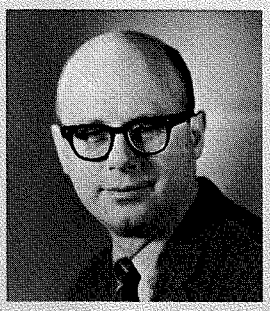
The David Sarnoff

The 1970 Individual Awards for Science

Dr. Perry Niel Yocom of the Materials Research Laboratories, RCA Laboratories, Princeton, N.J. is a recipient of the 1970 David Sarnoff Outstanding Achievement Award in Science . . . "for outstanding research leading to superior inorganic compounds for luminescent and electro-optic applications."



Dr. Perry Niel Yocom

Dr. Yocom has prepared many new sophisticated inorganic materials by a wide variety of synthesis techniques, and has made important contributions not only to their preparation, but to their characterization and utilization. Of particular significance is his contribution to improved understanding of the relationship between the synthesis of inorganic compounds and their luminescent properties, including the mechanisms of energy transfer in such systems. His work has had an important impact on the use of inorganic compounds as phosphors in commercial color television kinescopes. In addition, he has synthesized several other phosphors of practical importance, including small-particle high-brightness silicates as penetration phosphors; a very efficient *ZnS:Tm* blue-emitting phosphor having a narrow spectral characteristic, which made possible the development of a television system that can be viewed in direct sunlight with the aid of interference filters; and phosphors, double-doped with rare-earth ions, which convert the infra-red emission of a *GaAs* electro-luminescent diode to green or blue light. These latter phosphors are equivalent to the best yet produced. In addition to his contributions to the development of phosphors, Dr. Yocom has made very significant contributions to the synthesis of materials used as solid-state lasers. In the field of photochromic materials, Dr. Yocom has succeeded in synthesising $CaTiO_3$*:FE, Mo* with the highest known concentration of switching centers.

The 1970 Individual Awards for Engineering

A. Lichowsky of the Electromagnetic and Aviation Systems Division, Van Nuys, Calif., is a recipient of the David Sarnoff Outstanding Achievement Award in Engineerng . . . "for outstanding technical leadership and contributions in the fields of computer drum memories and microelectronic devices."

A. Lichowsky

Mr. Lichowsky has, in large measure, been responsible for much of RCA's success in drum memories, fuse devices, and anti-intrusion systems. As the result of a detailed analysis conducted in 1964, he found that drum memories could not be used in high-reliability applications. He then developed a light-weight, high-reliability drum memory which would meet a wide range of environmental requirements. This work resulted in several commercial and military design, development, and production contracts that have been worth more than $8 million. His contributions in microelectronics have similarly encompassed a broad range, starting with the analysis of user requirements and applications—leading through the various stages of development, design, and construction. In 1968, he designed the first three-ampere output stage of a monolithic electronic proximity fuze—a much better device than was previously available in the industry. This success convinced Mr. Lichowsky that higher current devices could be built, and a proposal was written which resulted in the award of a contract for a 25-ampere output stage to drive a ferrite phase shifter for electronically steered antennas. He has developed numerous other unique micro-electronic devices and techniques over the past several years. Mr. Lichowsky recently developed a new concept for an all-solid-state LSI computer mass memory which could replace electro mechanical memory devices. He has discovered a combination of new techniques in microcircuit-LSI and memory-cell design which shows promise of making such a concept cost-competitive. Successful demonstration of such a device could have a major impact on EASD business, as well as enhance RCA's position in the general computer market.

Jarrett L. Hathaway of National Broadcasting Company, is a recipient of the 1970 David Sarnoff Outstanding Achievement Award in Engineering . . . "in recognition of his many outstanding technical innovations in the field of broadcasting."

Jarrett L. Hathaway

Mr. Hathaway has been instrumental in developments which are highly useful in modern day broadcasting. Many of his original concepts have matured into systems and apparatus of great value to the National Broadcasting Company. Based on his early design of a radio microphone (which sold over the world by RCA), he has developed the present-day highly sophisticated radio microphone systems. These modern systems represent a new high in reliability of broadcast quality two-way communications without cable connections. The new radio microphones became practical through the application of his experience and knowledge; also through his persistence in obtaining a new frequency allocation for such devices. He also invented and developed the "interleaved sound" system which utilizes only the video circuit in supplying both picture and sound to selected stations on the network whenever there is a failure of the regular sound circuit. This unique system has saved NBC hundreds of thousands of dollars in rebates resulting from sound failures. He has developed automatic audio gain controls in cooperation with the Commercial Electronic Systems Division. The first units manufactured by RCA were based on his original equipment and since then, up to the advent of solid state components, all have followed principles described in his several patents. During the 1950's and 1960's, he developed ultra-portable camera equipment for picking up news programs such as ball games and national political conventions. His efforts allowed NBC to be the only network which obtained satisfactory close-ups via carryable cameras from the floor during the 1960 and 1964 conventions. By 1968, with new ultra-portable color cameras, he was again instrumental in successfully integrating them into programming equipment at the national politcal conventions.

