CONTRIBUTORS TO THIS ISSUE

Glenn D. Bergland, B.S.E.E., 1962, M.S.E.E., 1964, Ph.D. 1966, Iowa State University; Bell Laboratories, 1966—. Mr. Bergland began working at Bell Laboratories in the Military Systems Research area. He did early work in the discovery, application, and hardware implementation of several new Fast Fourier Transform (FFT) algorithms which were applied to speech and signal processing. From 1968 to 1971, he supervised a group doing research in the design and application of highly parallel computer architectures and became project engineer for the final development of the Parallel Element Processing Ensemble (PEPE) system. In 1972, Mr. Bergland became head of the Advanced Switching Architecture Department in Naperville, Illinois, where he proposed the initial Voice Storage System (VSS) concept. In 1974, he became head of the Software Systems Department, where he started the VSS feature development for the No. 1 Electronic Switching System (ESS). Since 1977, he has been head of the Digital Systems Research Department in Murray Hill, New Jersey. His principal research areas are in software design methodologies, telecommunications terminals, and telematics services. Member, IEEE, ACM, Sigma Xi, Eta Kappa Nu, Phi Kappa Phi, Tau Beta Pi, AAAS. Honorable mention Eta Kappa Nu Outstanding Young Electrical Engineer.

Peter W. Bowman, B.S.A.M.P., 1968, University of Wisconsin; M.S., 1969, University of California-Berkeley; Bell Laboratories, 1968—. Mr. Bowman has worked on specification and diagnostic design for the 1A Porcessor auxiliary data system. He designed a performance and evaluation system to be employed at the field trial for the High Capacity Mobile Telephone System—now known as Advanced Mobile Phone Service. He had responsibility for testing and integrating the 1A Processor diagnostics into the initial No. 4 ESS generic. He had design responsibility for the diagnostic, fault recognition and recovery software for the Voice Storage System and supervised the implementation phase. He supervised the Voice Storage System integration and system test group during the final development phase of the system. Mr. Bowman currently supervises the Advanced Mobile Phone System-Cell Operational Software group. This group is responsible for call processing and operational software.

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1976, he helped develop the input/output channel system for the Auxiliary 3A Processor. In 1976, he became supervisor of the Voice Storage System Group, responsible for architecture and circuit design of the 1A Voice Storage System. From 1978 through 1980, Mr. Cornell was responsible for exploratory studies into new service capabilities made possible through digital local switching systems. He is currently Head, Advanced Mobile Phone Service (AMPS) Software Design Department, responsible for software development associated with the AMPS system. Member, IEEE, Eta Kappa Nu.

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Walter T. Hartwell, B.S.E.E., 1961, M.S.E.E., 1968 Newark College of Engineering; Bell Laboratories 1956–1959, 1961. Mr. Hartwell initially worked on the exploratory development of data modems including FSK, SSB, and Quadrature PSK from 1956 to 1959. From 1961 to 1962, he worked on the Earth Station's Antenna Control equipment for project TELSTAR. From 1963 to 1971, he worked in military digital systems research with efforts in hybrid computation, underwater sound signal analysis and detection, complex signal analysis, picket fence reduction, the first FFT processing system, and the Parallel Element Processing Ensemble (PEPE) system. Since 1971, he has been engaged in Telecommunications Switching and Service systems development. He proposed the architecture and did early economic studies of the VSS system. In 1977, he became a supervisor in the Local Switching Exploratory Studies Department with responsibilities in the areas of storage systems and services, network access, signal processing and low-bit rate speech. He is currently a supervisor in the Interactive Voice Systems Department. Mr. Hartwell holds patents in the areas of control systems, signal processing, and system architectures. Member IEEE, Eta Kappa Nu, Tau Beta Pi.

Harry Heffes, B.E.E., 1962, City College of New York; M.E.E., 1964, Ph.D., 1968, New York University; Bell Laboratories, 1962—. Mr. Heffes has worked in the areas of control and filtering theory. More recently, he has been concerned with modeling and analysis of teletraffic and computer systems. He is currently Adjunct Associate Professor of Electrical Engineering and Computer Science at Stevens Institute of Technology. Member, Tau Beta Pi, Eta Kappa Nu, American Men of Science, ORSA.

James C. Kennedy, B.S.E.S., 1967, Pennsylvania State University; M.S.E.E., 1968, Stanford University; Ph.D. (Electrical Engineering), 1971; Bell Laboratories, 1967—. Mr. Kennedy first worked on the planning and design of cost-reduced No. 1 ESS periphery, including the evaluation of alternative scan elements and control schemes. He evaluated hardware architectures to implement new No. 1 ESS switching features. As a supervisor from 1976 to 1980, Mr. Kennedy was responsible for the following VSS activities during different intervals: system

design, interface specifications, test utilities, program administration, testing, traffic analysis, administration software, and maintenance software. From March 1980 to February 1981, he was supervisor of the No. 5 ESS Message Switch Group. Since February 1981, he has been responsible for the evolution of No. 5 ESS. Member Phi Beta Kappa, Tau Beta Pi, Sigma Xi, Pi Mu Epsilon.

Richard F. Kranzmann, B.S. (Electrical Engineering), 1960, Union College; M.S. (Electrical Engineering), 1962, New York University; Bell Laboratories, 1960—. Since joining Bell Laboratories, Mr. Kranzmann has worked on software design for several switching systems including the UNICOM (Universal Integrated Communications) system, AUTOVON (Automatic Voice Network), and No. 4 ESS. After serving as supervisor of the Indian Hill Technology Education Group from 1967 to 1969, he worked on 1A Processor peripheral diagnostics, and later managed the team responsible for designing the 1A Processor automatic trouble locating system. He joined the VSS project in 1976 with responsibility for the interface of the 1A VSS to the No. 1 and 1A ESS host offices, and since 1979 has supervised the design of fundamental system software necessary to support Common Channel Interoffice Signaling in No. 1 and 1A ESS.

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Debasis Mitra, B.Sc., 1965, and Ph.D., 1967 (Electrical Engineering), London University; United Kingdom Atomic Energy Authority Research Fellow, 1966–1967; Bell Laboratories, 1968—. Mr. Mitra has worked on the stability analysis of nonlinear systems, semiconductor networks, growth models for new communication systems, speech waveform coding, nonlinear phenomenon in digital signal processing, adaptive filtering, and network synchronization. Most recently, he has been involved in the analytic and computational aspects of stochastic networks and computer communications. He is a supervisor in the Mathematics of Physics and Networks Department. Member, IEEE, SIAM.

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George W. Smith, Jr., B.S.E.E., 1952, North Carolina State University; M.S.E.E., 1958, Stevens Institute of Technology; M.A., 1961, Ph.D. (Electrical Engineering), 1963, Princeton University; Bell Lab-

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Gilbert A. Van Dine, B.S.E.E., 1956, Purdue University; Bell Laboratories, 1956—. Mr. Van Dine initially worked on digital circuit designs for NIKE missile systems, the UNICOM, and the No. 1 ESS ADF systems. He later worked on CRT display techniques. Since 1967, he has supervised the development of test facilities for 1A Processor frames, and the utility system used for monitoring and control of the 1A Processor in the system laboratory environment. Just prior to his work on the Voice Storage System, he supervised a group responsible for No. 4 ESS reliability studies.

Lonnie D. Whitehead, B.A. (Psychology), 1958, M.A. (Experimental Psychology) 1964, Emory University; M.S. (Computer Science), 1964, Stevens Institute of Technology; Bell Laboratories, 1965—. After joining Bell Laboratories, Mr. Whitehead worked on MULTICS, an experimental time-sharing system developed jointly by MIT, General Electric, and Bell Laboratories. In 1968, he became supervisor of a group which developed a computer operating system for an experimental radar project. From 1969 to 1974, Mr. Whitehead worked on real-time operating systems for naval applications. From 1974 to 1975, he worked on the No. 1 ESS, and from 1976 to 1981, he was supervisor of the Voice Storage System Feature Software Design Group. Mr. Whitehead assumed his current position as supervisor of the Voice Systems Architecture Group in July, 1981. Member, Association for Computing Machinery, IEEE Computer Society.

David P. Worrall, B.S.E.E., 1963, Penn State University; M.S.E.E., 1965, New York University; Bell Laboratories, 1963—. After joining Bell Laboratories, Mr. Worrall worked on the SAFEGUARD System, designing the prelaunch radar-to-missile communications link and the prelaunch microwave link for the remote launch configuration. In 1974, he joined the Customer Services Planning Department and later was appointed supervisor of the Stored Voice Feature Planning Group with responsibility for systems engineering for the 1A Voice Storage System. In 1981, Mr. Worrall assumed his current position as supervisor of the Direct Service Dialing Feature Planning Group, which is responsible for system engineering, planning, and requirements for new network service capabilities. Member, Tau Beta Pi.

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