

Air Cdre Henry Probert

Silvered Wings by Air Vice-Marshal Sir John Severne KCVO OBE AFC DL. Pen & Sword; 2007. £19.99.

In *Silvered Wings*, Pen & Sword Aviation has published yet another atmospheric account of the Royal Air Force in the relatively carefree post-war days that seem today to have an almost unreal or unbelievable quality. Sir John Severne's, illustrated, 214-page account of his service from 1945 onwards reads well. He tells his story with great enthusiasm and yet with a thoroughly becoming modesty. That modesty cannot, however, mask the fact that his was a very varied career, in which he clearly grasped every opportunity to fly, his logbook recording more than eighty types which he flew as first pilot, besides almost as many which he handled under supervision.

John Severne's career path was in many ways not untypical of many of his vintage when mobility between distinct roles – and cockpits – was more familiar than it is today. His flying training was begun in 1944 but was interrupted by the glut of trained pilots then available as the end of the war approached. Training resumed in 1945, he received his wings just two months after VJ-Day and by

determined outflanking of 'the system' avoided a posting to fly Dakotas and was trained instead as a Mosquito night fighter pilot. As was very much the way in those days – as it was, even in the late '60s – a posting to CFS followed. This laid the foundation of what would become a second significant strand in his Service career, a strand that culminated in postings to the CFS waterfront and, much later in the twilight days of Little Rissington, as Commandant.

There follows a fascinating story of service as a Flight Commander and Squadron Commander in the glory days of the 2nd Tactical Air Force, successively flying the Venom and the Hunter and laying the foundation for his later involvement in the early days of the Lightning. Squadron Leader Severne was then to be deskbound in the Air Secretary's Department but found himself after a short time embarking on what became a third significant strand of his service, an appointment to the Royal Household. Besides his immediate duties as Equerry to HRH the Duke of Edinburgh, he was able to indulge his passion for air racing and to encourage his Royal master, not only to support his entry in several competitions, but to fly the Rollason Turbulent himself.

Brought down to earth with a bump at Bracknell, postings to Middleton St George and Coltishall saw Wing Commander Severne back in his element as a fighter pilot and QFI. Thereafter, the staff and the Joint Services Staff College beckoned, before another, unexpected door opened. In a chapter entitled 'Jack of All Trades', the author describes his selection to command Kinloss in the early days of the Nimrod and thus to pave the way for his final appointment as Commander SOUMAR, some years later. That was after his time at RCDS, as Commandant CFS and as Air Commodore Flying Training at HQ Training Command.

Air Vice-Marshal Severne's final appointment – after retirement from the Service – was as Captain of the Queen's Flight, a return to another of the major strands of his career. John Severne carefully traces the history of the Queen's Flight and this adds greatly to his telling of his own story.

Sir John writes well and in telling his own story paints a picture of a Service in transition from its immediate post-war ethos, to the highly professional and at times heavily regulated force of today. His account is invariably placed in the historical and political context of the day.

What may seem to some to be old-fashioned standards, attitudes and values will be well recognised – and welcomed – by many of this splendid book’s readers. That he achieved what he did, yet avoided service in Whitehall, is admirable! This is a straightforward book about a remarkable career in which the author’s passion for flying and for the air shines forth at every turn.

AVM Sandy Hunter

No 7 Bomber Squadron RAF in World War II by Tom Docherty. Pen & Sword; 2007. £19.99.

Oh dear. It is always good to see a new squadron history added to the shelves, especially as a 290-page hardback, but I have many reservations about this one. To begin with, it really is a cop out to confine the story to WW II. In fact, there is a, not entirely accurate, fifteen-page summary of the post-war era tacked on at the end, but WW I is dismissed in just seven lines. Why? On the evidence of the book as presented, because there were no readily accessible sources from which to extract an account of 1914-19. What is missing throughout is much evidence of original research; indeed the short bibliography does not even run to a full set of wartime F540s. Just as significantly, however, the list also omits the many books that the author has so very obviously consulted. If the compiler of this one had been denied access to the work of such writers as Chorley, Tavender, the Carters, Pitchfork, and, inevitably, various of the stalwarts of Air Britain, including the indefatigable Halley and Sturtivant, one suspects that it would have been a very slim volume. In fact the only reference to a significant work of this nature is to Middlebrook and Everitt’s *Bomber Command War Diaries* on which (along with Chorley) he appears to have relied particularly heavily.

