

The inventor of the jet engine

An obituary of Sir Frank Whittle

There was a certain poignancy to the news that Sir Frank Whittle, who could, if any one could, be called the inventor of the jet engine, had passed away on 10 August 1996, at the age of 89. This was because so few were even aware that this remarkable man was till now, alive; this age has no patience with modesty. I came to hear of his death from a small obituary in the *Deccan Herald*. And there was an unintended irony even here: the obituary of this living legend was directly below a column listing the winners of one of our numerous scientific awards. Whittle, an introvert of sorts, had a hard time getting any recognition at all, while now, especially in our country, recognition usually goes to those adept at self-advertisement who shout the loudest or who have someone to shout for them. It is not easy to be heard in the noisy market place; such are our times.

Frank Whittle was born in Coventry, Warwickshire, on June 1, 1907, to parents of apparently modest means. At the age of 16 he entered the Royal Air Force as an apprentice, studied at the Royal Air Force College, the Central Flying School and the RAF School of Aeronautical Engineering, Cranwell, before being posted to a fighter squadron in 1928. Besides teaching flying, Whittle served as a test pilot at the Marine Aircraft Experimental Establishment, Felixstowe, during the years 1931–32. This was followed by further studies at the RAF engineering school and at the University of Cambridge. While his basic ideas on

the jet engine date back to 1928, when he was a young cadet in the RAF, his confidence in the correctness of these ideas must have grown with his increased technical knowledge acquired during his post-graduate studies. Thus he was well prepared to put his ideas into practice when shortly before the war, in 1937, he was attached to Power Jets Ltd., to develop gas turbines for the jet propulsion of aircraft.

Without an historical perspective it would be impossible, especially at a time when jet travel is common place, to properly assess the immensity of Whittle's achievement. He was among the first, if not the first, to conceive of a well-defined engine based on jet propulsion. He was the first to show, using general thermodynamic arguments, that the engine was technically feasible. With a small staff of a couple of draughtsmen and a few other assorted assistants he then designed the component parts of the engine, i.e. the compressor, the combustor, the turbine, etc; he then had these built and then did the testing himself at considerable personal risk to himself and his small staff. Against almost impossible odds he had the prototype engine built to be test flown on a specially built Gloster E28/39 airframe. That first test flight on May 15, 1941, was successful. So the man conceived the idea, worked out the details, supervised the manufacture and had the prototype test flown, with the assistance (after 1937) of a staff of less than 10 people and a total cost (after 1937) of

a few thousand pounds! A human and engineering saga that would thrill even the most jaded.

The rest of the story, however, is depressing. Once the idea was proved successful, the forces that be decided that the invention was too important to have its further development be entrusted to as small a man as Frank Whittle. He was made an adviser to the Ministry of Supply in 1946, retired from the RAF with rank of Air Commodore in 1948, and in the same year knighted and bought off with a government award of 100,000 pounds, tax free! But no more involvement with the love of his life. Considering the current size of the jet engine business, the sum awarded appears ridiculously small in these days of intellectual property rights and the Bill Gateses. A story repeated many times since the days of Archimedes of Syracuse. It appears that his intense disappointment, at having failed to gain control over his invention, lead to a nervous breakdown. He emigrated to the United States soon after, retiring in 1979 as an adjunct professor at the US Naval Academy.

I first came to know of Whittle's inspiring story from a superb biography that I accidentally found at the Indian Institute of Science library in the early seventies. Neither during my engineering college days nor during my days as a graduate student had I heard of his remarkable achievements; nor did I ever come across him holding forth at a conference or hear of him at one of these. This quiet genius had done his work, single handed, and then simply disappeared from the scene making no claims for himself or his achievements. To those of us who prefer our heroes in the heroic mould of a previous age, when greatness was measured by what you had actually done, Whittle belongs, along with a few other loners of his generation like Bethune and Turing, in the first rank of these.

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