

Contributors to this Issue

M. R. AARON, B.S. in E.E., 1949 and M.S. in E.E., 1951, University of Pennsylvania; Bell Telephone Laboratories, 1951—. He first worked on analysis, design and synthesis of transmission networks for L3 and submarine cable systems. From 1954 to 1956 he supervised a group concerned with design of networks for the L3 system. Since 1956 he has been in charge of a group engaged in systems analysis of PCM. Member I.R.E.

LEE G. BOSTWICK, B.S.E.E., 1922, University of Vermont; American Telephone and Telegraph Company, 1922-26; Bell Telephone Laboratories, 1926-61 (Ret.). Mr. Bostwick's first assignment was on early Bell System public address and program transmission projects. After becoming a member of the Laboratories in 1926, he participated in research initially on free field acoustic measuring techniques and later on the advance development of electroacoustic instruments including wide range loud speakers for theatres. During World War II, he contributed to the development of electrodynamic forms of underwater sound projectors, underwater acoustic measuring techniques, and sonar systems. During the years following he worked in apparatus development on the vibrational mechanics of switching apparatus and on tuned reed filters and selectors. Fellow, Acoustical Society of America, American Association for Advancement of Science; member I.R.E., American Institute of Physics, Phi Beta Kappa.

CHARLES J. BYRNE, B.S.E.E., 1957, Rensselaer Polytechnic Institute; M.S., 1958, California Institute of Technology; Bell Telephone Laboratories, 1958—. At the Laboratories he has investigated fast transistor logic, instrument noise in seismometers, and synchronization of digital systems. Member I.R.E., Sigma Xi, Eta Kappa Nu, Tau Beta Pi.

S. GELLER, A.B., 1941, and Ph.D., 1949, Cornell University; DuPont Postdoctoral Fellow at Cornell, 1949-50; Du Pont Company, 1950-52; Bell Telephone Laboratories, 1952—. At the Laboratories he has specialized in studies of crystal structure, with emphasis on crystal chemistry

studies and the relation of the properties of crystals to their structures. He is one of the American co-discoverers of ferrimagnetic garnets, and took part in work which led to the discovery of Nb_3Sn , an intermetallic compound used in a superconductor electromagnet. Member American Crystallographic Association, American Physical Society, Mineralogical Society of America, Summit Association of Scientists (of the Research Society of America), Sigma Xi, Phi Kappa Phi.

A. JAY GOLDSTEIN, B.S., 1948, and M.A., 1951, Pennsylvania State University; Ph.D., 1955, Massachusetts Institute of Technology; faculty, Polytechnic Institute of Brooklyn, 1954-57; Bell Telephone Laboratories, 1957—. At the Laboratories he first engaged in research on information theory and on noise problems. More recently he has been concerned with quantization, timing and synchronization problems in pulse code modulation systems. Member American Mathematical Society, Sigma Xi.

JAMES R. GRAY, B.S. in E.E., 1954, and M.S.E., 1955, University of Florida; Bell Telephone Laboratories, 1955—. He was first engaged in repeater design for pulse code modulation systems. Since 1958 he has concentrated on PCM transmission impairment studies.

WILBUR H. HIGHLEYMAN, B.E.E., 1955, Rensselaer Polytechnic Institute; M.S., 1957, Massachusetts Institute of Technology; D.E.E., 1961, Polytechnic Institute of Brooklyn; Bell Telephone Laboratories, 1958—. At the Laboratories he first engaged in the problem of character recognition. More recently, he has been concerned with the development of data communication equipment and the study of new devices and techniques for data communication problems. He presently serves as a lecturer at the Polytechnic Institute of Brooklyn. Member Tau Beta Pi, Eta Kappa Nu, Sigma Xi, I.R.E.

JOHN C. IRVIN, B.A., 1949, Miami University; M.A., 1953, and Ph.D., 1957, University of Colorado; Bell Telephone Laboratories, 1957—. He first engaged in the study of properties of silicon, including photoelastic investigations and the variation of resistivity as a function of impurity doping and temperature. For the past two years he has been concerned with the development of varactor diodes, including germanium, silicon and gallium-arsenide models. Member American Physical Society, Phi Beta Kappa, Sigma Xi, Omicron Delta Kappa.

