

## Contributors to This Issue

GERHARD BACKENSTOSS, Dipl. Phys., 1949, Dr. rer. nat., 1953 University of Freiburg i.Br. (Germany); research associate in the Institute of Physics, University of Freiburg i.Br. (Germany), 1953-55; Bell Telephone Laboratories, 1955-57. At Bell Laboratories Mr. Backenstoss was associated with studies of silicon transistors. He was especially concerned with investigation of the diffusion of impurities into silicon; measurement of mobility of holes and electrons in heavily doped silicon, and with studies of changes of minority carrier lifetime by electron bombardment. Member German Physical Society.

CURTIS L. BEATTIE, M.A., 1933, University of Georgia; Graduate studies, Johns Hopkins University, 1946, and Columbia University, 1947; acting head of mathematics department, Mercer University, 1941-42; U. S. Army Signal Corps Engineering Laboratory, 1942-45; head of mathematics department, Judson College, 1946-47; assistant professor of mathematics, University of Bridgeport, 1947-53; Bell Telephone Laboratories, 1954-. Mrs. Beattie has worked on analysis and programming of mathematical problems relating to radio and waveguide research. Member American Mathematical Society.

HOWARD BOYET, B.S., 1954, College of the City of New York; Ph.D., 1953, New York University; National Advisory Committee for Aeronautics, 1944-47; New York University, faculty, 1948-53 and research assistant, Institute for Mathematical Sciences, 1952-53; Bell Telephone Laboratories, 1953-57. With Bell Laboratories, Mr. Boyet was engaged in solid-state device development in the field of microwave ferrite devices, including ferrite scanning antennas, isolators and circulators. Member American Physical Society, American Institute of Physics.

THOMAS F. EGAN, Bell Telephone Laboratories, 1930-. Mr. Egan has specialized in analytical chemistry, including the application of microchemical analysis to engineering problems. From 1938 to 1944 he engaged in chemical diagnoses of central office problems relating to noise and contact resistance. Since 1945 he has concentrated on problems of dust in central office apparatus, especially in relation to open-contact failures

and dust exclusion in relay cabinet design. Member American Chemical Society.

E. N. GILBERT, B.S., 1943, Queens College; Ph.D., 1948, Massachusetts Institute of Technology; M.I.T. Radiation Laboratory, 1944-46; Bell Telephone Laboratories, 1948-. Mr. Gilbert has been engaged in studies of information theory and switching theory. He is a member of the Communication Fundamentals Group. Recipient M.I.T. Applied Mathematics Fellowship, 1946-48. Member American Mathematical Society.

ROBERT H. GUMLEY, B.E.E., 1939, New York University; Bell Telephone Laboratories, 1930-. Mr. Gumley was first engaged in apparatus wiring and adjusting including work on the No. 1 crossbar system. He later worked on relay requirements and testing and during World War II on design and testing of operation flight trainers. Since 1945 he has been engaged in relay performance studies and relay engineering. He is now head of a group studying relay contact problems. Member Eta Kappa Nu.

H. W. HERMANC, Crucible Steel Co., 1917-19; Procter and Gamble 1921-25; Western Electric Co., 1925-27; Bell Telephone Laboratories 1927-. After working on analytical control of materials with Western Electric, Mr. Hermance joined the Laboratories, where he has specialized in microanalytical methods. He has had a prominent part in developing analytical techniques and microchemical laboratory facilities. Since 1945 he has been in charge of a group specializing in the diagnosis of chemical and related problems as they affect switching apparatus in the field. Member American Association for the Advancement of Science, American Chemical Society, Metropolitan Microchemical Society.

H. J. KEEFER, B.S. in E.E., 1937, Georgia School of Technology; Bell Telephone Laboratories, 1928-. As a member of technical staff Mr. Keefer was engaged in laboratory testing of step-by-step system PBXs and long-line pulsing circuits until World War II, when he served as an Artillery and Signal Officer. Since his return to the Laboratories, Mr. Keefer has concentrated on relay contact studies.

ALLEN H. MEITZLER, B.S., 1951, Muhlenberg College; M.S., 1953, and Ph.D., 1955, Lehigh University; Bell Telephone Laboratories, 1955-. As a member of the Military Apparatus Development Department, Mr.

Meitzler has been concerned with the development of ultrasonic solid delay lines. Recipient of Hood Fellowship, Lehigh University, 1955. Member I.R.E., American Physical Society, Acoustical Society of America, Sigma Xi.

STEPHEN O. RICE, B.S., 1929, Oregon State College; graduate studies California Institute of Technology, 1929-30 and 1934-35; Bell Telephone Laboratories, 1930-. In his first years at the Laboratories, Mr. Rice was concerned with nonlinear circuit theory, especially with methods of computing modulation products. Since 1935 he has served as a consultant on mathematical problems and in investigation of telephone transmission theory, including noise theory, and applications of electromagnetic theory. He is a Gordon McKay Visiting Lecturer in applied physics at Harvard University for the Spring 1958 term. Fellow I.R.E.

C. F. P. ROSE, Western Electric Company, 1920-25; Bell Telephone Laboratories, 1925-. Mr. Rose has been concerned with design, development, installation and testing of short-wave transoceanic transmitters in the United States and South America. His recent work with the Radio Research Department has been studies of millimeter waves and development of techniques for constructing helix waveguides for microwave transmission. Senior member I.R.E.

HAROLD SEIDEL, B.E.E., 1943, College of the City of New York; M.E.E., 1947, and D.E.E., 1954, Polytechnic Institute of Brooklyn; Microwave Research Institute of Polytechnic Institute of Brooklyn, 1947; Arma Corp., 1947-48; Federal Telecommunications Labs, 1948-53; Bell Telephone Laboratories, 1953-. He has been concerned with general electromagnetic problems, especially regarding waveguide applications, and with analysis of microwave ferrite devices. Member I.R.E., Sigma Xi.

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H. L. STADLER, A.B., 1948, Harvard College; S.M., 1951, and Ph.D. 1954, University of Chicago; Bell Telephone Laboratories, 1954-. Mr. Stadler has been engaged in development of barium titanate ferroelectric devices. Member American Physical Society, American Institute of Physics, Sigma Xi.

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