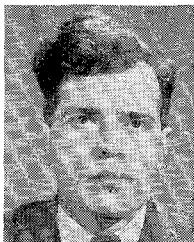


# Contributors

A. E. Barrington was born on March 22, 1921, in Vienna, Austria. He received the B.S. and Ph.D. degrees from the University of London, England, in 1947 and 1950, respectively.



A. E. BARRINGTON

From 1950 to 1952, he was a tube design engineer at Machlett Laboratories, Inc., and from 1952 to 1955 a senior scientific officer with the British Admiralty engaged in microwave tube research. He then joined the Electrical Engineering Department at Queen Mary College, University of London, as Harwell Research Fellow and lecturer where he participated in a linear accelerator project sponsored by the Atomic Energy Authority. He is now a Research Fellow on the Cambridge Electron Accelerator and lecturer in applied physics at Harvard University.

Dr. Barrington is an associate member of the Institution of Electrical Engineers.



Howard E. Bussey (SM'56) was born in Yankton, S. D., on September 14, 1917. He attended Yankton



H. E. BUSSEY

College and George Washington University, Washington, D. C., receiving from the latter the B.A. degree in mathematics in 1943, and the M.S. degree in physics in 1951. He continued his studies at the University of Maryland, College Park, and the University of Colorado, Boulder.

His military service included meteorological studies at Massachusetts Institute of Technology, Cambridge, Mass., and duties as a forecasting and a radar-weather officer.

In 1946, Mr. Bussey joined the Central Radio Propagation Laboratory of the National Bureau of Standards, Washington, D. C., to do tropospheric propagation research. In 1951 he transferred to the Radio Standards Division of the same Laboratory to do microwave physics research. He has been the project leader for microwave dielectric and magnetic measurements since 1956.

He is a member of the American Physical Society, American Meteorological Society, RESA, Commission I of the International Scientific Radio Union, and Sigma Pi Sigma.

Seymour B. Cohn (S'41-A'44-M'46-SM'51-F'59) was born in Stamford, Conn., on October 21, 1920. He received the B.E. degree in electrical engineering from Yale University, New Haven Conn., in 1942, the M.S. degree in communication engineering, and the Ph.D. degree in engineering sciences and applied physics from Harvard University, Cambridge, Mass., in 1946 and 1948.

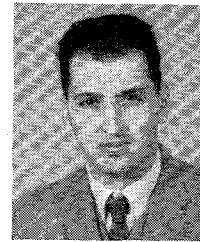
From 1942 to 1945 he was employed as a special research associate by the Radio Research Laboratory of Harvard University, and also represented that laboratory as a technical observer with the U. S. Army Air Force in the Mediterranean theater of operations. He worked at Sperry Gyroscope Company, Great Neck, N. Y., from 1948 to 1953, where he held the position of research engineer in the microwave instruments and components department. From 1953-1960, he was with the Stanford Research Institute, Menlo Park, Calif., as head of the Microwave Group and, since 1957, as manager of the Electromagnetics Laboratory. In July, 1960, he joined Rantec Corporation, Calabasas, Calif., as Vice President and Technical Director.

Dr. Cohn is a member of Tau Beta Pi and Sigma Xi. He is currently serving on the PGMTT Administrative Committee.



S. B. COHN

J. Dekleva was born on January 4, 1925, in Ljubljana, Yugoslavia. He graduated in 1949 from the University of Ljubljana.



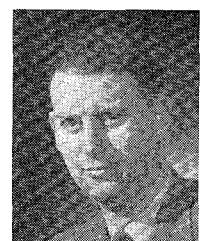
J. DEKLEVA

In 1951 he joined the J. Stefan Institute in Ljubljana as a member of the scientific staff and became head of the laboratory for mass spectrometry. In 1956 he received the D.Sc. degree for an investigation of the properties of a non-magnetic RF mass spectrometer. Since

1956 he has been a research fellow in physics on the Cambridge Electron Accelerator at Harvard University where he has been concerned primarily with the design of the synchrotron RF system.



D. W. Downton was born in Birmingham, England, on May 10, 1921. After service in the Royal Air Force from 1941 to 1946, he rejoined the General Post Office, where he was engaged on single sideband and carrier telephony. He completed studies for the City and Guilds Certificate in Telecommunications, and then joined the Admiralty in 1949. Since 1951 he



D. W. DOWNTON

has been at the Services Electronics Research Laboratory, Baldock, England, and has lately been concerned with gas discharge tubes for use with high power microwave duplexers.



Arthur J. Estin (S'49-A'50-M'54) was born in New York, N. Y., on February 15, 1927. He received the B.E.E. degree from Cooper Union, New York, N. Y., in 1949 and the M.S. degree in physics from the University of Colorado, Boulder, in 1958.



A. J. ESTIN

Mr. Estin has been associated with the National Bureau of Standards since 1948. From 1950 to 1954, he was on the



R. L. COMSTOCK

Murray Hill, N. J., where his work was concerned with ferrite device development. He now holds an appointment as research assistant in the W. W. Hansen Microwave Laboratory at Stanford University, Stanford, Calif., where he is studying for the Ph.D.

