Contributors to This Issue

ROBERT W. CHANG, B.S.E.E., 1955, National Taiwan University; M.S.E.E., 1960, North Carolina State College; Ph.D., 1965, Purdue University; Bendix Corporation, 1960-1963; Bell Telephone Laboratories, 1965—. Mr. Chang has been concerned with problems in data transmission and communication theory. Member, Eta Kappa Nu, Sigma Xi, Phi Kappa Phi, IEEE.

I. Danylchuk, B.E.E., 1956, Rensselaer Polytechnic Institute; M.E.E., 1965, New York University; Bell Telephone Laboratories 1956—. He is a member of Solid State Device Laboratory and has been engaged in exploratory development of magnetic memories. Member, Tau Beta Pi, Eta Kappa Nu, IEEE.

Charles R. Ellison, Jr. BSEE, 1960, Villanova University; MSEE, 1964, Stevens Institute of Technology; Bell Telephone Laboratories, 1964—. He has been collecting and analyzing transmission performance data on Bell System trunks and carrier facilities with emphasis on those parameters that significantly influence the quality of data transmission. He has served as a member of the United States of America Standards Institute sponsored industrial committee to review the engineering installation standards for data transmission in the defense communication system. He is involved in evaluating the quality and reliability of data transmission facilities on the NASA private line network. Member Tau Beta Pi.

STANLEY L. FREENY, BEE, 1958, Georgia Institute of Technology; MEE, 1960, New York University; Bell Telephone Laboratories, 1958—. Mr. Freeny has done work on a variety of problems relating to pulse transmission. Member, IEEE, Tau Beta Pi, Eta Kappa Nu.

Charles A. Fritsch, B.M.E., 1958, University of Dayton; M.S.M.E., 1960, Ph.D., 1962, Purdue University; Bell Telephone Laboratories, 1961—. Dr. Fritsch has worked on problems in the thermal sciences associated with hardening structures to withstand nuclear weapon effects, cooling electronic equipment, and developing of gas lenses. He is

Supervisor of the Fluid Mechanics and Heat Transfer Group of the Engineering Mechanics and Physics Department. Member, A.S.M.E., A.P.S., Sigma Xi.

U. F. Gianola, B.Sc., 1948, and Ph.D., 1951 (physics), University of Birmingham, England; postdoctorate research fellowship, University of British Columbia, 1951–53; Bell Telephone Laboratories, 1953—. He heads the Fundamental Memory Components Department and is responsible for the exploratory development of digital memory and logic devices. Senior member, IEEE; member, American Physical Society, Research Society of America.

ROBERT HOLMSTROM, B.S.E.E., 1962, Wayne State University; M.E.E., 1964, New York University; Bell Telephone Laboratories, 1962—. Mr. Holmstrom has been concerned with surveys to gather data on the transmission performance of Bell System toll facilities. He has been involved in both planning surveys and analyzing data gathered. Member, Tau Beta Pi, Eta Kappa Nu.

Dean W. Lytle, B.S. and M.S., University of California; Ph.D., 1957, Stanford University; Bell Telephone Laboratories, summers of 1966 and 1967. While with Bell Telephone Laboratories, he was a consultant, working on problems relating to automatic equalization of high-speed, hybrid, multilevel PCN systems. He is now Associate Professor of Electrical Engineering at the University of Washington where he teaches signal theory. Member, IEEE, Tau Beta Pi, Eta Kappa Nu, and Sigma Xi.

James E. Mazo, B.S., 1958, Massachusetts Institute of Technology; M.S., 1960, and Ph.D., 1963, Syracuse University; Research Associate, University of Indiana, 1963–64; Bell Telephone Laboratories, 1964—. Mr. Mazo was engaged in work on quantum scattering theory at Indiana University. Now he is doing theoretical analysis of data systems. Member, American Physical Society, IEEE, Sigma Xi.

RICHARD H. McCullough, S.B.E.E. and S.M.E.E., 1960, Massachusetts Institute of Technology; Ph.D.E.E., 1967, Polytechnic Institute of Brooklyn; Bell Telephone Laboratories, 1960—. At Bell Laboratories, Mr. McCullough worked on circuit and system design of analog and digital transmission systems, including TL radio, Tel-

star® communications satellite, and experimental pulse code modulation systems. Since 1965 he has been concerned with scientific and systems programming, and algorithms for automatic processing of sonar signals. Member, Sigma Xi, Tau Beta Pi, Eta Kappa Nu, IEEE.

Stewart E. Miller, B.S. and M.S., 1941, Massachusetts Institute of Technology; Bell Telephone Laboratories, 1941—. Mr. Miller first worked on coaxial carrier repeaters and then on microwave radar systems development. At the close of World War II he returned to coaxial carrier repeater development until 1949, when he joined the radio research department. There his work has been in circular electric waveguide communication, microwave ferrite devices, and other components for microwave radio systems. As Director, Guided Wave Research Laboratory, he heads a group engaged in research on communication techniques for the millimeter wave and optical regions. Fellow, IEEE; member, Eta Kappa Nu, Sigma Xi, Tau Beta Pi.

Ingemar Nåsell, Civilingenjör, 1955, Royal Institute of Technology, Stockholm, Sweden; M.E.E., 1962, and M.S. (mathematics), 1965, both from New York University; Research Institute of National Defense, Stockholm, Sweden, 1955–1960; Bell Telephone Laboratories, 1960—. Mr. Nåsell is concerned with characterizing the transmission performance of the Bell System toll network for systems engineering purposes. He is Supervisor of the Transmission Surveys and Models Group. Member, Svenska Teknologföreningen, American Statistical Association, Eta Kappa Nu.

CLYDE L. RUTHROFF, B.S.E.E., 1950, and M.A., 1952, University of Nebraska; Bell Telephone Laboratories, 1952—. Mr. Ruthroff has published contributions on the subjects of FM distortion theory, broadband transformers, FM limiters, threshold extension by feedback, and microwave radio systems for satellite and terrestrial use. He is interested in the extension of radio communication into the millimeter and optical wavelengths. Member, A.A.A.S., I.E.E.E., Sigma Xi.

John T. Sibilia, B.S. (Physics), 1955, M.A. 1957, and Ph.D., 1962, Princeton University; Bell Telephone Laboratories, 1960—. He has been engaged in maser development, exploratory magnetic memory

development, and is now supervising a group concerned with tantalum thin film circuit process instrumentation.

ALAN N. WILLSON, JR., B.E.E., 1961, Georgia Institute of Technology; M.S.E.E., 1965, Ph.D., 1967, Syracuse University; International Business Machines Corporation, 1961–64; Bell Telephone Laboratories, 1967—. Mr. Willson is interested in network and systems theory. Member, IEEE, Eta Kappa Nu, Tau Beta Pi, Sigma Xi.

H. Zucker, Dipl.-Ing. 1950, Technische Hochschule, Munich, Germany; M.S.E.E., 1954, Ph.D., 1959, Illinois Institute of Technology; Bell Telephone Laboratories, 1964—. He has been concerned with problems related to satellite communication antennas and optical resonators. Member, IEEE, Eta Kappa Nu, Sigma Xi.