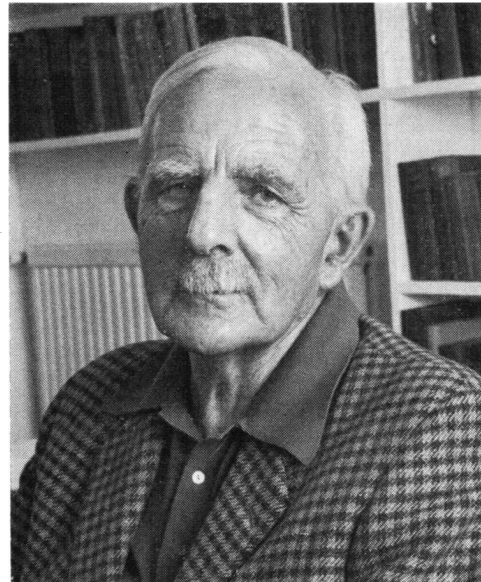


Sidney Barrington Gates

OBE, MA, FRS, CEng

Honorary Fellow

1893-1973



THE death on 12th June 1973 of Sidney Barrington Gates robbed aeronautical science of one of its giants. Born in 1893, the son of Ernest Edwin Gates of Norwich, he began a brilliant academic career at the City of Norwich School. From there he passed on with an open Scholarship to Corpus Christi College, Cambridge, where he further distinguished himself by being a Wrangler in the Mathematical Tripos, 1914.

In 1916 he married Edith Annie Tofts and they had three children, two daughters and a son, of whom one daughter and the son survive. At around this time he came to what is now the Royal Aircraft Establishment at Farnborough to begin a long career of great distinction in aircraft research. He published numerous papers of lasting value on a wide variety of topics, but he left his mark most indelibly on the development of the theory of the stability and control of aeroplanes. It is true that the foundations of the subject owe a great deal to Bryan, Glauert and others, but it was Barry Gates' rare talent for rendering complex matters simple that, for example, gave the aeroplane designer the elegantly simple, yet far-reaching, concepts of static and manoeuvre margins. Armed with these the designer was enabled to move forward with greater insight into the problem of designing the aeroplane with good handling qualities. The grasp that an ever-widening circle of people now had of the subject owed as much to another gift of this exceptional man as to his penetrating analytic mind. That gift was his mastery of the written word. His style in his scientific papers was lucid yet vibrant and stimulating.

It was this aptitude that resulted in his having to forsake the Royal Aircraft Establishment for a brief spell around 1944-46, when he was employed at the Headquarters of the Ministry of Supply as editor of the Ministry's Scientific War Records.

Recognition of the outstanding place he occupied in aeronautical science came rather late in life, but (on being made a Senior Principal Scientific Officer) he had the satisfaction of being in the van of those promoted on individual merit. More public recognition came too in the award of the Order of the British Empire in 1943 and the Royal Aeronautical Society elected him a Fellow in 1948. This

same society honoured him further by awarding him its Silver Medal in 1951. Further promotion soon followed for in 1950 he was appointed a Deputy Chief Scientific Officer and only two years later he reached the rank of Chief Scientific Officer, being one of the very few people to have done so on individual merit.

In 1950 he was elected a Fellow of the Royal Society an honour which set the final seal on a long and most distinguished working life, which was not yet over for he continued to contribute directly and indirectly through his influence on others to the work of the Royal Aircraft Establishment up to his retirement in 1966. This he did in his capacity as consultant from 1959-1966.

In 1959 the Royal Aeronautical Society made him an Honorary Fellow. Even after his retirement he maintained an interest in aeronautical research through his membership of various committees of the Aeronautical Research Council, thereby continuing an association which stretched back over the years.

