A.E. MARTIN

Martin Albert Edward (1908 — 1990) Physicist, the eldest son of Hanna Edith and Albert Edward, was born at East Road, City Road, London on 2nd May 1908. He was educated at the Central Foundation Boys' School and Queen Mary College, London University. His younger brother, Stanley, informs us that an attack of pleurisy delayed his final B.Sc., examination and it was unusual, as a consequence, that he obtained his B.Sc on 23rd January and his Ph.D on the 21st June of the same year, 1929. He was awarded his DSc, Queen Mary College, London University in March 1950. Extremely intellectually gifted at school he obtained a special award for receiving a record number of prizes for scholarships. He always disappeared immediately after receiving an award in order to avoid the adulation and praises of family and friends.

A. E . M. was ingenious and inventive and possessed a number of patents particularly with respect to infrared instruments. He did, however, experiment with television in the early days. He and his brother made several working prototypes using rotating mirror systems and 4" cathode ray tubes which were freely donated for their experiments by Cossor and Mullard in Highbury Grove. They recall watching pictures of the Snyder Trophy competition from the experimental B.B.C. photo-transmission system received between 11.00 and midnight in 1930.

A.E.M. began his working days at the London Chemical Company of Shepard, Cowper and Coles, Sunbury-on-Thames (known for the Sherardizing process). From 1930 until 1940 he was employed at the Government Laboratory, off Kingsway, London, on ultra-violet and infrared spectroscopy with Sir Robert Robertson and Sir John Fox. His early work was concerned with fluorescence measurements in diamonds, the aim being to discover why some diamonds fluoresced when exposed to ultra-violet light and others did not. This work was later extended to cover carborundum crystals. His first surprisingly successful measurements in infrared were with a personally constructed prism spectrometer which employed a d.c. amplifier for the infrared signal received from a thermal bolometer. To compensate for changes in radiation when colleagues entered the room, he would re—direct radiation from an electric fire on a turntable near the door by pulling on a length of rope.

In 1940 direct intervention by Winston Churchill caused him to be involved in a number of projects connected with the war effort. He was assigned to a team of brave moneyed people who, as volunteers, specialised in bomb disposal. A.E.M. modestly claimed that many of them took much greater risks than he did and indeed many perished in the process. Nevertheless, on one occasion Stanley visiting A.E.M. at the Government Laboratory stepped over bombs which littered the floor of the laboratory and was quickly warned to take care as they had not yet been defused. The Germans constantly experimented with new types of fuses which were booby-trapped. For purposes of public safety many of these bombs were taken to Salisbury Plain to be dealt with.

During this time A.E.M. designed a delayed action fuse for the Dain Busters' project. Constant time delay was obtained by using a piece of velvet material, provided by his mother, between two moving surfaces in a clockwork mechanism.

In 1945 a deputation of chemists headed by H.W. Thompson of Oxford University proposed to G.M. Lisson, Managing Director of Grubb Parsons and Co Ltd., Newcastle-upon-Tyne, that they enter the commercial field of infrared spectroscopy. A.E.M. was suggested as a suitable candidate to lead the technical side of the new enterprise. In 1946 he joined Grubb Parsons in charge of research and development. At first, attention was centred principally on the then new 'Luft' type infrared gas

analyser. A prism spectrometer was also developed which progressed rapidly from a simple single-beam instrument. By 1950 multi-prismed double-beam spectrometers were being produced in quantity. A new process for ruling blazed gratings, developed at National Physical Laboratory by Sir Thomas Merton inspired A.E.M. to begin work on grating monochromators. He and his team marketed the first commercially available infrared grating spectrometer in 1954. This instrument was of very advanced design in that it employed a two prism foreprism unit covered the region from 2 to 15 micron using four orders of a 2500 line per inch grating and with the advantage of a 20 inch parabolic collimating mirror was capable of better than 0.2 cm resolution at 10 micron. Added advantages of this instrument over the competing prism equipments at that time were double-beam operation with constant energy background and variable-slit-programming over a 4:1 energy range. So began a long series of grating spectrometers produced by the company, the most popular being the Spectromaster, a very high-resolution instrument covering the range 0.5 to 25 micron employing two gratings.

The gas analysis division continued to prosper under the command of A.E.M. with a succession of instruments, the most successful of which was the SB2, best seller for seventeen years. A.E.M. was also very active in the field of infrared interferometric spectrometers and was responsible for the design of I.R.I.S. This, was a large, high performance, far infrared instrument of limited appeal because of its high price. In about 1960 a working relationship was formed between A.E.M. and A. Gebbie of N.P.L. who had been working on a much simpler instrument based on the Michelson interferometer. This interferometer, well known as the Gebbie Cube, was marketed by Grubb.

In 1963 a new infrared development, inspired initially by J.D.S. Goulden of National Institute for Research in Dairying, reached a commercial stage with the marketing of an infrared milk analyser for estimating fat, protein, lactose and solids - not fat. The first models were hand operated but by 1969 the instrument was fully automated with a throughput of 230 samples per hour. In 1964 A.E.M. was appointed Technical Director of the Infrared Division of Grubb. In 1968 he retired from the company to care for his wife Greta who became seriously ill with multiple-sclerosis. She died in 1970.

A.E.M. was a founder member and chairman of the Infrared Discussion Group for many years and remained an active member until only a few months before he died.

He also supported the Newcastle-upon-tine branch of the Society of Chemical Industry holding a number of positions in office from 1949 and was honorary auditor at the time of his death. An active member of committees he was always ready with topics for lectures. His enthusiasm was borne out by the story told of him that he once sent a letter giving apologies for absence whilst on business in Peru.

A.E.M. was the author of many scientific publications including two books entitled “Infrared Instrumentation and Techniques 1966 and “Infrared Interferometric, Spectrometers” Vol. 8 of a series “Vibrational Spectra and Structure” 1980. He was an extremely good teacher and lecturer, able to present his subject in an easily understood manner. A recorded example was his presentation whilst Jubilee Memorial Lecturer for 1965, “Infrared Past, Present and Future” which may be found in Chem. md 1966.

A.E.M. was an exceptionally modest man having a remarkable capacity for keeping personally out of the limelight whilst regularly achieving in his chosen field. His dignified kindliness endeared him to his colleagues, many of whom became friends, and he will be sorely missed.

J. Shields.