Martin J. Aitken 1922-2017

Martin Aitken is perhaps best known for his pioneering contributions to Archaeometry. Yet his work in magnetic dating and in luminescence dating, and his writing, reflect a physicist with strong interests in Geoscience whose contributions and influence are of enduring significance to Quaternary Research.

Martin was born in Stamford, Lincolnshire on the 11th March 1922, the second son of an engineering draughtsman. Both sets of grandparents were farmers in the Lincolnshire Fenlands, and he traced lowland Scots ancestry on his paternal side and Huguenot French connections on his maternal side. Educated from 1930 to 1941 at Stamford School, he was inspired by his Physics teacher, and won a Hankey Radio Bursary to Wadham College Oxford in 1941 to study Physics with Radio at the Clarendon laboratory. In 1942 he joined the RAF Volunteer Reserve as Radar Officer serving in Ceylon (Sri Lanka), India, and Burma (Myanmar), until 1946. Returning to Oxford, he completed his Physics degree in 1949. In later life he remembered a summer vacation spent in Harwell helping to load uranium into the Graphite-moderated Low Energy Experimental Pile (GLEEP) which in 1947 became the first experimental nuclear reactor to operate in the UK and, indeed, in Western Europe. Martin's doctoral research concerned the development of a 120 MeV electron-synchrotron in the Clarendon laboratory, where he was responsible for the vacuum systems. This led to his first publication in 1953, a successful doctoral submission in 1954, and subsequent papers on photo-nuclear reactions using high energy bremsstrahlung quanta to promote proton and neutron emission from light elements.

Following a period as a research officer in the Clarendon, Martin was appointed Deputy Director of the Research Laboratory for Archaeology and the History of Art (RLAHA) in 1957, retiring in 1989, as *ad hominum* Professor of Archaeometry. His awards include the 1992 Gemant Award of the American Institute of Physics (for pioneering the application of physics to archaeology and art history), the 1997 Pomerance Science Medal of the Archaeological Institute of America, and an honorary doctorate in 2003 from the Université Blaise-Pascal in Clermont Ferrand. He was a Fellow of Institute of Physics, a Fellow of the Society of Antiquaries, a Member of the Royal Institution, and from 1983 a Fellow of the Royal Society.

He married Joan Killick in 1947, and having spent several decades living in the small village of Islip outside Oxford, in retirement they moved to the Auvergne, living in a small and beautiful hamlet near Augerolles in the Puy-de-Dome. Martin's scientific writing and conference attendance continued for several years after retirement. His work was celebrated at a conference held in Clermont Ferrand in 2002 to mark his 80th birthday. There have been several appreciations of his work, both since his retirement and in the last year. Martin died in France aged 95 on 13th June 2017. Obituaries already published include those by his daughter Jessica in the Guardian, by Mark Pollard both in the Daily Telegraph and in Archaeometry, and by Nigel Spooner and Daniel Questiaux in Ancient TL. There are conference proceedings in progress in luminescence dating and in Archaeometry dedicated to his memory. These have highlighted his many contributions to the early development of magnetic prospection, to development of magnetic dating, considered by some to have greater significance in the Geosciences than to Archaeology, and to the development of luminescence dating. Today luminescence dating flourishes as a primary tool for understanding the

chronology and dynamics of Quaternary landscapes and environments. It is also one of the primary means of establishing the chronology of modern human evolution and dispersal, and is finding new applications in thermo-chronology and the characterisation and dating of rock surfaces. Martin's own interests in luminescence dating seem to have started from his interest in developing magnetic chronologies, originally based on remanent magnetic direction and later in exploring systems which register magnetic field intensity variations. His early work in magnetic prospection aimed at locating suitable heated structures for establishing secular variation curves, clearly founded on his knowledge and interest in the physics of electromagnetic interactions and Earth systems. Thermoluminescence dating of kiln structures and ceramics offered the potential to establish a framework for linking these elements together. In the event, both the magnetic dating and luminescence research brought further complexity and opportunities in their wake.

Martin published more than 150 scientific papers covering the combination of method development and applications in both areas. His books: "Physics and Archaeology" originally published in 1961, and substantially revised in 1974, "Thermoluminescence Dating" in 1985, "Science-based Dating in Archaeology" in 1990, and "An introduction to optical dating: the dating of Quaternary sediments by the use of photon-stimulated luminescence" are all written with a clarity, precision and enthusiasm which characterised their author. Of these, his 1985 book on luminescence dating and his 1990 book on Science-based Dating in Archaeology remain standard sources in dating laboratories and in archaeology departments.

Martin was proud that he had supervised 23 of the 27 postgraduate students who went through RLAHA during his period there, many of whom went on to leading academic or professional careers afterwards. He had a reputation as a demanding supervisor, but kept in touch with former students and supported their careers afterwards. He also had a talent for community building. Visitors to his laboratory were welcomed and encouraged. Both the International Archaeometry Symposium, and the International Luminescence and Electron Spin Resonance Dating conferences, which continue today with sizeable global participation, originated in informal meetings which Martin started in Oxford; one suspects simply to engage with people who shared his interests and enthusiasm for science.

In 1957 when Martin decided to leave mainstream research in high energy physics in favour of a small and relatively unheard of field, he made the change because of the opportunity to apply physics to a discipline in which he found a deepening interest, and where he felt that individual effort could still be effective. Many of us are very pleased that he did so.

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