Outstanding Achievement Awards

RCA's highest technical honors, the annual David Sarnoff Outstanding Achievement Awards, have been announced for 1970. Each award consists of a gold medal and a bronze replica, a framed citation, and a cash prize.

The Awards for individual accomplishment in science and in engineering were established in 1956 to commemorate the fiftieth anniversary in radio, television and electronics of David Sarnoff. The awards for team performance were initiated in 1961. All engineering activities of RCA divisions and subsidiary companies are eligible for the Engineering Awards; the Chief Engineers in each location present nominations annually. Members of both the RCA engineering and research staffs are eligible for the Science Awards. Final selections are made by a committee of RCA executives, of which the Executive Vice President, Research and Engineering, serves as Chairman.

This year, faced with two candidates for the Individual Award in Engineering whose achievements were very different but equally outstanding, the selection committee took the exceptional action of making two awards in that category.


Dr. R. E. Simon


Dr. A. H. Sommer


Dr. J. J. Tietjen


Dr. B. F. Williams

The 1970 Team Award for Science

Dr. Ralph E. Simon, Dr. Alfred H. Sommer, and **Dr. Brown F. Williams** of the Conversion Devices Laboratory, Electronic Components, Princeton, N.J., and **Dr. James J. Tietjen** of the Materials Research Laboratory, RCA Laboratories, Princeton, N.J., are recipients of the 1970 David Sarnoff Outstanding Team Award in Science . . . "for the conception and sucessful embodiment of new principles and materials technology in markedly superior photomultiplier tubes."

Drs. Simon, Sommer, Tietjen, and **Williams** have made outstanding contributions to the development of a new line of photomultiplier tubes which exhibit superior pulse-height resolution characteristics and improved signal-to-noise ratios. Applying a new principle—called negative electron affinity—which allows much higher secondary emission and photoemission in photo multiplier dynode sections, the group developed the new materials technology required to incorporate this principle and then cooperated with Electronic Components in Lancaster, Pa., to develop the means for manufacturing the new tubes. Two tube types—RCA 8850 and RCA 8851—are already commercially available, and approximately twenty five new tube types have been developed. It is estimated that this new line of photomultipliers will lead to approximately $2 million in new business for 1970 alone. In addition, the improved tubes are no more costly to manufacture than previous photomultipliers—providing substantial profit increases.


M. H. Burmeister


H. U. Burri


W. W. Carter


F. A. Hartshorne


M. J. Kurina


R. J. Mason


R. A. Morley


J. J. Napoleon


H. L. Slade


L. B. Wooten


D. W. Wern


Dr. M. Weiss

The 1970 Team Award for Engineering

Mark H. Burmeister, Hans U. Burri, Miles J. Kurina, Robert A. Morley, Herbert L. Slade, and **Lynn B. Wooten** of Aerospace Systems Division, Burlington, Mass.; **Frank A. Hartshorne** and **Daniel W. Wern** of Defense Communications Systems Division, Camden, N.J.; **James J. Napoleon** of Electronic Components, Harrison, N.J., and **Wayne W. Carter, Robert J. Mason,** and **Dr. Manfred Weiss** of Missile and Surface Radar Division, Moorestown, N.J. are recipients of the 1970 David Sarnoff Outstanding Team Award in Engineering . . . "for design, development, and construction of highly successful major electronic systems for the Lunar Module."

Messrs. Burmeister, Burri, Carter, Hartshorne, Kurina, Mason, Morley, Napoleon, Slade, Wern, and **Wooten** and **Dr. Weiss** developed and implemented the Lunar Module electronic systems, which performed flawlessly during the lunar landings and rendezvous of Apollo XI and XII. The ability of the equipment to meet the stringent performance and reliability requirements in a space environment was fully demonstrated in advance of the actual manned lunar mission. This effort, which took more than seven years and involved over $250 million worth of delivered equipment, consisted of four general tasks: 1) system development and mission analyses in which RCA participated with Grumman and NASA to determine the design of the overall mission, the hardware system parameters, and the manual and backup modes of operation; 2) development of the radar that provided precise direction, distance, and rate-of-change information during the critical rendezvous operation of the Lunar Module and Command Module; 3) development of the attitude and translation control assembly (ATCA) and the descent engine control assembly (DECA) which provided accurate attitude and position information to the Lunar Module and 4) development of the communications subsystem which provided the sole radio link between the Lunar Module and the earth while the Lunar Module was in flight and on the lunar surface. RCA's total participation in this program was characterized by a high level of interdivisional cooperation, individual technical excellence, and a sense of dedication to the overall mission goals. The successful culmination of these efforts was witnessed by more people than any other single event in history.