ROYAL AERONAUTICAL SOCIETY
LOUGHBOROUGH BRANCH

18 January 2022

The Miles M52
origins, development and demise

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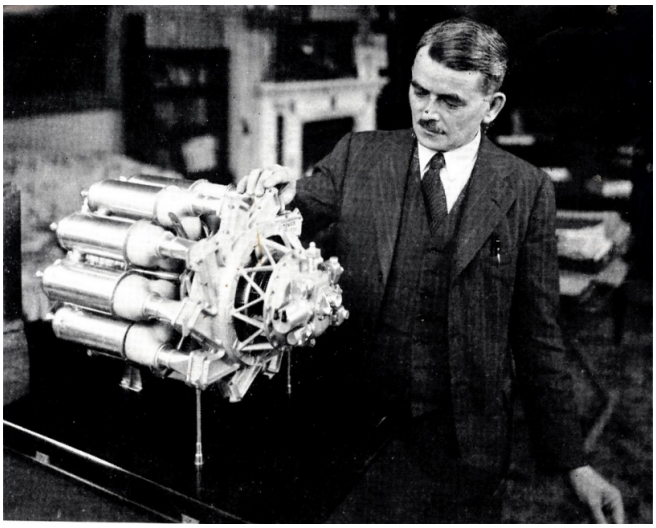
The Miles Aircraft Co was informed by the Controller of RD, Ministry of Aircraft Production (MAP) on 8th Oct 1943 that "I would like to discuss some work we have in mind for you." They expected this would be a civil aircraft associated to the 'Brabazon Committee' as a reprise for MAP assessment of a long-range aircraft design that had been rejected because the assumed engines were not the engines specified in the submitted portfolio.

At a meeting held in London on the following day, a specification was provided, and it was not what they expected. It was titled 'a high speed, single engine experimental aircraft.' This was to be designated the Miles M52. Within the company the project was unknown to most employees, almost all of whom are now deceased. Ex Miles staff were the major source of information made available to the speaker until around 2010 when the National Archive were allowed to provide access to documents associated to the project. These were the minutes of the 'Supersonic Committee.' This team, again under 'most secret' regulations, has been the authority responsible for the specification given to Miles. It outlined weight, speed, particular design requirements, and considerably more.

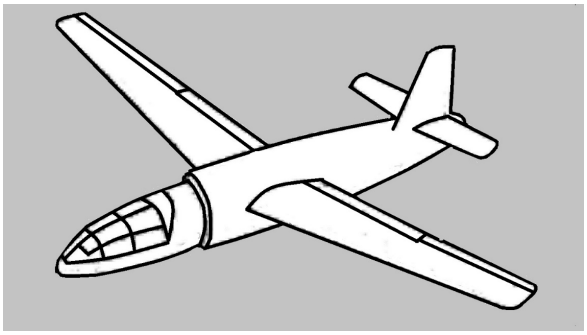
Anyone researching the project has had to rely on information passed on by former Miles Aircraft employees until, after 2010, the meeting minutes that outlined discussions within the Supersonic Committee were available too. The presentation linked information in three components.

Origins



Sir Frank Whittle with model of W2/700 engine

Numerous sources had highlighted information related to situations during the early period of WW2. The success of Sir Frank Whittle's W1 engine in the Gloster E28/39 had sparked interest in both the USA and Germany. In the USA this was supported, but the German interest was known of only through subterfuge. Intelligence reports from German sources had suggested that they were developing high-speed aeronautical projects that used either gas-turbine (jet) or rocket engines. One German project (DFS 228) is believed to have influenced UK researchers, its configuration being a compact jet-engine aircraft. American research had been less concerned with high-speed fighters, and looked more closely at the need for long-range and heavy payload aircraft. Their research concentrated on high-performance aircraft designs, the most



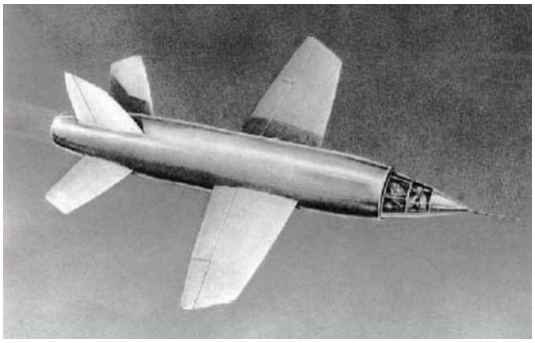
Sketch of German DFS 228 project

significant aspect being in the evolution of new aerofoil sections that minimised drag across a wide speed range. This work was done primarily to open the flight envelope of fighters, and would improve the attainable range of high-altitude piston-powered bombers.

