MARION AMELIA SPENCE ROSS
MA, PhD(Edin)

Dr Marion Ross, Reader Emeritus in the Department of Physics and Astronomy at The University of Edinburgh, died on 3 January 1994. She was born in Edinburgh on 9 April 1903.

Marion Ross was educated at Edinburgh Ladies College and then at the University of Edinburgh. She studied Mathematics and Natural Philosophy and graduated with honours after having been awarded prestigious bursaries in mathematics in both her first and second years of study. After graduation she spent a year at teacher training college in Cambridge and then taught mathematics for two years in a girls secondary school in Woking, Surrey.

In 1928 she was appointed Assistant Lecturer in the Department of Physics at the University of Edinburgh. Here she had heavy teaching duties, including the starting up of a new course in acoustics for students of music. Her research work with Professor C G Barkla, Nobel Laureate, was concerned with the scattering of X-rays by light atoms, and resulted in her PhD degree, awarded in July 1943. She decided that to continue the experimental side of this work would be unproductive and wrote to Professor W L Bragg in Manchester with a view to widening her experience. The result of this was that she spent a year in Manchester working with C A Beevers on the crystal structure of the so-called 'Beta Alumina'. The published work aroused a great deal of interest as Beta Alumina proved to be a double oxide with very mobile sodium ions. The material was subsequently thoroughly investigated because of the possibilities as an electrolyte for an entirely new kind of storage cell. Marion Ross also took a great interest in the computations of X-ray crystallography, which were rather formidable and she published a valuable note on 'Fourier analysis to twenty-nine harmonics'.

During the war she spent a year teaching mathematics in Falkirk Technical School and then four years with the Admiralty in Rosyth working on underwater acoustics and hydrodynamics, eventually ending up as Head of the Research Group. It was here that she developed her interests in fluid flows. At the end of the war, on an invitation from Professor Norman Feather, she returned to Edinburgh as Lecturer. Following a suggestion from Dr E Broda, she set up a laboratory to study, initially, β-ray spectra and subsequently, high energy particle spectra, using photographic emulsions. Major results on the calibration of emulsions came out of this laboratory and more than ten doctorate students passed through it working under her supervision. She was elected FRSE in 1951.

Eventually Dr Ross decided to return to her interests in fluid flows and she was instrumental in setting up the Fluid Dynamics Unit in the Physics Department and was its first Director. In the early sixties she supervised the design and construction of a low speed, low-turbulence wind tunnel, originally designed to investigate the stability of the flat plate boundary layer. This was a continuation of the earlier work of Schubauer and Skramstad and led to a deeper understanding of the processes leading to breakdown of laminar flow. She supervised many doctoral students in this area and their studies included both experimental and theoretical/numerical analyses of the problem. The work of the Unit in this area attracted widespread interest and she was particularly pleased that Professor Schlichting included the results of her team in his definitive volume on boundary layers.

Dr Ross played an active role in all aspects of University life and was elected to serve on the University Court, one of the first non-Professorial members of staff to serve in this way, for the session 1967-68. She was one of the few women of her era who gained success in a male-dominated profession, making her achievements all the more outstanding. In recognition of her distinction she was elected to a Readership at the University and subsequently to a Readership Emeritus. On her retirement a prize was founded to honour her name.

Marion Ross had wide interests outside of the University, including literature and art, the latter aroused in her teens by watching her grandfather sketching and painting, She was scarcely through University when the General Strike became a political issue; from that time on she was vitally interested in politics and current affairs and she actively championed causes close to her heart. After the death of her mother she became a devoted companion to her father, then organist of the Holy Rude Church, Stirling. She sang in the choir, taking a keen interest in the music and particularly the fine organ, designed by her father, for this historic church; it has recently been restored after fifty years use.

Marion Ross was an enthusiast and a person of high ideals and purpose. The type of person who looked for work that needed doing and got on and did it voluntarily. Her research in nuclear and X-ray physics, and in fluid dynamics, is internationally recognised and has inspired others to follow in her footsteps. She will be remembered with affection and gratitude by her students, her colleagues and by her family.

ARNOLD BEEVERS
CLIVE GREATED