

## In Memoriam

It was with a deep sense of loss that we learned of **Hugh Ford's** sudden death on January 1 at the age of 50. He was born in Oxford in 1936 and studied basic electronics at the E.M.I. School of Electronics, which led to the first part of his business life in various engineering posts with the E.M.I. group. He began working with broadcast equipment and was later responsible for electronics aspects of the installation of the group's first mainframe business computer installation, which was not a small project in those days. This combination of experience in both analog and digital technologies, rare in his generation, stood him in good stead in more recent years with the advent of digital recording. Finally, at E.M.I. he spent several years in a senior technical commercial role with their magnetic media activities.

In 1967 he left E.M.I. to start his own consulting and testing business, H. F. Engineering. His laboratories provided not only measurement capability on audio equipment of all kinds and consulting in professional recording but also specific services such as regular reviews for journals on audio electronics and media products. He worked a great deal on the legal aspects of recording, publishing papers, and maintenance and archiving of recorded materials.

Hugh was a fully chartered engineer and a member of the IERE and several societies such as the British Computer Society and the SMPTE. He was a fellow of the Royal Television Society and the AES. He was also active in AES administration (served as governor), and on many committees including chairmanship of the AES Working Group on Audio Measurement. He was an expert in matters of standards for digital audio recording. In all his activities he was a courteous, capable, yet firm contributor and organizer: the kind any society is fortunate in having.

As friends and colleagues of Hugh we developed a very special relationship with him: he was always a pleasure to work with. He never panicked when facts were in doubt and decisions were needed, never sacrificed professionalism to expe-



Hugh Ford

diency, and was able to see questions with complete honesty in full context.

We express our sympathy to his wife and family in their bereavement.

RAY GILSON  
ROY TAYLOR

**Hubert W. Pierce**, a life member and fellow, died on 1987 May 2, after a lingering illness.

Hubert was born in East Lansing, Michigan, in 1909. The Pierce family moved to the Los Angeles area in 1921. After graduating from high school he studied accounting. One of his first jobs was with Gay Engineering as their accountant. His next major position was with Kierulf Co., a large distributor of electronic components and high-fidelity equipment. During his employment there he obtained experience in accounting, purchasing, and marketing.

In 1950 Hubert was hired as general manager by Radio Recorders Equipment Co., a subsidiary of Radio Recorders Studios. The R. R. Equipment Co. was a retail distributor of professional tape recorders and high-fidelity music playback systems. As a member of the Radio Recorders family, Hubert became involved in the professional recording field. He successfully managed R. R. Equipment Co. for almost two years before leaving to become affiliated with Audio Devices. When Audio Devices, a national manufacturer of disk recording blanks and magnetic recording tape, established a West Coast distribution center in Glendale, California, Hubert became

office manager and purchasing agent until the parent company was sold to Capitol Records (E.M.I.) during the mid-1970s.

During the period from 1950 to 1967, Hubert devoted a great deal of his personal time working for the Los Angeles Section of the AES. He served several terms as section chairman and was chairman of the 1963 convention in Los Angeles. Hubert was elected Western Region vice president in 1964 and received the AES Award in 1965 and a fellowship in 1967. He was also an active member of the Hollywood Sapphire Group. Hubert's hobbies were music, photography, and collecting classic Thunderbird cars. He was a real auto buff and enjoyed driving his hopped-up classic Thunderbird. Hubert's many friends remember him as a talented, hard-working business executive. They also remember him as a warm, friendly, and amusing person. He was a great toastmaster with a repertoire of amusing stories or jokes.

HARRY L. BRYANT

**K. R. Smith**, a pioneer in the field of electroplating, died in Carmel Valley, California, 1987 April 22, at the age of nearly 86, after a brief illness.

Kobert Reynierson Smith—I doubt if anyone, even his best friends, ever knew his first and middle names, unless they owned one of his many patents—was born in Lebanon, Kentucky, and worked in the coal mines to earn money for his college education. After graduation he worked for such companies as General Electric and Brunswick and Decca records for whom he developed the first silver reduction process for the electroforming of pressing stampers. He is credited with manufacturing the first 16-in transcription for use in radio broadcasting.