BELA JULESZ, Dipl. in Electrical Engineering, 1950, Budapest (Hungary) Technical University; Kandidat in Technical Sciences, 1956, Hungarian Academy of Sciences; Telecommunication Research Institute (Budapest) 1950-56; Bell Telephone Laboratories, 1956—. He first worked on problems of network theory and microwave systems. At the Laboratories he was first engaged in studies of systems for reducing television bandwidth. At present, Dr. Julesz is working in visual research, particularly on problems of depth perception and pattern recognition. Member I.R.E., A.A.A.S., Psychonomic Society, Optical Society of America.

HENRY KATZ, B.S. in Chemical Engineering, 1948, Drexel Institute of Technology; M.S. in Chemistry, 1955, University of Pennsylvania; Bell Telephone Laboratories, Summer, 1959. Mr. Katz is studying toward the Ph.D. degree at the University of Pennsylvania, where he is working on a crystal structure problem. Member American Chemical Society, American Crystallographic Association.

PAUL KISLIUK, B.S., 1943, Queens College; M.A., 1947, and Ph.D., 1952, Columbia University; Brookhaven Laboratory, 1947-48; Bell Telephone Laboratories, 1952—. At the Laboratories, he has engaged in research in contact and surface physics. His studies have included problems at relay contacts and adsorption of gases on metals. Most recently his work has concerned optical masers. Member American Physical Society, Sigma Xi.

DAVID A. KLEINMAN, S.B., 1946 and S.M., 1947, Massachusetts Institute of Technology; Ph.D., 1952, Brown University; Brookhaven National Laboratory, 1949-53; Bell Telephone Laboratories, 1953—. Mr. Kleinman has worked in the areas of neutron scattering in solids, semiconductor electronics, electron energy bands, and the infrared properties of crystals, and is currently working on problems related to the optical maser. Member American Physical Society.

JOAN E. MILLER, A.B., 1953, Mount Holyoke College; M.A., 1956, Indiana University; Bell Telephone Laboratories, 1957—. Miss Miller has engaged in speech analysis and synthesis, computer simulation of speech transmission, and experiments on depth perception. Member Acoustical Society of America.

J. A. MORRISON, B.Sc., 1952, King's College, London University; Sc.M., 1954 and Ph.D., 1956, Brown University; Bell Telephone Laboratories, 1956—. He has been engaged in mathematical research involving mostly differential and integral equations arising in a variety of fields, including electromagnetic problems, multi-velocity electron beams and plasmas, nonlinear diffusion and space charge processes, signal theory and satellite orbits. Member American Mathematical Society, Sigma Xi.

IAN M. ROSS, B.A., 1948, Gonville and Caius College; Ph.D., 1952, Cambridge University; Bell Telephone Laboratories, 1952—. He has specialized in the research and development of a wide variety of semiconductor devices. He is director of exploratory and intermediate development of transistors, diodes and other semiconductor components. His laboratory is responsible for the study of radiation damage to semiconductor devices used in satellites, and for the specific design of satellite solar cells. Senior member I.R.E.

DAVID SLEPIAN, University of Michigan, 1941-43; M.A., 1947, and Ph.D., 1949, Harvard University; Bell Telephone Laboratories, 1950—. He has been engaged in mathematical research in communication theory, switching theory, and theory of noise, as well as various aspects of applied mathematics. He has been mathematical consultant on a number of Laboratories' projects. During the academic year 1958-59, he was Visiting Mackay Professor of Electrical Engineering at the University of California at Berkeley. Member A.A.A.S., American Mathematical Society, Institute of Mathematical Statistics, I.R.E., Society of Industrial and Applied Mathematics, U.R.S.I. Commission 6.

HANS-GEORG UNGER, Dipl. Ing., 1951 and Dr. Ing., 1954, Technische Hochschule, Braunschweig (Germany); Siemens and Halske (Germany), 1951-55; Bell Telephone Laboratories, 1956—. His work at Bell Laboratories has been in research in waveguides, especially circular electric wave transmission. He is now on leave of absence from Bell Laboratories while professor of electrical engineering at the Technische Hochschule in Braunschweig. Senior member I.R.E.; member German Communication Engineering Society.

JOSEPH H. WEBER, B.E.E., 1952, Rensselaer Polytechnic Institute M.S.E., 1959, George Washington University; Hazeltine Electronics Corp., 1952-53; U.S. Navy 1953-56; Bell Telephone Laboratories,

1956—. At the Laboratories, he has been engaged in telephone traffic studies and systems engineering of electronic switching systems. He presently heads a group concerned with traffic analysis, programming and simulation for the Universal Integrated Communications System (UNICOM) under development for the U.S. Signal Corps. Member A.I.E.E., I.R.E., Operations Research Society of America, Association for Computing Machinery, Sigma Pi Sigma.

