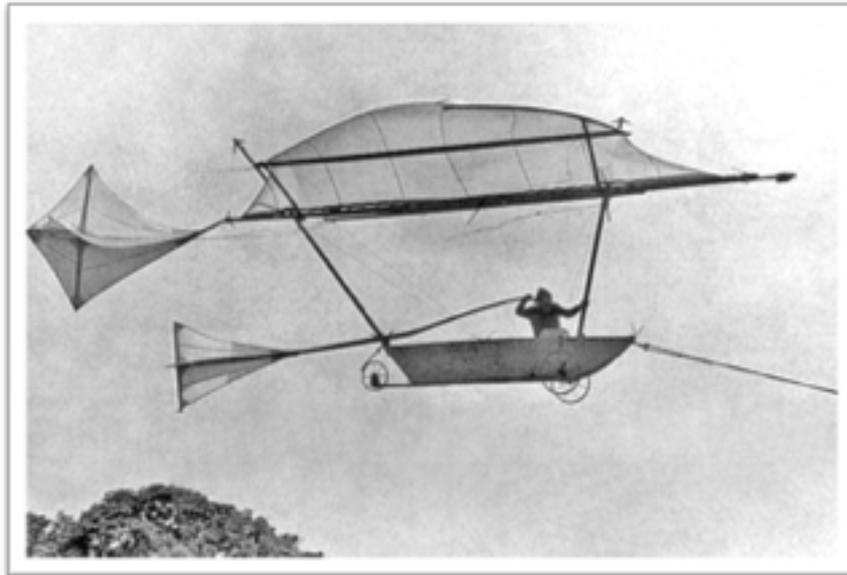


The Origins & History of the Royal Aeronautical Society
Air Commodore Bill Tyack
2nd February, 2016

Air Commodore Tyack is a recent past-President of the RAeS, a role and title that has 150 years of history as his first predecessor was appointed on 12 January 1866 at the first Council meeting of the Aeronautical Society of Great Britain. This lecture was a key address in the Branch's current programme that is celebrating the Society's sesquicentenary.

This presentation covered events that led to the society's formation, and the often forgotten decades when experimenters devised numerous apparatus which contributed to manned powered-flight being achieved, albeit in the USA, some 40 years later. That fact underlines the Internationalism embedded in the Society from its very beginning, and the presentation charted how the society has evolved, committed to being a leading source of knowledge and inspiration while reaching out to members and non-members worldwide.

The work of leading UK pioneers was reviewed, and started with Sir George Cayley. In the 1790s he was the first individual to define the four forces that act on any flight vehicle: those we nowadays refer to as lift, drag, thrust and weight, and in 1823 he famously designed and built a man-carrying glider. He thereafter wrote extensively, and campaigned for support to form a society that would take a scientific approach to flight, and whilst he died in 1857 without achieving this ambition, he had sowed the seed.



Replica of Cayley's glider being flown in 1973

The mid-1800s saw many significant technical developments and numerous engineering Institutions evolved to provide a professional framework. However, the quest to fly had not been regarded as a leading scientific or technical pursuit, although much of notable significance was happening in Britain. Air Cmdr Tyack cited the remarkable work of Henry Coxwell, a professional balloonist, and James Glaisher, an astronomer and meteorologist. Sponsored by the British Association for the Advancement of Science they made 28 balloon flights, and on their final flight, on 5 September 1862, they exceeded 9,500m (31,000ft)

altitude. Glaisher passed out at 8,500m (28,000ft) and Coxwell, his hands numbed by the cold, grasped the gas-venting line with his teeth to release gas for the balloon to descend.

Glaisher was the Superintendent of Meteorology and Magnetism at the Royal Observatory Greenwich and he lived near to Frederick Brearey, whose father had befriended Cayley, and had witnessed his work. Of greatest significance, Brearey took up Cayley's cause of creating an aeronautical society, got in touch with Glaisher, and at the latter's suggestion Brearey attended the 1865 meeting of the balloonist's sponsor, the British Association, to lobby for the formation of an aeronautical society. In Brearey's words "at that meeting the nucleus of the Society was formed." On 12 January 1866 the first Council meeting of the Aeronautical Society of Great Britain was held, and the objects of the Society were agreed as "for the advancement of aerial navigation and for observations in aerology connected therewith." Today's objectives continue in that vein, broadened to encompass the whole of aerospace and aviation, including spaceflight.

