## CONTRIBUTORS TO THIS ISSUE

Sigmund J. Amster, B.S., 1954, M.S., 1955, PH.D., 1962 (Mathematical Statistics), University of North Carolina; Bell Aircraft Corporation, 1955–56, General Analysis Corporation, 1959–60; Bell Laboratories, 1962—. Mr. Amster has worked in the areas of reliability and statistics with emphasis in mathematical models and experimental design. He is presently a consultant in the Quality Assurance Center.

David J. Bishop, B.S. (Physics), 1973, Syracuse University; M.S., 1977, Ph.D. (Physics), 1978, Cornell University; Bell Laboratories, 1978—. Mr. Bishop's research interests include low-temperature physics and acoustics.

Gary G. Brush, B.S. (Statistics and Computer Science), 1970, University of Delaware; M.S. (Statistics), 1972, Rutgers State University; Bell Laboratories, 1970—. Mr. Brush has been involved in a wide spectrum of quality assurance related activities including field studies, acceptance sampling, and evaluation of general trade products. He is currently in the Transmission Systems Quality Department, where he supervises a group responsible for quality engineering of transmission systems. Member, ASQC.

Bisrat Bulcha, B.S. (E.E.), 1971, Rensselaer Polytechnic Institute; M.S. (Operations Research), 1976, Syracuse University; L. M. Ericsson, Sweden, 1972–1973; Ethiopian Telecommunication Board, 1973–1974; Bell Laboratories, 1978—. At Bell Laboratories Mr. Bulcha has worked on economic studies of digital carrier in the loop plant.

Richard V. Cox, B.S. (Electrical Engineering), 1970, Rutgers University; M.A., and Ph.D., (Electrical Engineering), 1972 and 1974, respectively, Princeton University; The Aerospace Corporation, 1973–1977; Assistant Professor, Rutgers University, 1977–1979; Bell Laboratories, 1979—. Mr. Cox is a member of the Acoustics Research Department. His current research interests are in digital speech coding, analog speech encryption, and real-time speech processing systems.

Ronald E. Crochiere, B.S. (Electrical Engineering), 1967, Milwaukee School of Engineering, Milwaukee, Wisconsin; M.S. and Ph.D., (Electrical Engineering), 1968 and 1974, respectively, Massachusetts Institute of Technology, Cambridge, Massachusetts. Raytheon Co.,

1968–1970; Bell Laboratories, 1974—. At Raytheon Co. Mr. Crochiere was involved in the development of microwave phase shifters and sideband generators. In 1974 he joined the Acoustics Research Department of Bell Laboratories, where he has been involved in research activities in concepts of decimation and interpolation of digital signals, Fourier and filterbank methods of analysis/synthesis, sub-band and transform coding of speech, and the measurement of digital speech quality. In 1976 he received the IEEE ASSP paper award for his paper on decimation and interpolation of digital signals. Mr. Crochiere is an active member of the ASSP ADCOM committee and a past member of the ASSP Technical Committee on Digital Signal Processing. He has served for two years as a Technical Editor on digital signal processing for the ASSP transactions and for three years as the secretary-treasurer of the ASSP Society ADCOM. He is presently the vice-president of the ASSP Society.

Robert C. Dynes, B.Sc. (Physics), 1964, University of Western Ontario; M.Sc., 1965, Ph.D., 1968 (Physics), McMaster University; Bell Laboratories, 1968—. At Bell Laboratories Mr. Dynes' research interests are low-temperature physics, superconductivity, transport, and acoustics.

Philip B. Grimado, B.S., 1961 (Civil Engineering), City University of New York; M.S., 1962 (Applied Mechanics), and Ph.D., 1968 (Applied Mechanics), Columbia University, New York; Bell Laboratories, 1968—. Mr. Grimado's responsibilities include vulnerability studies of antiballistic missile systems, fire protection studies involving fire risk analyses, heat transfer calculations, development of standard fire testing methods for Bell System equipment, and development of algorithms for optimum control of building environmental equipment. He is currently completing a transient building response computer program for evaluating energy use characteristics of Bell System buildings.

James D. Johnston, B.S., 1975, M.S., 1976 (Electrical Engineering), Carnegie-Mellon University. Mr. Johnston has worked in the Acoustics Research Department of Bell Laboratories since June 1976, where he is a Member of Technical Staff. He has been involved in digital signal processing and speech encoding research, especially focusing on algorithms that can be adapted to real-time hardware. His interests include speech waveform encoding, VLSI and microprocessor-based hardware speech coding systems, real-time computing architecture, and microprocessor realizations of control systems for

acoustic and signal processing devices. Member, AES, and Contributor to IEEE-ASSP, IEEE-COMM, ASA, and IEEE Trans. on Comm.

Ronald Kaufman, B.A. (Mathematics/Statistics), 1973, University of Connecticut; M.A. (Operations Research), 1975, Ph.D. (Operations Research), 1977, Yale University; Bell Laboratories, 1977—. Mr. Kaufman has worked on various aspects of private network administration. He is currently in the Operations Systems Planning Center.

Adrian Kester, drs (Mathematics/Statistics), 1972, University of Amsterdam; M.Sc. (Business), 1976, Ph.D. (Statistics), 1978, University of Rochester; Bell Laboratories, 1977—. Mr. Kester has worked on various aspects of private network administration. He is currently in the Product Line Planning and Architecture Center.

Lynn E. Kodrich, B.S. (Mathematics), 1972, St. Peter's College; M.S. (Computer Science), 1975, Stevens Institute of Technology; Bell Laboratories, 1972—. Ms. Kodrich has been engaged in the development of software systems used for capacity expansion planning of the loop network. This includes an on-line Cumulative Fill Table program, an area transfer facility, and a conduit sizing algorithm. Since 1979, she has been involved with a software system for Digital Loop Carrier Planning.

David B. Luber, B.S. (E.E.), 1965, Worcester Polytechnic Institute; M.S. (E.E.), 1967, University of Pennsylvania; Ph.D. (S.E.), 1972, University of Pennsylvania; General Electric Company—Space Systems Organization, 1967–1969; Bell Laboratories, 1972—. Since joining Bell Laboratories, Mr. Luber has been active in developing method systems and mechanized planning tools for engineering the loop plant network. He is presently Supervisor of the Engineering Planning System Group in the Loop Engineering Operations department. Member, IEEE, Eta Kappa Nu, Tau Beta Pi; Associate Member, ORSA, Sigma Xi.

Martin H. Meyers, B.S. (EE), 1975, Worcester Polytechnic Institute, Worcester, MA; M.S.E.E., 1976, Ph.D., 1978, University of Massachusetts, Amherst, MA; Bell Laboratories, 1978—. Mr. Meyers initially worked on crosstalk modeling and analysis for digital paired cable repeater systems. Since 1981, he has been a member of the Digital Radio Department, where he has been evaluating the perform-

ance of various modulation, equalization, and combiner strategies for high-speed digital radio transmission over multipath fading channels.

William J. Mitchell, B.E. (Electrical Engineering), 1975, The Cooper Union for the Advancement of Science and Art; M.S. (Electrical Engineering and Computer Science), and (Electrical Engineer), 1977, M.I.T.; Bell Laboratories, Summer 1974, 1977—. Since joining Bell Laboratories, Mr. Mitchell has worked on the development of economic models and planning methods for new loop plant technologies, especially digital loop carrier systems. He has also developed computer aids and data bases to support this modeling effort and is presently working on models for new services and the loop plant needed to provide them. Member, Tau Beta Pi, Sigma Xi (associate), Eta Kappa Nu, IEEE (Communications, Computer, Industry Applications, and Power Engineering Societies).

Lawrence R. Rabiner, S.B. and S. M., 1964, Ph.D., 1967 (Electrical Engineering), Massachusetts Institute of Technology; Bell Laboratories, 1962—. From 1962 through 1964, Mr. Rabiner participated in the cooperative plan in electrical engineering at Bell Laboratories. He worked on digital circuitry, military communications problems, and problems in binaural hearing. Presently, he is engaged in research on speech communications and digital signal processing techniques. He is coauthor of *Theory and Application of Digital Signal Processing* (Prentice-Hall, 1978). Member, IEEE ASSP Technical Committee on Digital Signal Processing, IEEE ASSP Proceedings Editorial Board, Acoustical Society Executive Council, Eta Kappa Nu, Sigma Xi, Tau Beta Pi. Fellow, Acoustical Society of America, IEEE.

William D. Rummler, B.S. in E.E., 1959, Drexel University; S.M., 1960, E.E., 1961, Sc.D., 1963, Massachusetts Institute of Technology; Bell Laboratories, 1963—. Mr. Rummler initially worked on radar signal design and signal processing and associated measurement and estimation problems. He has also worked on single-sideband, long-haul radio systems. More recently, he has been involved with the problems of channel and performance characterization for high-speed digital radio systems. Member, IEEE, Tau Beta Pi, Eta Kappa Nu, Sigma Xi, Phi Kappa Phi.

Adel A. M. Saleh, B.Sc. degree (Electrical Engineering), University of Alexandria, Alexandria, Egypt, 1963; M.S., and Ph.D. degrees (Elec-

trical Engineering), Massachusetts Institute of Technology, Cambridge, in 1967 and 1970, respectively; Bell Laboratories, 1970—. From 1963 to 1965 Mr. Saleh worked as an instructor at the University of Alexandria. At Bell Laboratories he is engaged in research on microwave circuits, components, and communication systems. Senior Member, IEEE; member, Sigma Xi.

Bernard Saperstein, B.S. (Mathematics), 1964, CCNY; PH.D. (Operational Research), 1969, New York University; Bell Laboratories, 1969—. Mr. Saperstein's work has centered on applied research in reliability, quality control, and quality assurance. Since 1978, he has supervised groups responsible for field quality tracking of customer premises and switching network equipment in the Field Quality and Reliability Department.

Michael A. Schwartz, B.S. (Electrical Engineering), 1968, Rensselaer Polytechnic Institute; M.S. (Electrical Engineering), 1969, University of California—Berkeley; C&P Telephone Company of West Virginia, 1972–1974; Bell Laboratories, 1968–1972, 1974–. Since joining the Bell System, Mr. Schwartz has been involved in noise mitigation studies, cable test set development, subscriber carrier hardware development, application engineering and system planning, and operations planning for introduction of carrier systems into the subscriber network. He is presently Supervisor of the New Technology Operations Planning Group in the Customer Network Strategic Planning department. Member, Tau Beta Pi, IEEE.

Linda A. Seltzer, B.A., 1971, University of Pennsylvania; B.S.E.E., 1978, University of Colorado; M.S., 1980, California Institute of Technology. Ms. Seltzer is currently a graduate student at the University of California, San Diego. She has worked on multiport network studies for audio conferencing, on digital signal processing hardware, and on subjective quality of low bit rate speech. Member, IEEE, Acoustical Society of America, Tau Beta Pi, and Eta Kappa Nu.

Paul E. Sulewski, A.B. (Physics), 1982, Princeton University. Mr. Sulewski has recently completed his undergraduate thesis research for Princeton University, which involved examining several optoelectronic materials of current interest with acoustic microscopy. He will pursue his interests in solid state physics at Cornell University.

José M. Tribolet, B.S. (Electrical Engineering), 1972, Instituto Superior Técnico, Lisbon, Portugal; M.S., E.E., and Sc.D degrees (Electrical Engineering) from the Massachusetts Institute of Technologv. Cambridge, in 1974, 1975, and 1977, respectively. From 1972 to 1977 Mr. Tribolet was a member of the Massachusetts Institute of Technology Research Laboratory of Electronics, where his research activities involved the application of homomorphic signal processing to speech and seismic data analysis. From 1977 to 1978 he was with the Acoustics Research Department, Bell Laboratories, Murray Hill, NJ, as a post-doctoral fellow, working on adaptive transform coding of speech. He is presently Full Professor of Electrical Engineering and Computer Science at the Instituto Superior Técnico, Lisbon, Portugal, where he directs the Research Institute in Systems Engineering and Computer Science (INESC). Mr. Tribolet was recently on sabbatical leave at the Acoustics Research Department, Bell Laboratories, Murray Hill, NJ, from July through December 1981, where he worked on speech recognition, coding, and scrambling. Member, Sigma Xi.

Jay G. Wilpon, B.S. (Mathematics), A.B. (Economics), cum laude, 1977, Lafayette College; Bell Laboratories, 1977—. At Bell Laboratories, Mr. Wilpon has been engaged in speech communications research and is presently concentrating on problems of speech recognition.

F. Nelson Woomer, Jr., Electronic Technology, 1952, RCA Institutes; Bell Laboratories, 1952—. Mr. Woomer has been involved in the development of fire control systems, including the Missile Site Data Processing System at Meck Island, Kwajalein Atoll in the Marshall Islands. On SAFEGUARD and AMPS he developed and maintained project integration plans. Since joining the Loop Engineering department he has developed and published the Outside Plant Planning Engineering and Construction Operation System Implementation and Application Guide and performed economic impact studies.

2372