

Editor's Note: This is an edited copy of an obituary written for the Australian IREE's *Monitor Journal*.

On August 2, 1989, **John Ernest Benson**, known affectionately to his friends as Ern, passed away at the age of 78. His loss is felt by a wide circle of friends and colleagues, among them the electroacoustics community, where he was continuing to contribute, especially to our understanding of loudspeakers, until his death. We are grateful to have had his friendship, encouragement and advice for so long, but our deep sense of personal loss is compounded with regret for the additional achievements he might have reached.

Ern Benson was born in 1911, educated at Sydney Technical High School and Sydney University. He graduated with a Bachelor of Science degree in 1932 and Bachelor of Engineering with First Class honors in 1934. Because there was a scarcity of engineering jobs during the Great Depression, he chose a Teachers' College Scholarship and obtained a Diploma of Education from Sydney University. When a position became available at the end of 1934, he joined the Research Laboratories of Amalgamated Wireless Australasia (AWA) Ltd.

He specialized in the study of piezoelectric crystals. Ten published papers resulting from his work in this field led to an M.E. from Sydney University, with First Class honors and the University Medal in 1945.

Ern's life was permeated by his Christian belief and his devotion to the Anglican Church, as a Sunday School teacher, a member of Synod and of the World Council of Churches. That devotion eventually led him to applying the art of electroacoustics to the service of the Church.

In 1939-40, with the assistance of his wife Mavis, he constructed an electric organ following the Hammond principle patented in 1936. The tones were produced by steel wheels rotating under magnetic pickup coils. In 1944 for St. Anne's Church, Ryde, NSW he built the first model of a new musical instrument, a keyboard operated carillon, in which sounds produced by tubular bells were amplified and radiated by loudspeakers from the bell tower. AWA



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commercialized the design and installed a number of chime carillons in churches throughout the country in the late 40s.

From 1947, when AWA inaugurated a television section at its Ashfield plant, Ern was involved in television. In particular, his paper "A Survey of the Methods and Colorimetric Principles of Color Television," in the *Proceedings of the IRE (Aust.)* for July and August 1951, was a landmark, both for the novelty of the material it presented and for the clarity of its exposition. For at least one younger author it became a life-long model for writing a technical paper. He continued this involvement, with a number of clearly presented demonstrations and lectures throughout the 50s and 60s.

In the late 50s Ernest had been involved in designing loudspeakers, in particular, a stereophonic system for the large auditorium of Sydney Town Hall. In 1960, when AWA submitted a tender for Electroacoustics and Signalling Systems for the Sydney Opera House, which was then being built, the fine performance of the Sydney Town Hall installation was a deciding factor in acceptance of AWA's tender by the Sydney Opera House Trust. When the Opera House opened in October 1973, fidelity of reproduction of his electrically tapered column loudspeakers was an outstanding feature and one of the contributions to the Opera House installation for which AWA and Ern personally received a Duke of Edinburgh prize for industrial design in 1972.

Ern published papers on the "Theory and Design of Loudspeaker Enclosures," in three parts in the *Proceedings*

of the *IREE (Aust.)* and the *AWA Technical Review* between 1969 and 1972. These were followed by "An Introduction to the Design of Filtered Loudspeaker Systems," first published in the *AWA Technical Review* in 1973, and reprinted in 1975 in the *Proceedings of the IREE* and *Journal of the Audio Engineering Society*, and followed again by more detailed work on loudspeaker systems incorporating electrical filters in the *AWA Review* in 1974 and 1975. These seven papers constitute some of the most important work published on loudspeaker design. Because of their wealth of detail, new insights and clarity of presentation, they are still being studied 15 to 20 years later. Along with his earlier work on piezoelectric crystals and television, they were the basis of an award of Doctor of Science in Engineering by Sydney University in 1975.

Besides his highly innovative engineering work and his devotion to many aspects of the Anglican Church, Ern edited the *AWA Technical Review* for 27 years up to his retirement from AWA in 1975. From 1975 on, he continued to apply his expertise in electroacoustics to the design of loudspeakers for high quality sound reproduction, in homes and for a number of large buildings, halls and churches, including St. Andrew's Cathedral in Sydney. He was also a consultant for loudspeaker design, incorporating his electrically tapered columns, in the new national Parliament House in Canberra that opened in October 1988.

Dr. Benson was a fellow of the Institution of Radio and Electronics Engineers Australia (IREE), the Institution of Electrical Engineers (IEE) and the Institution of Engineers Australia (IE Aust), and a member of the Audio Engineering Society Inc. (AES) and the Australian Acoustical Society (AAS).

Those of us who knew him and worked with him are deeply aware of the contribution he has made to our lives by his example, his encouragement, his diligence, his kindness, his generosity, and his wisdom on all matters, including electroacoustics. We are grateful for the important contributions he made to society during his life. We will remember him as long as we have memory.

NEVILLE THIELE