RAeS founder members were: the Duke of Argyll (President), F W Brearey (Hon Secretary), F H Wenham (Hon Treasurer) and James Glaisher. Wenham was a marine engineer who became interested in aviation, and he is thought to have coined the term "aeroplane" (to describe lifting surfaces only). Very notably, he designed the world's first wind tunnel which he built for the Society in 1871. He also presented the Society's first public lecture on 27 June 1866 and revealed his recognition the importance of high aspect ratio, and thus multiple wings. Through publications from the Society he influenced pioneers such as Octave Chanute, in the USA, then Percy Pilcher in Britain, and eventually the Wright Brothers. (Branch note: close to us - in 1897 Pilcher built a glider with which he broke the world distance record by flying over 250m (820ft) at Stamford Hall near Lutterworth. He died in an accident in 1899 at Stamford Hall: a monument commemorates the accident site today).

The lecturer corrected the fallacy that the Society is the world's oldest aeronautical society, explaining that the Societe Aerostatique et Meteorologique was formed in 1852 in France, and the Societe d'Encouragement pour le Navigation Arienne au Moyens d'Appareils plus lourds que l'Air was formed in 1863. These two societies merged in 1873 to form the Societe d'Aviation, but in the 1930s this was wound up. It is more accurate to say that the RAeS is the world's oldest existing aeronautical society.

He showed also a slide that listed the titles of some of the books, pamphlets and papers received by the Society in 1867, exemplifying how the Society became the clearing house for much of the world's aviation knowledge. Meetings and lectures enabled members to test one another's theories, and the Society helped many of the pioneers to keep in contact and exchange ideas.

Even so, around the 1890s the Society membership, perhaps frustrated that mechanical flight did not seem to be getting any closer, had declined from 100 to just 40 people. But also contributory had been the loss of its founder, Frederick Brearey, who died in 1896. The Council decided to resuscitate the Society and appointed Baden Baden-Powell (brother of the founder of the Scout movement) as Hon Secretary. Baden-Powell was an army officer who had pioneered and championed the idea of war kites as military observation platforms.

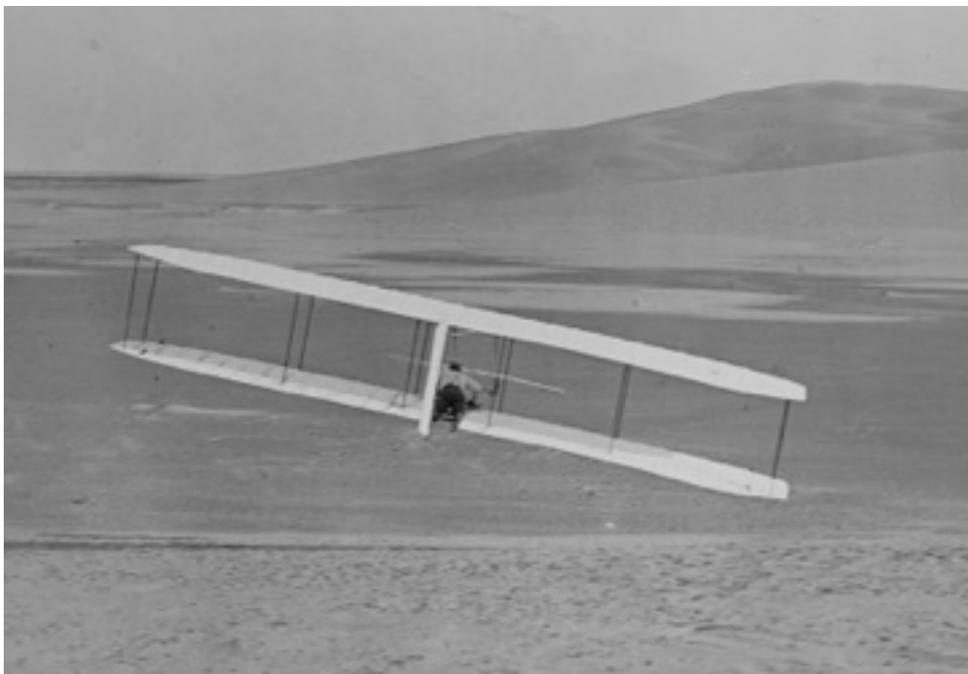
He served as Secretary until 1900 and then was President until 1907. His considerable energy did revitalise the Society, and by 1902 numbers had risen to over 100.

