

From Provost to Scimitar



At the 1958 SBAC show at Farnborough, a young **JOHN MIDDLETON** was dazzled by a display by Supermarine's latest naval jet fighter — the mighty Scimitar. **BOB GARDNER** relates how it was both a revelation and confirmation for John, who went on to join the Royal Navy as aircrew, and describes John's early years as a Fleet Air Arm trainee pilot

ABOVE The Percival Provost was adopted as the RAF's standard basic trainer in 1953, and the type was also used by Fleet Air Arm crews being trained on Royal Navy courses at RAF Flying Training Schools.

OPPOSITE PAGE A dynamic portrait of a quartet of 807 Naval Air Squadron Scimitar F.1s going uphill into a loop in 1959. The Scimitar, powered by a pair of Rolls-Royce Avon turbojet engines, was the last aircraft to be designed and built by the Supermarine division of Vickers-Armstrongs.

RIGHT The 19-year-old Midshipman Middleton (second right) stands with colleagues after gaining his wings. The course was gruelling, and Middleton survived it because his instructor, Lt Roger Dimmock, saw his potential. The latter went on to become captain of the aircraft carrier *HMS Hermes* and later head of the Fleet Air Arm.

IN 1952 A YOUNG John Middleton saw the Royal Navy's (RN) latest *Daring*-class destroyer during a school visit to Chatham Dockyard. It was to be a pivotal point — he decided to join the navy. He had always wanted to fly, and a display by six Supermarine Scimitars of 803 Naval Air Squadron (NAS) at the 1958 SBAC display at Farnborough confirmed his ambition: to fly a Scimitar — so fast, so elegant and so wonderfully noisy.

Middleton joined the RN, aged 18, on the Supplementary List as an Air Cadet, effectively a short-service commission. As with all air forces, there was a constant need for pilots, but beyond the age of 30 further career opportunities reduced dramatically. So the deal for a commission in the Supplementary List was to fly for 12 years and then leave. There was also, of course, another more macabre reason why the navy needed lots of replacements pilots at this time, but it was not widely publicised!

After four months' basic training as a naval officer at Manadon (*HMS Thunderer*) he went to the RN flying school at RAF Linton-on-Ouse, home to No 1 Flying Training School (FTS). There were eight navy basic flying courses there, and his course started with 19 people. They had already been chosen for future roles; ten were nascent fixed-wing pilots, four helicopter pilots and five observers. During the course six other fixed-wing students joined. Only six of the 16 fixed-wing students were awarded their wings.

The *ab initio* trainer of the time was the Percival Provost. It was a delight to fly; precise and without vice. But it did have one problem. It was not much good at going in a straight line on take-off. The torque of its 550 h.p. Alvis Leonides radial engine caused considerable swing.

Leonides, readers may recall, was the King of Sparta who defended the pass at Thermopylae against the Persians in 480BC. Only one Spartan survived. It was rather like that for the tyro pilot

taking off in a Provost. On several occasions while John was waiting in the queue on the peritack a student began his take-off run down the runway only to veer off across the grass. John found it particularly difficult to get the hang of throttle and rudder, and only soloed after 12½hr, on the very cusp of the navy's patience.

At the time, naval students wondered at the absurdity of teaching people to fly in something that was so difficult to get off the ground. It was a major cause of being chopped, but perhaps there was an advantage to the navy in using a trainer that posed an initial obstacle to novice pilots. Most of those who failed did so early. Later experience with the Hunting Jet Provost showed a more even rate of failure throughout basic training, which raised the cost.

Middleton flew 120hr on the Provost. The major hurdles awaiting students who mastered take-offs were instrument flying (the navy even instructed him in instrument take-offs) and formation flying. But, having got the hang of swing on take-off, nothing else troubled John. He warmed to the friendship of the Ward Room. That, and the constant flying in the spring sunshine, reminded him of what he had read about the RAF before the war; it was like being part of the best flying club in the world.

The advanced flying course was next, on the





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RIGHT Having completed training on the Provost, John moved on to the de Havilland Vampire T.11 for his first experiences with jet flying. These three — WZ456, WZ470 and WZ459 — operated with a number of RAF Flying Training Schools until the type was phased out of service in the late 1960s in favour of the Folland Gnat.

BELOW LEFT The somewhat cramped cockpit of the side-by-side Vampire Trainer, its claustrophobic layout not helped by the beam which ran down the centre of the canopy, impairing vision.

“John often flew three to five Vampire sorties a day. It was bliss to be alive, and to be young and adventurous was heaven itself. The drawback was ground-school . . .”

RIGHT The display that fired the young John Middleton’s imagination — the 1958 SBAC show at Farnborough boasted an appearance by six Scimitars of 803 Sqn, four of which performed a memorable aerobatic routine. It was also the show in which John’s future mentor, Roger Dimmock, suffered an engine fire during an 800 NAS Sea Hawk formation aerobatic display, and was forced to eject from his aircraft.