That aside, what of the result? Having had a go myself, I know just how difficult it is to write a unit history. The challenge is to make it readable, because it is all too easy to drone on about a never-ending succession of essentially similar events. Docherty has not made too bad a job of this, although the eyelids do, inevitably, start to droop if you try to read too much at a sitting. Sadly, I also have to return to one of this reviewer’s frequent complaints, the lack of attention afforded to aviators other than pilots. To be fair, there are numerous references to, and contributions from, non-pilots in this book, but they are also far

too frequently overlooked. For example, we read on page 50 that: 'Over Heligoland F/O Taylor was attacked by a Ju 88 and during the engagement Taylor's gunners shot it down in flames. Having seen the night fighter crash Taylor dropped his bombs across the town of Heligoland, causing fires.' So, three mentions of the driver in three lines (which should, incidentally, surely have secured him a place in the index, but it contains no reference to a Taylor on page 50) but who were the gunners who saved the day, and who was the observer who actually brought the whole enterprise to such a successful conclusion? See what I mean? Similarly, recording, as the author so often does, a note to the effect that 'Sgt 'X' and his crew failed to return', consigns the other six men to anonymity. It is up to the author to deal with this problem, which presupposes, of course, that he recognises that there is one. The most obvious solution would be to include a Roll of Honour, but this book lacks one.

But, beyond the confines of No 7 Sqn, does the author really know his stuff anyway? I have my doubts. I thought that the old 'Stirlings wouldn't fly high because they had short wings because they had to fit into a 100-foot wide hangar' myth had been laid to rest, but here it is again. For the record, Specification B.12/36 actually made no reference to hangars. Furthermore, it is clear that, if the Lancaster could get so much higher than the Stirling then the reason had to be a lot more complicated than less than a yard of additional wingspan. There is some loose terminology; squadrons have badges, not 'crests', for instance, and while the award of No 7 Sqn's Standard may have been announced in September 1943, it was not 'presented' until ten years later. The introduction of the flight engineer did not 'release the second pilot to fill the seat in another bomber'. As is clear from many of the contemporary crew photographs in the book, the second pilot was not dispensed with until well over a year later, and then in response to far more complicated considerations. There are several misspellings: Pierse (for Peirse), Miracourt (for Minaucourt), Neippe (for Nieppe), Lawrence (for Laurence), Bastion (for Bastian – and while Sqn Ldr Bastian had been an RAF flight cadet very late in WW I, he had not, as reported, been an 'RFC pilot'), etc. What does 'orbiting to the starboard of the target' mean? – and I don't see how one would use 'the Link Trainer to practice (*sic*) Gee procedures.' The German Air Ministry building in Berlin was not in *Alexanderplatz* (it



A pre-war picture of Göring's Reichsluftfahrtministerium building on Berlin's Wilhelmstrasse. Ironically, despite the best efforts of the RAF and USAAF, it suffered relatively little damage and today houses the German Finance Ministry.

was on *Wilhelmstrasse*). Just a little more digging (even among published sources) would have revealed that the unidentified Stirling lost on a training sortie on 13 July 1942 was N6075, by which time it was actually on charge to No 101 Conversion Flight, rather than No 7 Sqn, and the Hurricane that collided with one of the squadron's Stirlings on 17 January 1942 came from No 56 (not 61) OTU. I won't go on.

There are other problems too, arising from poor (or could it be a lack of?) proof reading. On page 47 there is a description of the raid on the Renault works at Billancourt which took place on the night of 3/4 February 1942. On page 48 we are told about it again, but this time on 3/4 March (it happened only once – in March). Similarly, on page 103 there is an account of the well-documented loss of Stirling R9264 (the one from which the Germans recovered their first example of an H2S set) which was shot down by Reinhold Knacke of 1/NJG1 on 2/3 February 1943, but, five pages later, the same event is said to have occurred on 2/3 March with the victor's name now spelled Knacke. It was Knacke, in February, and his unit should have been identified either as 3./NJG 1 or as I./NJG 1 (the use of Roman or

Arabic numerals is very significant – and, to be pedantic, it is correct to include that full stop). This sort of thing is simply careless, as is the caption to a photograph of the wreckage of Stirling N6120 which says that it crashed on 17 July 1942, whereas the accompanying text says that it was on 17 January – it was January.

Which brings me to the photographs, of which there are about 180. In his Preface, the author specifically makes no apology for including many pictures of dubious quality because of their historical importance. When the originals are of poor quality, I have absolutely no problem with that approach. But in far too many instances, that was all too transparently not the case here. The problem with many of these images is that the originals have either been inadequately scanned or have been replaced by crude photocopies. The quality of the paper and standard of reproduction of the *original* photographs that have been used in the book, even the fuzzy ones, are perfectly adequate; the problem is that the author has often been content to make do with second-hand material.