Air Cmdr Tyack reviewed how the core activities have been maintained, and newer aspects that have relevance today have been introduced:

PUBLICATIONS: Baden-Powell had founded the Aeronautical Journal in 1897, and it is still published as a monthly peer-reviewed Journal. Additionally, Aerospace, the Society's general interest monthly magazine, was introduced in 1969.

LIBRARY/BOOKS: The Society has received books, papers and pamphlets from its beginnings, and these led to the Society's library being formed in 1903. In recent years this has been expanded to form the Society's National Aerospace Library at Farnborough which houses 20,000 books, 40,000 technical reports and many unique historical artefacts.

MEDALS & AWARDS: after powered-flight was attained the Society began to present medals of recognition to distinguished individuals, the first ever being the society's first Gold Medal awarded to Wilbur and Orville Wright in 1909. In the same year its first Silver Medal was awarded to Samuel Cody, who had made the first flight in Britain in 1908. Procedures for recognition of this nature are nowadays regarded as a prestigious honouring process that addressed attainments, innovation and excellence widely. Team medals were initiated in 2004 and in 2015 a Team Gold Medal was awarded to the European Space Agency's Rosetta Mission Team that landed the Philae craft on Comet 67P.



1902: Wright Glider No3 in a right turn using wing-warping and rudder

MEMBERSHIP: Fellow and Associate Fellow (now 'Member') grades were introduced, with examinations for Associate Fellow in 1910, and in the following year the Society signed agreements with the Royal Aero Club and the Air League, and in 1917 with the Society of

British Aircraft Constructors. These defined the separate roles of each organisation, with the Aeronautical Society recognised as the “paramount and representative body of the scientific and technological aspects of aeronautics, including aircraft engines.” In 1916 the award of Honorary Fellowship was introduced as its highest membership category.

TITLE: In 1918 King George V awarded the “Royal” prefix to the Aeronautical Society of Great Britain, which became the Royal Aeronautical Society and ever since the reigning monarch has been the Society’s patron.

BRANCHES/HQ: A first branch was the ‘Scottish Branch,’ founded in 1919. Formal rules for branches were issued in 1925, and the Coventry Branch was the first formed under these terms. Following the Second World War the branch network was expanded, leading to 37 branches in the UK and 30 around the world in 14 countries. A Students Section was formed almost a century ago, and subsequently re-named the Students & Graduates Section. This membership group is now represented by the Young Persons Committee. In 1939 the society moved into the headquarters at 4 Hamilton Place that it still occupies, and in 1959 a Lecture Theatre was built on to the back, with a garden patio on its roof.

SPECIALIST GROUPS/MERGERS: In 1949 the Royal Charter, the supreme governing document, was granted by King George VI on the advice of the Privy Council, and in 1957 the rules for Sections and in 1959 the rules for Groups were published. There are now 23 Specialist Groups covering a wide range of aeronautical disciplines and activities. The Helicopter Association of Great Britain merged with the Society in 1960 creating the Rotorcraft Group, and in 1965 the Society was one of the founding members of the Council of Engineering Institutions (CEI), now the Engineering Council. In 1987 the Society of Licensed Aircraft Engineers and Technologists (SLAET) merged with the RAeS.

TODAY: The RAeS is a learned society, dedicated to advancing and spreading aeronautical knowledge. It is not a trade association, it is completely independent and is not beholden to anyone. Each year some 70 conferences and lectures are held at Hamilton Place: and Branches organise some 400 additional events around the world. It is a professional engineering institution awarding CEng, IEng and EngTech qualifications and a Registered Charity with some 20,000 members and 200 Corporate Partners around the world. The society works with schools and young people to encourage careers in science, engineering and aerospace, and the Centennial Scholarship Fund provides scholarships to students studying for second degrees in aviation and aerospace-related subjects. This involves collaboration with government, industry and academia, and other organisations such as the International Civil Aviation Organisation and the International Air Transport Association.

The lecture was supported by many slides that presented artefacts from the RAeS archives and which reminded everyone present of the unique and very historic records that have been preserved through the 150 years of its existence.

It was made clear that the RAeS remains committed to contributing to the ability of all to contribute from either interest alone, direct involvement in any related industry, or through indirect influence in governing and legislative professions, within which it carries

considerable influence in Britain, and worldwide. The presentation was warmly received, by the 90 branch members present. Some were able to recall centenary celebrations in the late-60s, and perhaps the branch, and some of those present at this meeting, will witness the bicentenary, and take equivalent pride in the Society's activities.

Lecture Notes compiled by Mike Hirst.

