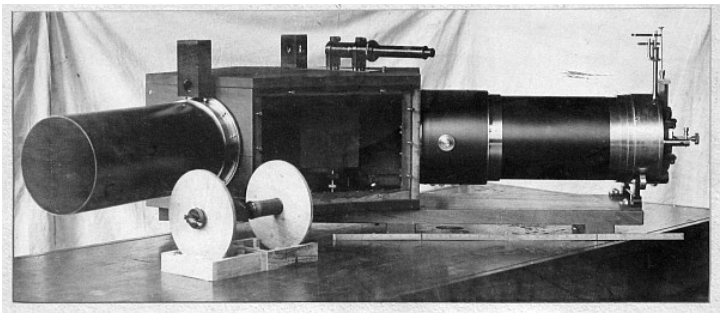
Marischal College

John A. Carroll – astronomer, solar physicist and defence scientist

Sir John A. Carroll KBE, FRSE, FRAS (1899-1974) is nicely shown in this polyfoto, a once very popular portrait format. The images are courtesy of his daughter. Carroll was born in

the outskirts of Manchester, educated in Chester and won a scholarship to Cambridge in 1917. However, he enlisted in the war effort and was posted to RAE Farnborough, by coincidence doing similar aeronautical applied science in the same place as G P Thomson who would later become his predecessor in the Chair of Natural Philosophy at Aberdeen.

Carroll graduated from Cambridge, spent some time at Imperial College and then 2 years in California, working at Mount Wilson Observatory and in the laboratory of recent Nobel laureate Robert Millikan, according to a local press account at the time of his appointment as Professor of Natural Philosophy at the University of Aberdeen in 1930. He told the story that at his appointment one of the interviewers said "You're very young for the post" [He was 30, the same age as Thomson had been at his appointment]. "Well, sir" he replied, "Time will remedy that". In the same year he married and was appointed for the first of his three periods on the Council of the Royal Astronomical Society. Carroll's interest was particularly in solar physics, a topic that is pertinent in the 21st century. The Sun is by far the best star to study if one is based in a city but Carroll's interest in the corona of the Sun led him to participate in several eclipse expeditions. These took him to Norway, Malaya, Canada and in 1936 he organised a departmental expedition to Omsk in Siberia, a major political, financial and logistic undertaking from Aberdeen. Unfortunately an eclipse expedition to West Africa in 1947 was the cause of death of 3 staff when their plane crashed and the equipment lost.



Carroll's contributions to solar physics were experimental measurements using high resolution spectrometers of his own design, aiming to determine the motion of different parts of the Sun and its corona. He also applied his techniques to the rotational speeds of selected stars. His coronal 'camera' made by C G Fraser that he took to Omsk is shown here. In truth, this work would not have earned him a knighthood, which came out of a different quarter.

Carroll's work as Head of Department involved extensive administration (Natural Philosophy was then part of 3 Faculties) and teaching in applied mathematics and experimental work. Carroll was well liked by his students. One thinks, perhaps, of astronomers as being concerned with matters far removed from practicality but observational astronomy is an experimental science requiring a high degree of practical skill and Carroll was strong on experimental physics and its relevance outside academia. In the early years of the World War II he set up the very successful Radio Training Scheme with backing and finance from the University Court. He also introduced mechanical calculators of the type shown here into his teaching work in the 1930s. Both these developments would have repercussions that were unseen at the time.

Aberdeen University Brunsviga calculator

The Radio Training Scheme attracted the attention of the Admiralty. In 1942 he was invited to join their Department of Scientific Research and Experiment as Assistant Director, which he did, having made arrangements for substitute teachers during his leave of absence. He quickly made his mark and became involved in the science of several aspects of naval warfare. Possibly drawing on the success of his computing initiative at Aberdeen, he and the superintendent of the Nautical Almanac Office set up the Admiralty Computing Service, not for cracking codes but for producing the many tables then in use. In 1945 he established the NPL Mathematics Division that provided both a practical computing service and became a centre of research into electronic computing and numerical analysis. In 1946 Carroll made his career change permanent, becoming Deputy Controller of the Department of Scientific Research and Scientific Advisor to the Board of the Admiralty. Over the next 18 years until his retirement in 1964 he devoted his time to the Royal Naval Scientific Service, ending up as Chief Scientist (Royal Navy), a full member of the Admiralty Board. It was for his work in promoting the defence of the country, largely hidden from public view but conspicuous in military circles, that Carroll was knighted in 1953. It was remarked that astronomy's loss was the country's gain. After retirement, Carroll was able to combine his teaching ability and his astronomical interests by taking on the post of Professor of Astronomy in Gresham College, London. He held this Chair for 4 years.

John S. Reid