

**John K. Hilliard**, eminent audio engineer, died on March 21 at the age of 88. An expert in the field of acoustical engineering, Hilliard was internationally known for his work in motion picture sound.

He was born in Wyndmere, North Dakota, in 1901. He earned a B.S. degree in physics at Hamlin University, St. Paul, Minnesota, in 1925 and did his graduate work in electrical engineering at the University of Minnesota. In 1951 he received an honorary doctorate from the University of Hollywood.

Dr. Hilliard spent 14 years at MGM working on the development of recording and reproducing film and tape equipment and the design of microphones and loudspeakers for theaters. For many years he also worked on high-intensity environmental sound equipment. From 1932 to 1960 Dr. Hilliard was vice president of the advanced engineering department at Altec Lansing where he was responsible for transducers and communication equipment.

The author of *Motion Picture Sound Engineering* published in 1938, Dr. Hilliard wrote more than 80 articles on sound during his career. He was active in numerous professional societies including the AES (fellow), the IEEE (fellow), SMPTE (fellow), ASA (fellow) and a recipient of the John H. Potts Memorial Award (now the Gold Medal).

The recent death, 1989 March 21, of **John Kenneth Hilliard** marked the end of many years of unparalleled achievements in the audio field and removed one of the most remarkable men I had the good fortune to know and work with.

With a B.S. degree in physics from Hamline University in 1925, and post-graduate work at the University of Minnesota (1926-1927), he was soon hard at work as a transmission engineer for Metro-Goldwyn-Mayer, working with the legendary Douglas Shearer (1933-1942). He was a key part of a team that won an academy award for sound. During part of World War II he was at MIT as a project engineer and in 1943 moved to



John K. Hilliard (1901-1989)

Altec-Lansing Corp. as chief engineer. During that time, Altec produced MAD (magnetic anomaly detection equipment) for the Navy. John was chief engineer from 1943-1962—Golden years for theater sound equipment as the motion picture world went stereo. He then became director of the LTV Research Center in Anaheim, California, from 1962 until his formal retirement. After retirement he started and successfully ran his consulting business dealing in noise control problems.

Hilliard wrote extensively on the measurement of phase response in audio systems. His book, *Motion Picture Sound Engineering*, published in 1938, is still a thoroughly up-to-date reference, which it has been to two generations of audio engineers. I treasure a personally autographed copy by the author.

It was my good fortune to be assigned as liaison between Altec and LTV research by the late "Mo" Morris from 1965 until 1973. During that period, John Hilliard worked on telephone voice frequency transmission equipment for use at Cape Canaveral, and for the worldwide telephone system for the Air Force. We worked together on introducing 1/3-octave equalization to the motion picture industry as well as new versions of loudspeakers for motion picture use. When William Snow, of Bell Labs fame, retired from Besset-Berman he came to work with Hilliard. I had the further privilege of working with both these pioneers and receiving their assistance in evaluating the proper application of 1/3-octave analyzers and equalization in the real world. It

was Hilliard's letter to the president of Altec that rapidly brought the 1/3-octave equalizer to the marketplace. His analysis of the insolvable problems of systems at the time and his view of the virtues of the new approach lent support to my efforts that were never forgotten.

During the late 50s and early 60s, I would drive John around to the companies involved in military communication work to discuss applications of the first transistorized repeater amplifiers produced by Altec. John Hilliard had a way of establishing instant rapport with any serious engineer and was soon deeply involved in his most complicated design problems—always in John's gifted solution-oriented way.

Rare individuals retain all their mental acuity and energy of youth into their eighties. John Hilliard was so blessed.

Don Davis

In 1959, **John Hilliard** was asked to consolidate the classified research and development activities of the Ling-Altec Corporation. He formed Ling-Altec Research Center, answering directly to its president, James Ling. John continued to foster the growth of the electroacoustics portion of the corporation's research efforts. Within a few years the corporation consolidated the research laboratories of Vought Aeronautics Corporation to form LTV Research Center. Hilliard directed its Western Division.

John's interest during the 60s centered on three broad areas: electroacoustics, applied mechanics and telecommunications. He motivated company and government-sponsored developments, which included:

- The air modulator for the generation of high intensive sound,
- Miniature transducer systems for high-temperature and space vehicle measurement applications,
- Military listening systems,
- Technology for sonic boom simulation and ballistics with applications to weapons silencing, and
- Improvements in long-line telephone communications.