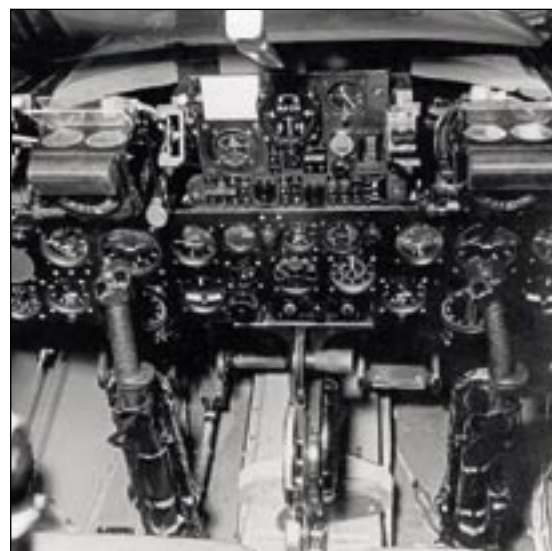


de Havilland Vampire T.11, the RAF version. After the spacious cockpit of the Provost he found the Vampire constrained and claustrophobic. However, the aircraft was pleasant to fly, although at altitude at maximum speed it could porpoise. On the ground it had to be kept moving; if it was stationary for long with the engine running, the low jetpipe could melt the tarmac.

The Vampire had the limited endurance of early jet aircraft, so sorties lasted no longer than 45min, compared with 2hr in the Provost. John often flew three to five sorties a day. It was bliss to be alive, and to be young and adventurous was heaven itself. The only drawback was groundschool. He would sit and listen to the boring repetition of, say, the electrical circuitry in a jet aircraft, with resignation, gazing at the sunlit day outside and the tempting line-up of silent, parked Vampires.

After 120hr of advanced training he had his final test with the Wing Commander Flying, an ex-wartime pilot. The full gamut was tested; flame-outs, aerobatics, emergencies, circuits and low-level navigation. During his demonstration of a tight 5g loop he noticed the wing commander next to him slump — he had blacked out. Worse than that, he was sick as he regained consciousness.

Nonetheless, John got his wings. In his end-of-



course assessment the wing commander described him as a “spirited flyer”, one of those gentlemanly phrases used by the Services that at first sight can appear to be a compliment. He was graded first class as a pilot, but in ground-school as third class. Possibly this was the ideal grading for a fighter pilot, because with wings on his sleeve and promoted to the rank of Midshipman (equivalent to pilot officer in the RAF),





ABOVE Hawker Sea Hawks of 738 NAS flying over the snowy terrain near the unit's base at Lossiemouth in February 1957. The squadron, always a second-line unit, operated all variants of the Sea Hawk in succession (with the exception of the FB.5) until the summer of 1963.

the 19-year-old was told he would join one of the four Scimitar squadrons after attending fighter school at *HMS Fulmar*, alias RNAS Lossiemouth in Scotland.

There were two schools at Lossie. The Operational Fighter School, 738 NAS, which flew the elegant Hawker Sea Hawk (see *Database*, September 2002 *Aeroplane*), and the Naval Air Strike School, 736 Sqn, which was in effect the Scimitar Operational Conversion Unit (OCU).

On the Sea Hawk he was taught how to fly in combat, night flying, low-level navigation at high speed, ground-attack with rockets and air-to-air gunnery. The shapely Sea Hawk was from Sydney Camm's prolific drawing board, and a friendly aircraft to fly. In its final FGA.6 form, with an upgraded Rolls-Royce Nene engine, it was a potent ground-attack aircraft.

From the Sea Hawk, while still with 738 NAS, he moved to the Hawker Hunter T.8 for the 20hr swept-wing course. The Hunter was wonderful, it looked good and was good (see *Database*, July 2001 *Aeroplane*). In a gentle dive it became supersonic, reaching about Mach 1.1; The transition to supersonic flight was barely noticeable.

Then he moved to 736 NAS, the Scimitar OCU, also based at Lossiemouth. For the first time his course was not made up of novices. Most were experienced "second tourists" moving from an

operational tour on Sea Hawks to the new state-of-the-art Scimitar.

Here, your first solo in the aircraft was also your first flight. There was no two-seat trainer variant, but there was a dummy cockpit in which to practise procedures and learn the layout (it is now at the City of Norwich Aviation Museum — www.cnam.co.uk). After that you walked out to the aircraft. An instructor stood on the cockpit entry ladder and watched John do all the preliminaries. He then patted him on the head and said "Enjoy yourself".

The sheer splendour of what followed is still writ large in John's memory. He had achieved his ambition. Three years since the 1958 SBAC display he was a naval officer, a fighter pilot and about to fly his dream aircraft. It was a Ferrari of the skies, only just introduced into service. It had two Rolls-Royce Avon engines, similar to those used in the Lightning but without reheat, in a comparatively light airframe.

