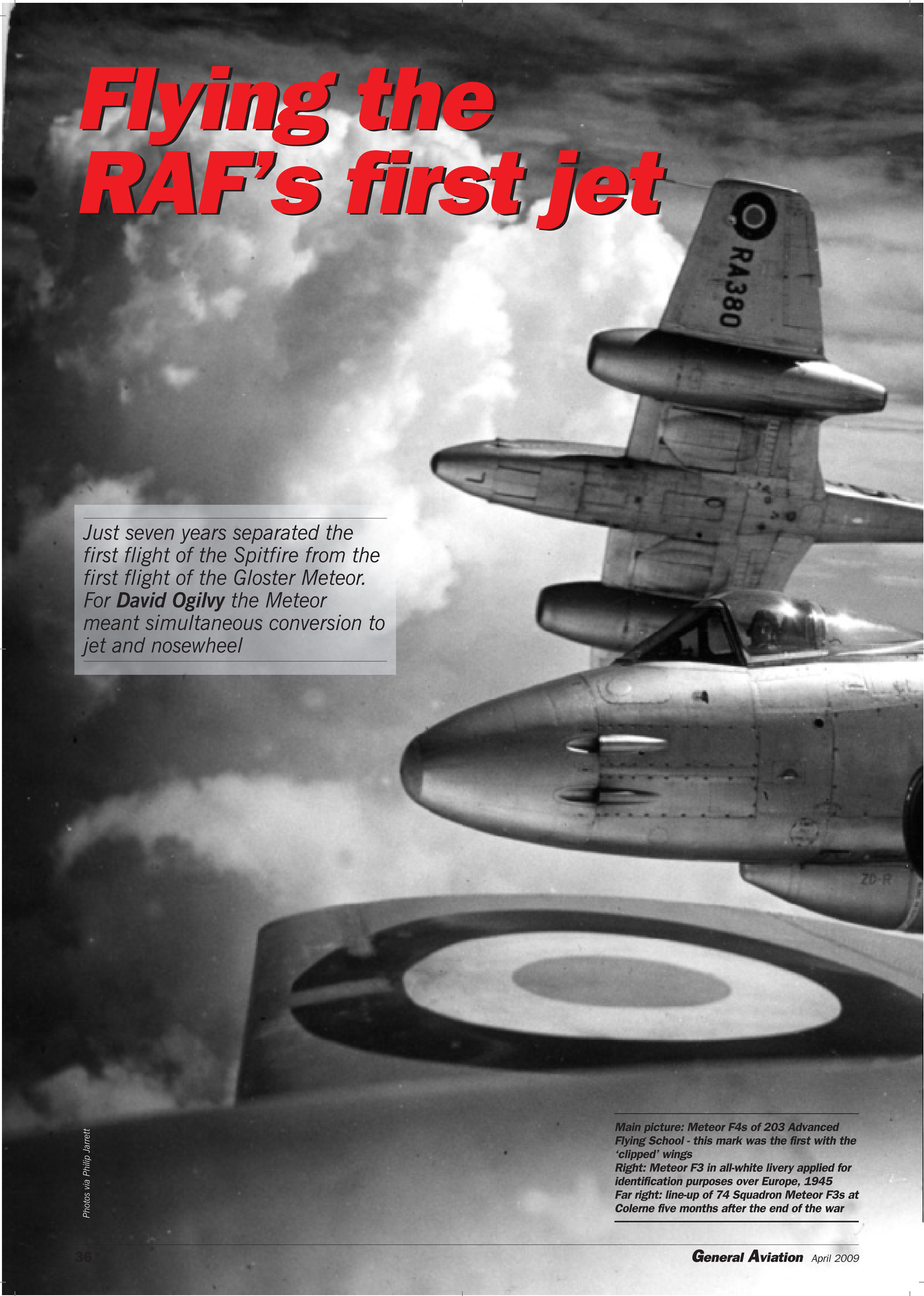

Flying the RAF's first jet

Just seven years separated the first flight of the Spitfire from the first flight of the Gloster Meteor. For ***David Ogilvy*** *the Meteor meant simultaneous conversion to jet and nosewheel*

Main picture: Meteor F4s of 203 Advanced Flying School - this mark was the first with the 'clipped' wings
Right: Meteor F3 in all-white livery applied for identification purposes over Europe, 1945
Far right: line-up of 74 Squadron Meteor F3s at Colerne five months after the end of the war

Photos via Philip Jarrett

Some may feel that inclusion of a jet fighter in a series devoted to veteran and vintage aeroplanes is out of order, but the Gloster Meteor – the first jet to enter squadron service with the Royal Air Force and the only one to see operational use in World War 2 – first flew as long ago as March 1943. This was only seven years later than the date on which the first Spitfire flew; yet the Spitfire has been considered an historic aeroplane for several decades.

The Meteor has many claims to fame. In its earliest form it was grossly underpowered, for the first to be completed failed to get airborne, as each of its Rover turbojets produced little over 1,000lbs thrust. Despite this the type gained ground without delay, for by August 1944 the first V-1 flying bomb had fallen victim not to the Meteor's guns, but by being formated on and rolled-over with the Meteor's wingtip. This fortuitous success, which was the result of enterprise by one pilot whose guns had jammed, caused wing-tipping to become a standard procedure for dealing with the V-1 menace – preferably over the sea before the intruder reached England.

The Meteor developed quickly; production mark 3s, which were the first to enter large-scale squadron use, were powered by Rolls-Royce Derwents, which became standard equipment on all subsequent variants. The Derwent progressed from 2,000lbs thrust in the 3 to 3,600 in the later marks, and performance increased in sparkle accordingly.

Early peacetime activities included re-formation of the RAF High Speed Flight, using Meteor 4s. In November 1945 a new world speed record was established, when Group Captain H Wilson achieved 606mph at Herne Bay. Just under a year later, Group Captain E M Donaldson added another 10mph to this record, also in a mark 4. For those who like to know such things, the aircraft concerned were EE 454 and EE 549 respectively. The latter machine had been modified by 'clipping' the then-standard rounded wingtips, a change that improved not only the speed but the handling, with a very marked (though hardly surprising) increase in roll rate. The reduced-span wings were incorporated in all subsequent production 4s, of which more than 450 were built.

Throughout this time no facility had existed for providing dual instruction in jet aircraft. Qualified piston pilots had converted quite readily after extensive briefing, one of the most important points of which was to stress the turbine's slow response to throttle movement. With a reciprocating engine, a pilot could check a tendency to undershoot by an application of an appropriate ration of power, with immediate result, but with a jet things were different. A noticeable time-lag occurred between throttle movement and anything useful happening; this caught several pilots unaware. From a general handling angle, however, the jet was simpler than its piston predecessor; with a tricycle undercarriage and no tendency to swing or roll as power was applied, the take-off and landing procedures presented no problems.

Pilots of the future would have no worthwhile piston background; for several years all prospective fighter pilots had undergone courses on Spitfires at Chivenor, in North Devon, while for those destined to fly Meteors the Oxford was used as a twin-conversion trainer. Clearly all this was a short-term practice, so the Meteor T7 trainer was born, with two seats in tandem, full dual and no armament. More than 500 were built.

The first T7 joined the RAF late in 1948 and initially many were used to equip Advanced Flying Schools for conversion of raw pilots who had been trained on Harvards or, later, Balliols. This useful mark of Meteor found its way to many tasks and units; examples were added to strengths of fighter squadrons for continuation training, Instrument Rating renewals and comparable duties. It was in one of its off-beat roles that I met the Meteor, among the few to serve, strangely perhaps, with Bomber Command.

In 1952 I was serving on a Mosquito squadron that received frequent promises of Canberras as replacements. Two Meteor 7s were delivered to the station to provide pilots with adequate rations of jet flying before the Canberras arrived, but I was due for posting and clearly would go before the new equipment arrived. The CO – logically but, to me, unfairly – decreed that I could not waste valuable Meteor time with more than 20 pilots (two squadrons) in need of conversion. Then he went on 14 days' leave.

The Meteors were brand new, whereas the Mosquitoes were getting old, and I remember being impressed by the high serviceability rate. Each day 'our' Meteor, WL 366, would be pushed out and just do a full programme of flying, often completing more sorties than a whole Mossie flight. This was good, for in a fortnight I managed to compensate for lost time. Although an organised jet training programme had become established in Flying Training Command, procedures took time to gel in more remote corners of the Service. The first few squadron pilots were briefed to 'get in and go' but before my turn came an order was issued calling for each man to have (I think) two hours of dual before being let loose. A not-

Top right: Meteor F3 of 616 Squadron; taxying was easy once you'd persuaded her to move
Above right: note the rounded wingtips of the early Meteor F3
Right: unstick at around 120 knots was a 'woffly' unsatisfactory affair
Bottom right: Meteor engine controls were on the sidewall next to the engine they related to

so-young but very experienced pilot, who was also a QFI, found (or organised) himself as the person to provide that dual. He familiarised himself with the Meteor and then set about converting the rest of us; a very informal, but perfectly adequate, way of tackling the task. Alas, it could not happen today.

Not only were there many marks of Meteor, but various versions of the T7. All had the clipped wings introduced on the 4, but early production versions possessed ailerons of only modest power, whereas WL 366 was one of the first to appear with spring-tab ailerons; these were really delightful. I had one flight in an earlier 7 without this luxury and the difference was quite marked. Later 7s, sometimes known as 7/8s, had the rectangular fins and rudders that were fitted to the ultimate day fighter version, the F8. Later still, some marks, including the photo-reconnaissance and night fighter versions, reverted to the large-span rounded wing tips.

Let us look now at the Meteor as then seen by one who had met a modest range of piston types, but who had thought that only gliders could fly without propellers. Entry to the tandem (in the case of the T7) cockpits is via retractable footsteps and fixed handgrips on the port side. There are separate external and internal handles for opening and closing the hinged hood. Once inside, the seats can be

Left: RAF High Speed Flight engineers at Tangmere prepare the Rolls Royce Derwent 5 of Group Captain E.M. Donaldson's speed-record setting Meteor F4 in 1946

adapted for height by levers on their starboard sides, and the rudders can be set for distance by pulling out a release knob on each of the panels.

Engine handling, of course, differs in technique between piston and turbine types. At the base of each of the two compartments of the main tank (325 gallons) is a low-pressure fuel pump that feeds fuel via the low-pressure (LP) cock to the high-pressure pump. From each HP pump, fuel flows under pressure to the throttle valve and to the barometric pressure control; the latter automatically maintains the correct fuel/air mixture for all operating conditions. Fuel passes from the throttle valve via the HP cock to the burners. The LP and HP cocks relating to their respective engines are on each side of the pilot's seat and, as are all other controls, duplicated in each cockpit.

The starting procedure is through an automatic cycle. There are many checks to complete before going through this process, but then the sequence for getting the Derwent engines going is first to have LP cocks on, the HP cocks off and the throttles (slotted into the port cockpit wall) fully closed, with the LP pumps on it. It matters little which engine is started first. Press the selected starter button for two seconds, release it and wait. A clue to the cycle sequencing comes when the green undercarriage lights go dim (stressing the electrical load) at which time the HP cock should be opened, initially to the half-way position and then gently to the fully open limit as the rpm increase. Mishandling at this stage can cause mild chaos including resonance, overheating and flooding. In this case, the HP cock must be switched off, excess fuel must be drained and then the engine can be dried-out by carrying out a false start with the HP cock off. Then the proper process can be repeated.

With a turbine engine a pilot must retune his mind to operating figures that are strange to the piston world. For example, the Meteor's Derwents must maintain a minimum oil pressure of only 5lbs/sq in and on the ground not exceed a maximum jet pipe temperature (JPT) of 500°C. Taxying is easy and smooth but, not surprisingly, a considerable amount of power is needed to persuade the Meteor to move forward from a standing start. Except in confined spaces, turns can be made by differential engine usage alone, but care must be taken not to indulge in coarse throttle

Left: the two-seat Mk 7 was the first Meteor dual trainer; previously all flights were solo
Below left: slow throttle response caught out many Meteor pilots used to piston power

opening as the ever-present bogeys of engine flooding and excessive temperatures present themselves again.

Pre take-off checks include a few points of special significance, such as air brakes closed, fuel cocks and pumps on and oxygen on. After building up some power against the brakes, the take-off itself is straightforward and there is neither cause nor tendency to swing. The nosewheel lifts happily at about 85 knots and the machine must be flown off (rather than left to come off) at about 120 knots. The unstick is an unclean, woffly affair and is one of the very few unfavourable features of the type.

With wheels braked and retracted, the machine should pass through the safety speed of 160 IAS at a shallow angle until the required climbing figure is reached. If in a hurry, full power and 300 knots combine to give the best performance, but in the normal unhurried atmosphere of type familiarisation or continuation training, 280 knots and 14,100rpm (a small reduction from a governed maximum of 14,550) provide a more-than-acceptable climb rate of about 7,000 feet per minute. This, perhaps, is a characteristic that hits the average piston pilot more than any other; the Meteor is delightfully smooth and, when both engines are running, easy to handle, but to the uninitiated it consumes fuel, sky and countryside in quantities that are mildly alarming.

(The second part of this article will appear in the June 2009 issue) ■