Corporate policy required John's retirement from LTV in 1968. The Western Division had grown to more than 50 scientists and engineers.

For John, retirement was only a misguided corporate policy. He continued to be involved in all aspects of the Western Division's operations as his activity as a consulting engineer evolved. By 1970, John was well known to architects within the Orange County area; his counsel was sought in the design of public spaces, churches and residential developments.

During a portion of the early 1970s, John directed the operations of the Bio-Medical Engineering Corporation. This group offered hearing conservation services and under John's guidance became a leader as consultants to engineers, architects and public agencies throughout Southern California. John formed his own consulting group, J.K. Hilliard and Associates, in the mid 1970s. As consultants, John's group provided acoustical engineering services on a wide range of projects. Most notable was his influence on multifamily residential construction standards. He encouraged developers, building officials, and a host of public agencies to upgrade the acoustical performance of separation assemblies, plumbing installations, and the insulation from unwanted exterior noise for new condominium and apartment construction. His attention to details and persuasive personality have significantly influenced the requirements for noise control to the benefit of tens of thousands of homeowners.

J.K.Hilliard and Associates was disbanded in 1985. John again retired, this time to his love of music, his garden and a continuing passion for his chosen field—acoustics. At a gathering of his friends and colleagues one week after his death, it was reported that he had collaborated on the design of an audio equipment sales installation, specifying equipment, wall configurations and the other aspects of its acoustical design: this just a few months prior to his sudden death on March 21.

J. J. Van Houten

It is very easy to love someone for whom you have great admiration. So it was that of the hundreds of people who were even slightly a part of **John Hilliard's** life, many loved him deeply. His energy and enthusiasm were infectious; his contribution to any project was complete dedication, whether the original concept was his or yours. Life was for living and doing, not for keeping score. This became abundantly clear to me with the passage of time.

I first met John at an AES reception in the early 70s. Not content with retirement, he had recently opened his own consulting firm. This new venture drew on his long experience in the acoustical and noise fields. As always John was compelled to contribute to these disciplines as he had done for the movie industry. He was an authority involved in the formulation of noise control legislation in California that became a model for the rest of the nation. He conducted seminars for architects and builders to acquaint them with the basic principles of noise control in dwellings and in industry, and he was frequently called upon to solve sound problems for the Department of Defense.

Privileged to work with John during this period until his second retirement in 1985, I benefited from the association in many ways. Since then his close friendship was a comfort and a joy. My heart grieves for his wife, Edna, and we mourn this loss as do all friends and acquaintances.

Cecil R. Cable

**Milton T. (Bill) Putnam**, founder of Universal Recording in Chicago, United and Western Recording in



Bill Putnam (1920-1989)

Hollywood, Coast Recorders in San Francisco, and United Recording Electronics Industries (UREI) died on April 13 at the age of 69.

Bill was born in Danville, Illinois, in 1920 and later studied at Illinois Institute of Technology in Chicago. He began his career in radio broadcasting at WDAN and later worked as chief engineer of WDWS in Champaign, Illinois.

From 1941, when he published his first article on high fidelity, until a few days before his death, Bill was involved in research projects involving all aspects of electronics, acoustics, and amateur radio. An avid boating enthusiast, he would often use his boating knowledge in other fields, and his electronics techniques to solve nautical problems.

Many of the recording industry's favorite toys are the product of Bill's fertile imagination and hard work. These include the UREI 800 series monitors, the famous 1176 limiter, and the first low-noise tube microphone preamplifier. As a recording engineer he pioneered half-speed record mastering, the "Double Feature" record, and was involved in many of the top ten record releases in the 40s, 50s and 60s. For many years, he was the only engineer that Frank Sinatra would allow in the booth.

From the beginning Bill shared his knowledge with everyone. He wrote numerous articles for trade publication, conducted seminars and classes, and gave advice to anyone who would ask. Bill was an instructor at the BYU Audio Recording Seminars in the 1970s, and received their Harris Fine Arts Award. He was a fellow and honorary member of the Audio Engineering Society, and an officer of the Chicago Acoustical and Audio Group. A member of the Hollywood Sapphire Group, he also had Grammy nominations from NARAS.

Bill Putnam not only taught us how to record, but he taught us how to build studios. He also designed and built the equipment to make them work.

Shelley Herman