Within moments of brake release the aircraft was doing 250kt along the runway, and John was late pulling back on the stick. Everything happened ten times faster than on the Sea Hawk. Within 80sec of releasing the brakes he was at 5,000ft. The aircraft climbed at Mach 0.93 and then at 500kt. At sea level its maximum speed was 640kt (about 710 m.p.h., Mach 0.968). He



ABOVE The badge of 738 NAS, the motto of which was *Parare Bellum* — "Prepare for War".



LEFT A Scimitar takes the wire while coming aboard *HMS Hermes*. With its blistering performance at low altitude, the Scimitar was used for the low-level strike role, with de Havilland Sea Vixens assuming the interceptor fighter duties required for protection of the fleet.



ABOVE Another of the aircraft John Middleton flew during his conversion to fast jets was the Hawker Hunter T.8. This Lossiemouth-based example, WT722, operated with 764 NAS, and is seen in the standard colour scheme of aluminium finish with dayglo orange-red trim.

NEXT MONTH — Bob Gardner presents the second half of John Middleton's recollections of flying with the Fleet Air Arm in the 1950s, focusing on his time spent flying the mighty Scimitar operationally

BELOW Wearing the distinctive fin flash of 736 NAS, a pair of Scimitars land at Farnborough during the 1962 SBAC show. Sonic bangs had been forbidden at the show, but the pilots of 736 performed what were referred to delicately in the newspapers as "audible near-sonic almost-bangs" during their display.

"The Scimitar climbed at Mach 0.93 and then at 500kt. At sea level its maximum speed was 640kt. John was just 21, they had given him one of these to fly, and they paid him as well!"

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After he had learned to handle the Scimitar, the course concentrated on flying the aircraft as close to a carrier environment as possible on land. Mirror Approach Dummy Deck Landings (MADDLS) were undertaken on a conventional runway at Lossie. The mirror had two green datum lights to either side, and a white ball in the centre, the "meatball". If the ball was above the line of the two greens you were too high on your approach, and vice versa. John found it easy to use, which it needed to be for an operational pilot landing in demanding conditions. But there were no arrester wires, so the carrier experience was not yet complete.

Then they flew down to the Royal Aircraft Establishment at Bedford to experience a catapult launch. John found the sudden mighty push and the first second or two of flight, over which he had no control, daunting. Landings were much easier for him.

Although the Scimitar remains John's favourite aircraft by a long way, and most pilots seemed very fond of it, in many respects it was a failure. Although it was fast, and below 20,000ft could hold its own with just about anything, it was beset by design flaws. It could hardly have been otherwise, as it was exploring new regions of aerodynamics. The way the navy used it also contributed to its failure.

On the ground it leaked fuel and oil, leading to the epithet: "When does a Scimitar not leak? When it's empty". This was later applied to the Lightning as well (see *Database*, July 2005 *Aeroplane*). Both aircraft suffered from in-flight fires, probably from flammable fluids pooling inside the fuselage.

At altitude at high Mach numbers the Scimitar suffered from the pitch-up that beset most British jets of the era. Its stablemate, the Swift, was another (see *Database*, December 2006 *Aero-*

plane). The problem came when a slight turn was induced. The aircraft pitched up and flicked into a spin. It was so severe that the aircraft was virtually unflyable in this corner of the envelope, and Service pilots were not allowed to approach the condition. Nor were they allowed to go anywhere near a spin. The pitch-up moment was caused by a compressibility problem, a shock-induced separation of the airflow over the wing that led to a high-speed stall at the wingtips and increased downwash over the tailplane.

During the Scimitar's development stages it was given saw-tooth wing leading edges with boundary layer fences and Küchemann wingtips. These reduced the problem but did not eliminate it. The best improvement came from changing the 10° dihedral of the tailplane to 10° of anhedral, effectively inverting it. But pitch-up at altitude at speed was always a limiting problem. The second handling problem came in rapid rolls, and particularly in a rolling pull-out, when excessive yaw set in. Pitch-up could reassert itself in the high-drag environment of the final approach to landing-on, leaving the pilot with no alternative to a rapid ejection. Several aircraft were lost in this way. Plans for a two-seat version were discounted at an early stage. Consequently the pilot's workload was high, particularly in the strike and ground-attack roles.

The final problem was that jet development was producing bigger aircraft that needed larger carriers. In the USA the solution was to build larger carriers, but the RN was in a time of increasing financial restraint, so young pilots found themselves landing large, fast aircraft on very small spaces. This was at its worst when operating from *HMS Hermes* and *HMS Centaur*, the smallest of the fixed-wing carriers, where there was literally no room for error. Their US Navy counterparts thought them mad. These combined causes led to 39 of the 76 aircraft built being destroyed — some 51 per cent. **A**