People chosen to join the 'supersonic committee' in the UK were scientists and engineers who could produce an aircraft that relied on a new concept of Sir frank Whittle. The W2/700 jet engine was larger than the predecessor and was to use what Whittle called an 'augmenter.' Nowadays we would call it an afterburner. As the committee was set up, it included the jet pioneer as a member, and his W2/700 plus No4 augmenter was the chosen powerplant for the forthcoming project.

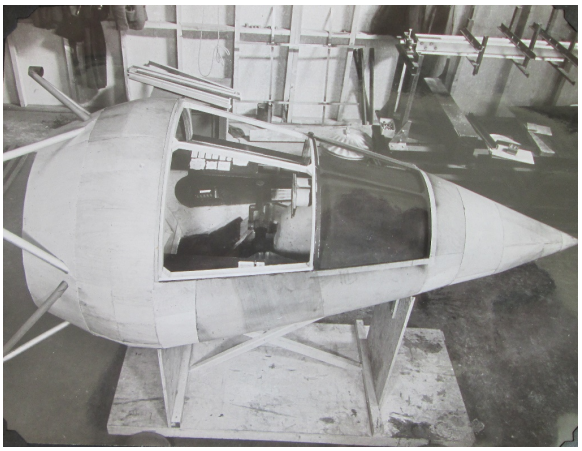
Development

This was managed by the MAP, who took advice from the 'Supersonic Committee' (SC) and passed on guidance and information to Miles Aircraft (specifically Toby Heal – and working closely with Dennis Bancroft). They knew nothing about the SC. What has become apparent was that US wind-tunnel research was a decade or more ahead of the UK. There is some belief that the configuration was derived from the Bell X1. It wasn't;. The configuration was evolved in the UK, and the SC representations were able to feed to Miles Aircraft information that did cause a 'supercritical' wing cross section to be used as was the all-moving tailplane (AMT). No clear evidence, but an an AMT was demonstrated at Langley in the US long before the Miles M52 project was in being. Both RAE Farnborough and the National Physics Laboratory (NPL) did considerable assessment of the new mainplane, tailplane and fin/ rudder using the best facilities available in the UK at the time.



The Miles M52

Performance was the requirement placed in the hands of Dennis Bancroft at Miles. He was able to use thrust and fuel consumption information provided by Power Jets (Whittle's company) alongside his own aerodynamic assessments of lift and drag, with information sent from RAE/ NPL – and very likely this may have incorporated US source data too.



Full-scale mock-up of M52 pilot capsule

The presentation included an overview of this work, and provided insights referring to

-The use of many new materials

-the 'pilot cabin' which was pressurised and had a unique election system

-the procedures for pilot egress

-the incorporation of fuel tanks in the fuselage

-the decision to use landing gear, rather than skids

-planned instrumentation systems and

-the assembly process for production.

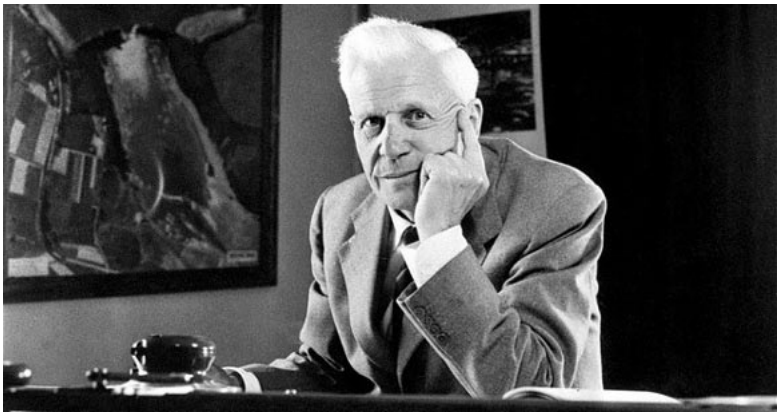
Drawings from Miles Aircraft were used to illustrate the trajectory on a typical test flight that showed the relationship of altitude and speed relationships from take-off to return to base.