In the late 1930s he was asked to engineer the very first "wired music" system, and it was K. R. who coined the word "Muzak," which has become synonymous with background music. He was executive vice president of Muzak Corp. from 1941—

1951, and there perfected the use of telephone lines for background-music use. He then established an electroforming and pressing plant on West 54th Street in New York City and devised the first high-speed copper-electroforming process able to "grow" a stamper in "only" 4 hours (today it takes 30 minutes). He was involved in the production of electroformed rollers for the manufacture of textured vinyl fabrics such as alligator, rattan, etc., and he remained an active consultant to some of America's most prestigious companies up to the time of his death.



K. R. Smith

I was indeed fortunate to have seen him at his home, in excellent spirits and reasonable health, only last February. K. R. was made an honorary member of the AES in 1980 for his contributions to broadcasting and record manufacturing. He was also much honored by the other AES, the American Electroplaters Society, whose lifetime achievement award he received just last December.

For us of the older generation, K. R. will never be forgotten. His cheerful disposition, sense of humor, and perfection in all things technical, remain a guiding beacon to our industry. He will be sorely missed.

STEPHEN F. TEMMER

**Alec Rangabe** died peacefully 1986 July 28 at the age of 78. Born in Crete and educated in England, he graduated in natural sciences from Cambridge. After a period of practical workshop experience he set up his own laboratory and worked on a number of new technologies, including gas discharge lighting and fluorescent techniques.

After his laboratory was bombed in the early part of the war, he joined a team of scientists gathered together under Professor Charles Ellis at Christchurch, Hants., to work on the development of a proximity fuse for anti-aircraft shells. The so-called VT radio fuse was the brainchild of Alec's cousin, A. F. H. Thomson, but without a rugged valve the concept could not work. Alec Rangabe was one of the men responsible for the successful development of a really rugged 8-mm valve capable of withstanding the shock of being fired from an AA gun. An important part of the achievement was the development of mass-production techniques in the U.K. which provided the ability to produce thousands of valves per hour. While development was getting under way in the U.K., the idea was rushed across to the United States. In fact the highly successful radio fuses in the U.K. anti-aircraft shells which defeated the V1 and took toll of German aircraft were American made.

Rangabe took the first valve to HiVac, a Ministry of Supply laboratory at Chesham, and then to SERL (the Services Electronic and Radio Laboratories) at Baldock where the short 8-mm VT radio fuse valve was perfected soon after the war ended. Sir Allen Clark of the Plessey Company, impressed with the mass production potential of these methods of making tiny rugged radio valves, invited Rangabe to join Plessey and set up a company to make them commercially. The laboratories which he set up at New Lane, Havant, for this purpose were unique in that the only raw materials used in valve manufacture were pure chemical and metal powders. Strong metallurgical and chemical laboratories were required to support the specialist manufacturing techniques. The postwar work at Havant led to the development of a miniature cold cathode, or heaterless valve with the low operating voltages of modern solid-state devices, but the story of how this potentially world-beating technology was overtaken by the transistor, and how the unique facility at Havant was dispersed, must be told elsewhere.

It is an irony of history that Alec

Rangabe's outstanding achievement was overtaken by the invention and almost unbelievably rapid development of the transistor. Rangabe knew more than most about the transistor but did not believe that it would be developed as rapidly as history proved. After leaving Plessey, he was able to give most of his time to his audio interests. In this field he was perhaps best known for Trutrak, a parallel tracking pickup arm based on a stainless steel float supported on silicone fluid, laterally guided by a patented system of opposing magnets. There were many practical difficulties with the system, and the way he solved these and measured the performance at each step was classic. Rangabe's many other inventions included the ElectroDuster which used electrostatic forces to remove dust from records, a cartridge damper which added mechanical resistance between the pickup head and the record to improve tracking at low frequencies, and an ultra-lightweight pickup which combined minute moving parts with electrostatic transduction.

Other devices included a vacuum pump of novel design, a meniscus relay with mercury the only moving part, insulation displacement connectors, and a simple method of manufacturing precision spirit levels which are supplied to a wide range of U.K. manufacturers. In his most recent work he had at last succeeded in solving the mysteries of gramophone record contamination—these being far more complex than the collection of dust in the grooves. At the time of his death he was working on new methods of cleaning records based on these findings.

Alec Rangabe had a remarkably wide knowledge of materials and processes, matched by a perpetual flow of ideas, many of them brilliant. The diligence with which he pursued them and the generosity with which he shared them with colleagues were an example to all who knew him.

DONALD BARLOW  
MONTY LEMMON  
RODERICK SNELL  
JOHN THOMPSON