So what do we have? On the plus side, we do have a published, and reasonably readable, account of (some of) No 7 Sqn's history. But, it could have been so much better and the failure to record the unit's casualties is, I think, a major omission. There are many more errors than there ought to be and, because the author appears to have been so heavily reliant on secondary sources, one is left wondering what might have been unearthed with just a little more application. All in all, I found this one a disappointment.

CGJ

Wings of War: Airborne Warfare 1918-1945 by Peter Harclerode. Wiedenfeld & Nicolson; 2005. £25.00.

It is an old RAF aircrew maxim that only a fool jumps out of a perfectly serviceable aeroplane. That sentiment is often endorsed by paratroopers. A Staff College directing staff colleague who went on to be CO 3 PARA once surprised me by saying that he didn't like jumping out of aircraft because too high a percentage of his men ended up with broken ankles or worse. He was much happier to go into combat courtesy of a C-130 Hercules than at the end of a silk canopy.

Peter Harclerode is a former Guards officer who saw service with

the SAS and Parachute Regiment. The Italian army first used parachutists on operational missions in 1918 and in 656 pages *Wings of War* takes the subsequent story through to operations in Asia and the Pacific in 1945. Harclerode provides a good tactical chronicle of airborne forces, which will particularly appeal to anoraks who want a full understanding of *Fallschirmjäger* drills and kit. The basic problem with this book though is that airborne warfare from 1918-1945 is too large a canvas and Harclerode's style is too pedestrian to sweep the reader along. In trying to cover everything from Mikhail Tukhachevsky's advocacy of the offensive use of air assault forces to para drops in the dying days of the war in the Far East, while giving glancing nods to Belgian and Polish units en route, the book fails into the trap of covering nothing comprehensively.

The history of airborne warfare is well worth telling, and to this day 'the Paras' are matched only by the Royal Marines as the epitome of British derring-do. Each generation needs reminding of the great airborne successes, such as the Bruneval Raid led by Major Johnny Frost that lifted the crucial bits of the *Wurzburg* radar from under the Germans' nose. But while this episode is well covered, along with actions that either went badly wrong or were rendered irrelevant by events, these airborne forays had nothing like the strategic impact envisioned by their proponents. This is very much a tactical book.

There are maps to orientate the major actions but rather surprisingly, no evocative photographic illustrations to capture the atmosphere. Given the number of cracking air assault photos in the public domain, such as the classic one of pre-war Soviet paratroops dropping from a Tupolev TB-3, I found this a serious and penny-pinching flaw. It is also a pity that there is so little human dimension to this book. There are no interviews with real airborne warriors as distinct from verbatim quotations from dry unit records and official histories. What made a Para, or a Horsa glider pilot? Were they foolhardy romantics, nutters desperate for action, or guys who did not fit into more conventional regiments? There are plenty of references to General Kurt Student but none to the most glamorous *Fallschirmjäger* of them all, former heavyweight champion Max Schmeling. My daughter-in-law's father was a Polish soldier released by Stalin who walked many miles to get to Britain and then dropped at Arnhem. What experiences, insights and perspectives such individuals must

have had, yet Harclerode recounts none of them.

Airborne warriors who travelled light were invariably on the horns of a dilemma. When Hitler ordered the invasion of Poland, an Air Division was deployed forward to be ready to take advantage of any opportunities for parachute or air-landing operations. Controlled directly by the OKW High Command, the division was stood by for action three times, but in the end the speed of the main German advance rendered airborne operations irrelevant. At the other extreme, if airborne forces were deployed and the main advance stalled, lightly armed airborne forces were hung out to dry.

The Germans suffered 6,698 casualties in the capture of Crete but equally importantly, they also lost some 200 Ju-52 transport aircraft. Hitler was so appalled that German paratroops would be employed in the infantry role for the rest of the Second World War. Student later summed up the battle of Crete by saying: I miscalculated in proposing this attack which resulted in the loss of so many valuable parachutists that it meant the end of the German airborne forces which I had created. The Allies should have learned this too, but they didn't. The Soviets were to suffer some 10,000 casualties out of a total strength of 14,000 men who were dropped into the battle for Viaz'ma. The US 82nd Airborne Division fared no better during the D-Day invasion. Of its original strength of almost 12,000 men, 5,245 were casualties with 1,282 listed as killed and 2,373 as seriously wounded. When it embarked at Utah Beach for England on 13 July 1944, it numbered only 6,545 all ranks.