Mr. Comstock is a member of Tau Beta Pi, Eta Kappa Nu, and Sigma Xi.

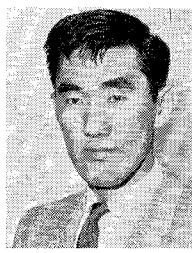
staff of the Cheyenne Mountain Field Station in Colorado Springs, Colo., engaged in problems of tropospheric propagation of VHF. In 1955 he transferred to the Radio Standards Division of the NBS Boulder Laboratories where he has been engaged in problems of microwave physics. He was in charge of microwave noise research and is presently investigating problems of microwave-plasma interactions.

He is a member of the American Physical Society, RESA, and Tau Beta Pi.

Stephen K. Ichiki was born in Sacramento, Calif., on September 11, 1924. He received the A.B. degree in physics from the University of California, Berkeley, in 1950, and the M.S. degree in physics from Stanford University, Stanford, Calif., in 1959.

From 1950 to 1956, he was at the U. S. Naval Radiological Defense Laboratory, San Francisco, Calif., working in radiochemistry, autoradiography and aerosol research. He joined Sylvania Electric Products, Inc., Mountain View, Calif., in 1956, and has been doing work in gaseous electronics.

Mr. Ichiki is a member of the American Physical Society.



S. K. ICHIKI

Clifford E. Fay (A'26-SM'45-F'56) was born on December 2, 1903, in St. Louis, Mo. He received the B.S. degree and the M.S. degree in electrical engineering, both from Washington University, St. Louis, Mo.

In 1927 he joined Bell Telephone Laboratories, Murray Hill, N. J., where he was engaged in the development of high-power electron tubes until 1955. More recently, he has been concerned with the development of microwave ferrite devices.

Mr. Fay is a member of Sigma Xi and Tau Beta Pi.



C. E. FAY

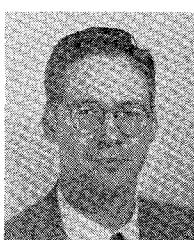
concerned with the development of microwave ferrite devices.

Mr. Fay is a member of Sigma Xi and Tau Beta Pi.

Robert M. Hill was born in New York, N. Y., on September 20, 1926. He received the B.A. degree in physics from Cornell University, Ithaca, N. Y., in 1949, and the Ph.D. degree in physics from Duke University, Durham, N. C., in 1953. His dissertation was done in the field of microwave spectrum of oxygen.

He joined Sylvania Electric Products, Inc., Mountain View, Calif., in 1953, and has been doing research in plasma and solid-state physics since then.

Dr. Hill is a member of Sigma Xi and the American Physical Society.



R. M. HILL

P. D. Lomer was born in Cornwall, England, on May 17, 1928. He received the B.S. degree in physics in 1948, and the M.S. degree in 1950, both from the University College of the South West, Exeter.

He then joined the Services Electronics Research Laboratory, Baldock, England where he has been studying gas discharge devices with particular reference to microwave duplexers, and more recently, pulsed neutron sources.

Mr. Lomer is an associate member of the Institute of Physics.



P. D. LOMER

George L. Matthaei (S'49-A'52-M'57) was born in Tacoma, Wash., on August 28, 1923. He received the B.S. degree in electrical engineering from the University of Washington, Seattle, Wash., in 1948. He received the Ph.D. degree from Stanford University, Stanford, Calif., in 1952.

While at Stanford University, he was a research assistant in the Electronics Research Laboratory, where he did research on network synthesis. In 1951, he joined the faculty of the Division of Electrical Engineering of the University of California, Berkeley, where he was an assistant professor. He continued research on network synthesis, and supervised graduate student research in that field. During 1955 to 1958, he was a member of the technical



G. L. MATTHAEI

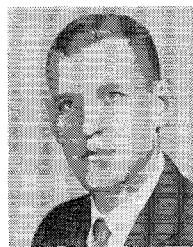
staff of the Ramo-Wooldridge Corp., Los Angeles, Calif. He was engaged in system analysis and research on microwave components. In September, 1958, Dr. Matthaei joined the staff of Stanford Research Institute, Menlo Park, Calif., where he is assistant head of the Microwave Group in the Electromagnetics Laboratory.

He is a member of Sigma Xi, Tau Beta Pi, and the Tensor Club of Great Britain.



Richard J. Mohr (M'58) was born in New York, N. Y. on April 12, 1930. He received the B.S.E.E. degree from the College of the City of New York, N. Y., in 1952 and the M.S.E.E. degree from the Polytechnic Institute of Brooklyn, Brooklyn, N. Y., in 1957.

From 1952 to 1955, he was employed by the Naval Materiel Laboratory, Brooklyn, N. Y., where he evaluated microwave electron devices for military application. From 1955 to 1958, he was with Airborne Instruments Laboratory, Melville, N. Y., engaged in the design of special-purpose, low-noise receiving equipment. At FXR, Inc., Woodside, N. Y., from 1958 to 1960, he was responsible for the development of microwave components and systems. Since September of 1960, Mr. Mohr has been employed by Microwave Dynamics Corp., Plainview, N. Y., where he heads the microwave development section.