Demise

One of the requirements presented to Miles Aircraft on the very first meeting was that the aircraft should be designed, built and be ready to fly within 9 months of the programme beginning. This was a gross overview of the supersonic committee having believed that US-supplied expertise could support them. It may have been based too on a belief that Germany was developing missiles within similar timescales. These were unmanned and risky to say the least.

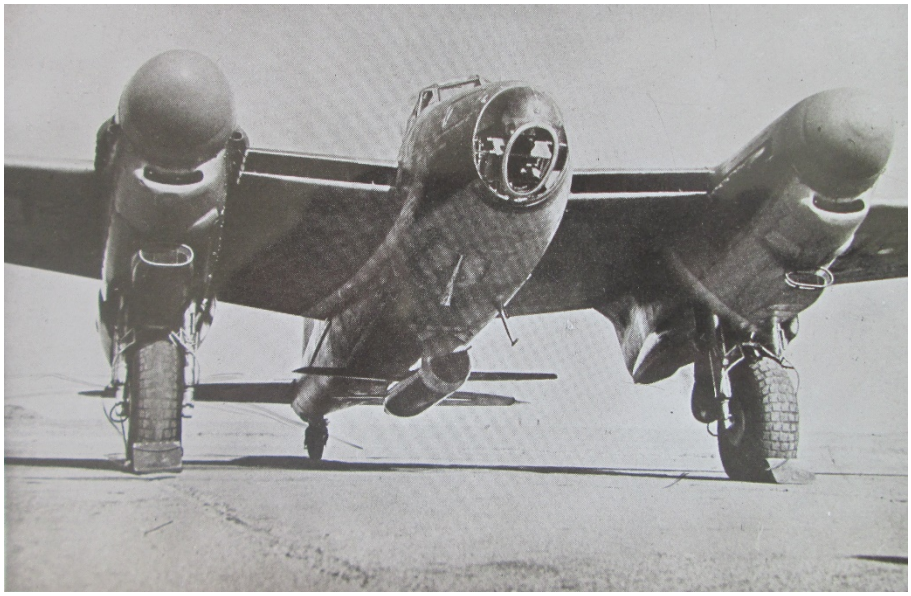
The scientists and engineers recruited for the Supersonic Committee were weakened in discussions, because they had less capable equipment than the USA and Germany. Production costs in the industry had led to limited research investment. The committee was unknown to the public and secrecy provided them with almost guaranteed immunity. It was essential to create and trigger a new approach.

A third-party was introduced – another UK aircraft manufacturer's renown scientist/designer. This was Sir Barnes Wallis, who was introduced to the committee, and he regarded the way that a design was determined and designed and built immediately was the wrong approach. He proposed scaled-down models of the M52 propelled by a rocket and carried to the test altitude under a manned aircraft and released to fly to gather data. It would not require a pilot to take on considerable risk, and was likely to be less expensive. Miles Aircraft Co was unaware of the discussion and as the proposal was revealed to them it was almost inevitable that they would regard Barnes Wallis as the culprit.



Sir Barnes Wallis

The model aircraft programme was initiated, and proved to be able to do what was proposed, but there was plenty of opportunity for error. Of three models carried out for trials No.1 detached in turbulence and was a write-off. No 2 managed to reach the release point, and on that occasion dismay fell on the operation when the engine failed to ignite. The third model – a year after No.2 – did commence its flight, but the telemetry system failed. RAF radar stations monitored its track and did confirm that 1,000mph had been attained. It dropped into the Irish Sea and it was recovered by change



De Havilland Mosquito with 1/3rd scale rocket-powered M52 model

several years later by a trawler. No more trials were conducted.

At the same time that the models were being built by Vickers, Miles agreed to close down the M52 project as the Ministry said they could not provide further financial support.

It was almost exactly 10 years later that a jet powered Fairey FD2 'Delta' flew at 38,000ft along the English Channel. The pilot, Peter Twiss, attained 1,132 mph over a specified course. This was monitored and accepted by the FIA as the first 1,000mph+ world record holder. This was a British pilot, and in a British aircraft. Sad to record is that Miles Aircraft Co was no more. George Miles did revive an offshoot, but the assets of the original firm had been amalgamated into Handley Page.

Lecture Notes by the presenter, Mike Hirst