Harclerode shows how Arnhem was a classic example of how not to do it. Although this was to be the largest airborne operation yet carried out by the Allies, there was almost complete disregard for detailed intelligence about enemy dispositions in northern Holland. The chronicle of flawed planning, conflicting RAF priorities, errors, oversights and shortcomings resulted in over 16,000 casualties among the four corps that took part, not to mention the impact on the local Dutch population. It is hard not to conclude that the operation was authorised for vainglorious reasons, and that the airborne leaders who sanctioned the debacle when experience should have screamed otherwise were driven by an overwhelming desire to see action before the war ended. Readers can compile a long list from this book of the essentials needed before launching an airborne insertion, from surprise

through good weather and precise navigation aids to seamless air-land co-operation. And in the fog of war, you rarely if ever get all these.

Wings of War shows that airborne forces come into their own when unorthodox situations demand an unorthodox response. During the July 1941 German advance into the Ukraine, the Soviet 204th Airborne Brigade dropped troops into the enemy rear to interdict lines of communications and supply. Three years later, the air dropping of *Spetsnaz* and partisan forces seriously hindered German holding efforts as they tried to stem the Soviet advance. Finally, in August 1945 the Soviets carried out more than fifteen airborne operations deep inside Manchuria. These served to speed up the surrender and disarmament of Japanese forces where key objectives were secured and a Soviet presence swiftly established throughout the region. Small, well-trained and equipped forces achieved results out of all proportion to their numbers.

At the end of some 600 pages, it is a pity that there is no concluding section on the value or otherwise of airborne warfare after all the years of trial and effort. Perhaps this is deliberate because this chronicle of bravery and endeavour reminds me of nothing so much as the *Beyond the Fringe* skit where the CO comes out with the stirring invocation, ‘We need a futile gesture at this stage. It will raise the whole tone of the war.’

Harclerode probably doesn’t intend it, but his book reinforces my old 3 PARA friend’s view that paratroops should enter combat sensibly rather than madly.

The recent award of the first posthumous Victoria Cross to be awarded in 25 years to Cpl Bryan Budd of 3 PARA who was killed during an audacious charge at Taleban fighters under ‘withering fire’ proves that there is still a need for the courage and dedication that has exemplified airborne warriors since 1918. *Wings of War* serves as a battle honour to these men, but in so doing it proves most emphatically that there are better and far more efficient ways of getting to the battlefield than jumping out of aeroplanes.

Wg Cdr Andrew Brookes (First published in the RUSI Journal.)

Gloster Meteor by Phil Butler and Tony Buttler. Aerofax (an Ian Allan imprint); 2006. £19.99.

At 143 pages, this is a relatively hefty example of the proliferation

of A4 softbacks dedicated to specific aircraft types. Alan Hall's *Warpaint* series was probably the first in the field, followed by Aerofax and, most recently, Dalrymple & Verdun. They all tend to be written by enthusiasts and be printed on coated paper to provide the best possible reproduction of the many photographs that accompany the text. There are differences in house styles, however, so, if two or more publishers offer similar titles, you will need to decide whether or not you require a scale plan, and whether or not you need coloured art work and, if you do, just how 'artistic' you want this to be.

This Aerofax title offers neither plans nor artwork but it does include more than 250 photographs, at least 75 of them in colour, and a number of line drawings. The text provides a workmanlike account of the Meteor's origins and devotes a great deal of space to the contributions made to its development by the individual prototypes and early production machines. Subsequent chapters review the progressive refinement of the breed through to the Mk 20, deal with the many later trials programmes that were undertaken by Meteors as test beds for, among other things, a variety of engines, ejection seats and the first generation of guided weapons, while others briefly summarise its service career both with the RAF and with other operators.

I spotted a few problems. No 504 Sqn received its Meteors at Colerne (not Cologne) and No 81 Sqn re-equipped with them at Seletar (not Butterworth); I have serious doubts as to whether the 'normal' TT20 colour scheme illustrated on page 139 was really black and 'lime-green Day-Glo' – looks like 'normal' yellow to me – and it is a colour photograph; and the middle picture on page 134 is of an NF14 (not an NF11). There are a few other problems related to the NF14, including several references to its having been fitted with ejection seats, which was simply not the case, as is quite evident from an examination of the many photographs of Mk 14s that the book contains. When the Mk 14 was being flown as a navigator trainer in 1959-66 its function was to provide a brief exposure to various aspects of high-speed flight, not low-level training, which involved only one exercise. Furthermore, I would lay odds that none of the Mk 14s illustrated wearing training markings belonged to No 228 OCU – or the All Weather Operational Conversion Unit (*sic*) – as stated in some of the captions; depending on the date, they would all have been with

Nos 1 or 2 ANSs.

The last four pages of the book are devoted to colour reproductions of the standard 'bar' markings worn by RAF Meteor squadrons and some gremlins have crept in here. For instance, No 80 Sqn's marking was in maroon and gold (not black and white); No 152 Sqn's stripes have been inverted (the green should be at the bottom); No 151 Sqn's white saltire is shown on a light blue ground outlined in dark blue (instead of dark blue lined with black) and the black in the various bars sported by Nos 11, 39, 74 and 611 Sqns, and the APS, have all been reproduced in brown. It seems a pity to have gone to all the trouble of preparing these drawings, which are well-documented elsewhere, only to get them wrong.

I fear, however, that my tendency to point out problems may again convey a false impression. While I believe that, if a reviewer becomes aware that a book contains errors, he has an obligation to say so, that does not imply that he is necessarily condemning the whole enterprise. In this case, the book provides a perfectly respectable, and very generously illustrated, re-telling of the Meteor story. The key word here, of course, is 're-telling', because the Meteor's story has been told before – several times – and I don't think that I found anything really new here. That said, if you don't already have an adequate reference to the Meteor on your bookshelves, this one will fill the gap admirably – and if you shop around on the Internet, you won't even have to pay the asking price.....

CGJ

ROYAL AIR FORCE HISTORICAL SOCIETY

The Royal Air Force has been in existence for over 80 years; the study of its history is deepening, and continues to be the subject of published works of consequence. Fresh attention is being given to the strategic assumptions under which military air power was first created and which largely determined policy and operations in both World Wars, the inter-war period, and in the era of Cold War tension. Material dealing with post-war history is now becoming available under the 30-year rule. These studies are important to academic historians and to the present and future members of the RAF.

The RAF Historical Society was formed in 1986 to provide a focus for interest in the history of the RAF. It does so by providing a setting for lectures and seminars in which those interested in the history of the Service have the opportunity to meet those who participated in the evolution and implementation of policy. The Society believes that these events make an important contribution to the permanent record.

The Society normally holds three lectures or seminars a year in London, with occasional events in other parts of the country. Transcripts of lectures and seminars are published in the *Journal of the RAF Historical Society*, which is distributed free of charge to members. Individual membership is open to all with an interest in RAF history, whether or not they were in the Service. Although the Society has the approval of the Air Force Board, it is entirely self-financing.

Membership of the Society costs £18 per annum and further details may be obtained from the Membership Secretary, Dr Jack Dunham, Silverhill House, Coombe, Wotton-under-Edge, Gloucestershire. GL12 7ND. (Tel 01453 843362)

THE TWO AIR FORCES AWARD

In 1996 the Royal Air Force Historical Society established, in collaboration with its American sister organisation, the Air Force Historical Foundation, the *Two Air Forces Award*, which was to be presented annually on each side of the Atlantic in recognition of outstanding academic work by a serving officer or airman. The RAF winners have been:

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|------|---|
| 1996 | Sqn Ldr P C Emmett PhD MSc BSc CEng MIEE |
| 1997 | Wg Cdr M P Brzezicki MPhil MIL |
| 1998 | Wg Cdr P J Daybell MBE MA BA |
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| 2002 | Sqn Ldr S I Richards BSc |
| 2003 | Wg Cdr T M Webster MB BS MRCGP MRaES |
| 2004 | Sqn Ldr S Gardner MA MPhil |
| 2005 | Wg Cdr S D Ellard MSc BSc CEng MRaES MBCS |

THE AIR LEAGUE GOLD MEDAL

On 11 February 1998 the Air League presented the Royal Air Force Historical Society with a Gold Medal in recognition of the Society's achievements in recording aspects of the evolution of British air power and thus realising one of the aims of the League. The Executive Committee decided that the medal should be awarded periodically to a nominal holder (it actually resides at the Royal Air Force Club, where it is on display) who was to be an individual who had made a particularly significant contribution to the conduct of the Society's affairs. Holders to date have been:

Air Marshal Sir Frederick Sowrey KCB CBE AFC
Air Commodore H A Probert MBE MA

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