His ability as a writer has already been mentioned, but this extended far beyond the turning out of a masterly piece of scientific prose. Had he taken another fork along life's path or had circumstances been different he could well have established his fame as a literary figure. Even with his other commitments he managed a prodigious output of book reviews as literary critic to the *Nation* (1923-1928) the *New Statesman* (1925-1945) and *The Times Literary Supplement* (1928 onwards). It was only failing health in the last months of his life that brought this activity to an end. Of his own writing only two examples exist in print, a book of poems, simply entitled *Poems*, published by Leonard and Virginia Woolf at the Hogarth Press, London, (1925) and *The Mulligatawny Medallion*, Ernest Benn, (1926), a collection of short plays. It is difficult to say to what extent a severe impediment of speech contributed positively to some aspects of his life or how much it distracted from the attainment of even greater heights. Without a doubt it caused him great distress and he never quite came to terms with it. One can only imagine his intense frustration during technical discussions when he was unable to give utterance to what would unquestionably have been a vital contribution. These feelings of distress and

frustration caused him to tend to withdraw somewhat from the company of others and thus give an appearance of aloofness. Those of us who were privileged to know him better recognised this as mere illusion for he could be the most warm and charming of companions. His very keen sense of humour could always be relied upon to enliven any conversation and often even shone through much of his technical writing, whilst in the right circumstance he could use a caustic wit with quite devastating effect. Above all he loved the simple things of life—the beauty of nature and the countryside. Walking was a favourite pastime of his as was also working in his garden and it is not unnatural that this part of him is reflected so well in a number of his poems. A man of great sensitivity he always reacted vigorously to any suggestion of man's inhumanity to man whether on a person to person level or on a

broader front. This made him very vulnerable and it was in this respect that his wife (Tommy) was such a tower of strength to him throughout their long married life. Her death just over three years ago was a great blow to him.

Though now gone he will live on for as long as people are concerned with the problems of flight in a way that is aptly described by words that Barry himself used of another,

"He is not dead. Still on my mortal breath
Swells a low music from his heart's desire.
I am most proud, and you most cheated, Death,
Knowing in his closed book this deathless fire".

Poems, 1925

H. H. B. M. Thomas

Sidney Allan CEng, FRAeS

1909-1973



SIDNEY ALLEN who died aged 63 on 22nd August 1973 after a short illness was one of the small group of men engaged on combustion system development in the very early days of aircraft gas turbines. Although he later turned his attention to rocket engine development and general work on gas turbines, it is for his pioneer work on the vaporiser combustion system that he will be best remembered.

It was in 1941 that he was given the task of developing a combustion system for the first Armstrong Siddeley aircraft jet engine known as the ASX.

His contemporaries were at that time all working on a system of pressure atomisation of the fuel, although some early work had been done on a form of flash vaporisation.

Working with a small team of engineers and fitter/testers he quickly became convinced that success lay in the principle of pre-vaporising and mixing with air before combustion. After many experiments the first system eventually appeared on the ASX and later on the Python turboprop derivative.

The next Armstrong Siddeley engine the Mamba, unlike its predecessors, used the now conventional axial layout which necessitated a considerable reduction in length on the earlier system. This challenge he met with the now well known "walking stick" form of vaporiser, which was of simpler construction and permitted greater sub-division of the air/vapour injection into the primary zone.

This system was later applied to the Viper and Sapphire series of engines and was licensed to Westinghouse and Curtiss-Wright in the United States. Work was also carried out at Avro Canada and Sid Allen took an active part in this collaborative work.

The team which he founded continued work on the system and it is used on the Pegasus, M.45 and Viper, and has now been applied to overcome the smoke problem on the Olympus 593 for Concorde.

Sid was also responsible for Armstrong Siddeley's work on rocket engines and developed the Snarler boost engine which was flight tested in the prototype of the Sea Hawk. In 1954, as Chief Engineer of the Rocket Division, he devoted his full time to the development of the Screamer aircraft engine, followed by the Stentor, used to propel the Blue Steel stand-off bomb. His team also produced the Gamma engine for the Black Knight re-entry vehicle. The Gamma was also used in a later developed version to power the Black Arrow satellite launcher.

He later became Chief Engineer of the Power Division of Bristol Siddeley, and at the time of his death, was Chief Design Engineer of the Industrial and Marine Division of Rolls-Royce (1971) Limited.

Shortly before his death he had returned to his first love, combustion development, with a programme of work on pollution control on gas turbines burning diesel fuel. Had he survived his persistence and experience would almost certainly have contributed greatly to the solution of one of today's major environmental problems.

He is survived by his wife Phyllis, his son and two grandchildren.