R. J. MOHR



Bunichi Oguchi (SM'58) was born on November 21, 1921, in Nagano Prefecture, Japan. He received the B.S. degree in electrical engineering in 1943, and the D.Eng. degree in 1951, from the University of Tokyo, Japan.

In 1948, he joined the Electrical Communication Laboratory of the Nippon Telegraph and Telephone Public Corp. and has been engaged in research on microwave components, antennas, solid state applications, and low-loss waveguide transmission. From September, 1958, to October, 1959, he was on leave from the laboratory, and was working at the Microwave Research Institute of the Polytechnic Institute of Brooklyn, Brooklyn, N. Y., as a research associate.

Dr. Oguchi is a member of Sigma Xi, the Institute of Electrical Communication Engineers of Japan and the Institute of Electrical Engineers of Japan.



B. OGUCHI

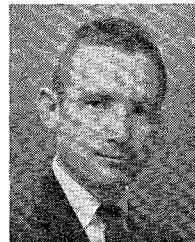
Seymour Okwit (A'55) was born on August 31, 1929, in New York, N. Y. He received the B.S. degree in physics from Brooklyn College, Brooklyn, N. Y., and the M.S. degree in applied mathematics and physics from Adelphi College, Garden City, N. Y., in 1952 and 1958, respectively. He is presently working toward the Ph.D. degree in mathematical physics. From 1952 to 1954, he was in the armed forces. He was assigned to the detection division of the Chemical and Radiological Laboratories of the Army Chemical Center Edgewood, Md., where he did extensive development work on instrumentation for the detection and analysis of the poisonous "G" nerve gases. Detection instruments upon which he has worked include an infrared scanning system and a system utilizing microwave spectroscopy. From 1954 to 1955, he was associated with the radar department of Arma Corporation, Long Island, N. Y., where he was concerned with boresight studies on monopulse antennas. He joined the Airborne Instruments Laboratory, a division of Cutler-Hammer, Inc., Melville, N. Y., in November, 1955, as an engineer in the Department of Applied Electronics, where he was concerned with the design and development of RF, IF, and microwave components and systems. Since 1958, he has been responsible for, and has performed considerable theoretical and experimental work on solid-state devices such as low-loss circulators, low-level ferrite limiters, and cavity and traveling-wave masers. He is now a group leader in the Applied Electronics Department at AIL,

and is currently directing programs in the development of advanced solid-state devices including masers, parametric amplifiers, and novel ferrite components.



S. OKWIT

J. R. Rees was born on February 17, 1930, in Peru, Ind. He received the B.A. degree in 1951, the



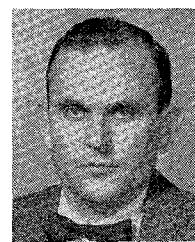
J. R. REES

M.S. degree in 1955 and the Ph.D. degree in 1957 from Indiana University, Bloomington.

He has been working on the Cambridge Electron Accelerator since 1957, where he has primarily studied the design and construction of the Radio Frequency accelerating system.

Dr. Rees is a member of the American Physical Society.

Kenneth W. Robinson (S'45-A'49-M'55) was born on June 30, 1925, in San Diego, Calif. He received the M.S. degree in electrical engineering from the California Institute of Technology, Pasadena, in 1948, and the Ph.D. degree in physics from Princeton University, Princeton, N. J., in 1955.



K. W. ROBINSON

From 1948 to 1952, he was employed at the Radio Corporation of Amer-

ica Laboratories at Princeton, N. J. Since 1955, he has been a research fellow at Harvard University, Cambridge, Mass., on the staff of the Cambridge Electron Accelerator.

Dr. Robinson is a member of the American Physical Society and Sigma Xi.

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George E. Schafer (SM'57) was born in Lincoln, Neb., on April 27, 1922. He received the B.A. degree in physics from Macalester College, St. Paul, Minn., in 1943, the M.A. degree in physics from the University of Minnesota, Minneapolis, in 1949, and the Ph.D. degree in physics from the University of Colorado, Boulder, in 1958.



G. E. SCHAFER

He served as a weather officer in the United States Air Force from 1943 to 1946, taught physics from 1948 to 1950, and joined the National Bureau of Standards, Boulder, Colo., in 1951. He is presently engaged in work on microwave attenuation and field strength standards.

Dr. Schafer is a member of the American Physical Society, American Association of Physics Teachers, the Colorado and Wyoming Academy of Science, RESA, and Sigma Xi.

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Leo Young (M'54-SM'57), for a photograph and biography, please see page 470 of the July, 1960, issue of these TRANSACTIONS.

### SYMPOSIUM ISSUE

A large group of papers from the 1960 National Symposium held at San Diego, Calif., will appear in the January, 1961, issue of the IRE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES.