

Contributors to This Issue

R. C. ALLEN, A.B., Geology, 1957; M.A., 1958, Boston University; Western Electric Co., 1959-1960; Bell Telephone Laboratories, 1960—. Mr. Allen worked briefly in quartz crystal engineering at the Western Electric Company. Since joining Bell Telephone Laboratories he has been engaged in applied marine geology and oceanography. He is presently concerned with route engineering problems related to millimeter waveguide installations.

CLEO D. ANDERSON, B.S.E.E., 1960, University of Idaho; M.E.E., 1962, New York University; Bell Telephone Laboratories, 1960—. Mr. Anderson has been mainly concerned with systems analysis of submarine cable systems. He is now supervisor of the High Frequency Radio Group. Member, IEEE, Sigma Tau, Phi Kappa Phi, Eta Kappa Nu.

J. E. BERRANG, B.S.E.E., 1965, Valparaiso Technical Institute; Bell Telephone Laboratories, 1952—. Mr. Berrang is a member of the Opto-Electronics Research Department where he is currently participating in experimental studies of camera systems for color *Picturephone*[®] visual telephone service. Member, IEEE.

S. THEODORE BREWER, B.S.E.E., 1937, M.S., 1938, Purdue University; Bell Telephone Laboratories, 1937—. In his early assignments, Mr. Brewer contributed to the development of broadband coaxial systems and video feedback amplifiers, including the design of measuring equipment associated with these developments. Later, he designed circuits of electronically controlled automatic switching systems. More recently, he led a group responsible for the electrical design of undersea repeaters of the SD and SF Systems. He currently heads a department devoted to system and terminal design used in undersea communications and development of improved overseas communications by high frequency radio. He holds patents on control and feedback systems, switching networks, and repeater circuits. Member of I.E.E.E., Eta Kappa Nu, Tau Beta Pi, Sigma Xi.

JOHN D. BRIDWELL, B.S.E.E., 1965, Kansas State University; M.S.E.E., Massachusetts Institute of Technology, 1966; Ph.D., Poly-

technic Institute of Brooklyn, 1969; Bell Telephone Laboratories, 1965—. Mr. Bridwell has worked in digital circuit design for the El Telemetry System. He is currently involved in the design of a data network for telemetry systems. Member, Eta Kappa Nu, Phi Kappa Phi, IEEE.

ROBERT G. BUUS, B.S.E.E., 1959, University of North Dakota; M.E.E., 1961, New York University; Bell Telephone Laboratories, 1959—. Mr. Buus was initially engaged in submarine cable measurements and repeater design. He has taught a course at Bell Laboratories on Transmission System Design and contributed to the textbook, *Transmission Systems for Communications*. Mr. Buus currently supervises a group responsible for the system analysis and application of TASI on overseas circuits.

EDWIN T. CALKIN, B.S. (Eng.), 1961, The Cooper Union; M.S.E.E., 1963, New York University; Bell Telephone Laboratories, 1961—. Mr. Calkin worked on data set and data processing power supply circuit designs until 1964. Since 1964, he has been involved in the circuit development of submarine cable power supplies.

ALAN T. CHAPMAN, B.S. (Chemistry), 1929, Washington State College; M.S. and Ph.D., 1932, Ohio State University; National Research Council Fellow, California Institute of Technology, 1932-1934. E. I. DuPont Company, 1934-35; Western Electric Company, Engineering, 1935—. Mr. Chapman initially worked in the Electron Tube Shop in New York City and subsequently worked on mica capacitors and crystal units in Kearny, New Jersey. He became department chief in Materials, SQC, Automation in 1947, and assistant manager, Switchboards, Key Equipment and Cable in 1955. Since 1957, he has worked on submarine cable repeaters, except for the period 1963-1964 when he worked on exchange cable engineering. Member, American Association for the Advancement of Science.

ROBERT L. EASTON, B.S. (M.E.), 1953, M.S. (M.E.), 1954, California Institute of Technology; Bell Telephone Laboratories, 1954—. Mr. Easton conducted analyses which led to the SD Submarine Cable System. In more recent studies he has contributed to the design and equalization of the SF system. He currently supervises a group responsible for economic, performance and circuit studies of systems going beyond SF in capacity. Member, Tau Beta Pi.

IGOR GOLIOTO, M. E., 1961, Stevens Institute of Technology; M.S.M.E., 1963, New York University; Bell Telephone Laboratories, 1961—. Mr. Golioto has been a member of the Power Systems Physical Design Department since joining the Laboratories. He has been responsible for equipment design of the carrier, microwave, coaxial, submarine, ESS and general use power plants. Presently, he is involved in the design of a military submarine cable power plant.

HERMANN K. GUMMEL, Diplom-Physiker degree (1952), University of Marburg, Germany; M.S. (physics), 1952, Ph.D. (physics), 1957, Syracuse University; Bell Telephone Laboratories, 1957—. He has worked in semiconductor electronics and presently heads a department responsible for design analysis. Member, American Physical Society, Sigma Xi.

W. B. HIRT, Associate Degree in electrical technology, 1962, Westchester Community College; Bell Telephone Laboratories, 1962—. Mr. Hirt has aided in the development of the SF amplifier and fault location oscillator. His most recent work is concerned with the computation coincident with the installation and equalization of the SF Carrier System.

J. J. KASSIG, B.S.E.E., Massachusetts Institute of Technology, 1952; M.S.E.E., Rutgers University, 1955; Bell Telephone Laboratories, 1955—. Mr. Kassig is working on a repeater design for higher capacity submarine cables.

ANDREW W. LEBERT, B.S.E.E., 1932, New York University; Cornell Dublier Corporation, 1932-36; Bell Telephone Laboratories, 1936—. For his first five years at Bell Laboratories, Mr. Lebert worked on transmission engineering on open wire and cable carrier systems. He then was concerned with fault location problems. During World War II he turned to military communications on cable and open wire after which he spent eight years on coaxial cable systems development. Since 1952 he has been connected with the design and development of land coaxial cables, the SB, SD and SF Ocean Cable Systems, and the development of military ocean cable and facilities for antisubmarine warfare systems. He was made a supervisor in 1954 and a department head in 1961. Member, IEEE, Tau Beta Pi, Psi Upsilon.

NATHAN G. LESH, B.S., 1943, Lehigh University; M.S., 1960, Stevens Institute of Technology; Bell Telephone Laboratories, 1956—. Mr.

Lesh has worked on passive components for the Bell System and military applications. In 1960, he was appointed supervisor of the Resistor Development Group. He presently supervises a group in the Film Circuit and Component Development Department. Member, Eta Kappa Nu, Tau Beta Pi.

ROBERT L. LYNCH, A.S. 1950, Kansas City (Missouri) Junior College; B.S.E.E., 1957, Kansas University; M.E.E., 1959, New York University; Bell Telephone Laboratories, 1957—. Mr. Lynch has worked on the development of cable machinery on the Bell System Cable Ship Long Lines and the design of transmission equipment for the shore terminals of SD Submarine Cable Systems. He assisted in the cable laying and installation of several SD systems. Mr. Lynch was involved in the design of the transmission equipment for the shore terminals of the SF Submarine Cable System and later supervised a group responsible for the physical design of SF Submarine Cable Terminals and the TASI B System. Since 1968, he has supervised a group responsible for the physical and electrical design of the SF System shore terminals. He also assisted in the installation, including the cable laying, of the first SF Submarine Cable System between Florida and St. Thomas, Virgin Islands.

JAMES MCKENNA, B.Sc. (Math), 1951, Massachusetts Institute of Technology; Ph.D. (Math), 1961, Princeton University; Bell Telephone Laboratories, 1960—. Mr. McKenna has done research in quantum mechanics, electromagnetic theory and statistical mechanics. He has recently been engaged in the study of nonlinear partial differential equations which arise in solid state device work, and in the theory of stochastic differential equations.

WILLIAM McMAHON, B.S., 1942, Polytechnic Institute of Brooklyn; Bell Telephone Laboratories, 1926—. During his early career, Mr. McMahon engaged in research on the preservation of wood and other organic materials. He later conducted studies of rubber compounding and did research on electric insulating materials. He is presently in charge of a group concerned with the development of insulation materials for electrical capacitors. He holds eight patents, including those on wood preservatives, rubber compounding techniques, special types of electrical transmission lines, insulating materials and capacitor structures. Member, American Chemical Society.

D. O. OLDFATHER, B.S.E.E., 1960, Oregon State University; M.S.E.E., 1964, University of Maryland; Bettis Reactor Engineering School, 1961; Naval Reactors Division of the Atomic Energy Commission, 1960 to 1964; Bell Telephone Laboratories, 1964—. Originally, he designed networks used in the SF System undersea equalizers and then prepared detailed test procedures for the installation, equalization, and line-up of the SF System. He is presently a member of the Terminal and Systems Design Department, engaged in circuit development for the SF Submarine Cable System terminal equipment. Member, Phi Kappa Phi, Tau Beta Pi, Sigma Tau, Eta Kappa Nu, Pi Mu Epsilon.

DONALD H. ORT, B.S.M.E., 1957, M.S.M.E., 1960, Rutgers University; Bell Telephone Laboratories, 1960—. Mr. Ort completed the communications development training program in 1962. He was first engaged in conducting route studies and economic analyses as part of the circular waveguide development project. Later he worked on route studies, economic analyses, and outside plant cost estimates for a variety of PCM and analog transmission systems. He joined the Ocean Cable Protection Group in 1965, conducting the initial feasibility studies for the burying project and serving as project coordinator for the burying of the Jacksonville-St. Thomas SF System. Mr. Ort currently is an Assistant Engineering Manager in the Outside Plant Section of the American Telephone and Telegraph Company in New York. Member, Pi Tau Sigma, Sigma Xi.

H. C. POON, B.S.E.E. and M.S.E.E., 1962, Massachusetts Institute of Technology; Ph.D., 1967, Harvard University; Bell Telephone Laboratories, 1966—. Mr. Poon works in the field of semiconductor physics and device analysis. Member, Eta Kappa Nu, Tau Beta Pi, Sigma Xi, American Physical Society.

G. J. SCHAIBLE, B.S.E.E., 1941, New York University; Bell Telephone Laboratories, 1928—. Since joining Bell Laboratories, he has engaged in development of exchange area, toll, and land coaxial cables. During World War II he was involved in measuring transmission characteristics of flexible coaxial leads for radar equipment. He was Resident Cable Engineer at a domestic and foreign manufacturer's plant during production of the TAT-1 and TAT-2 ocean cables for the SB System, and later supervised groups responsible for the design of SD and SF Ocean Telephone Cables, and for military underwater facilities. Presently supervisor of the Molding and Splicing Group in the Ocean Cable

Department at the Baltimore Laboratory, he is responsible for the development of splicing techniques for ocean telephone cables and military underwater facilities.

DONALD L. SCHARFETTER, B.S., 1960, M.S., 1961, and Ph.D., 1962, Carnegie Institute of Technology; Bell Telephone Laboratories, 1962—. Mr. Scharfetter's fields of interest have included metal-semiconductor contact theory, p-n junction diode and transistor theory, avalanche diode oscillator analysis, and computer-aided design. Member, IEEE, Tau Beta Pi, Eta Kappa Nu, Pi Mu Epsilon, Sigma Xi.

L. M. SCHINDEL, B.S.E.E. 1928,, Iowa State University; American Telephone and Telegraph Company, Long Lines Department, 1928-1955; Western Electric Co., 1955-1961; American Telephone and Telegraph Company, Long Lines Department, 1961—. As cable engineer for ocean cables, Mr. Schindel is responsible for making ocean-bottom surveys for transoceanic projects and the preparation of plans and specifications for the on-land, shore end and deep sea portions of such projects. Member, National Society of Professional Engineers; senior member, Institute of Electrical and Electronics Engineers.

JOHN L. THOMAS, B.S.E.E., 1957, University of Maine; M.E.E., 1960, New York University; Bell Telephone Laboratories, 1957—. Mr. Thomas engaged initially in circuit design work associated with special applications of submarine cable systems. He worked on systems analysis and supervised a group responsible for the circuit design of shore terminal transmission facilities associated with the SF System. He later supervised a group responsible for repeater, equalizer and special test set circuit design for submarine cable systems. He is presently responsible for the design of transmission surveillance and fault location circuitry for the L5 Coaxial System. Member, Phi Kappa Phi, Tau Beta Pi.

WILLIAM J. THOMPSON, B.S., 1929, University of California, Berkeley; Bell Telephone Laboratories, June 1929—. Mr. Thompson's work was concerned with the development of power transformers and voltage regulators and, later, transmission transformers and inductors for various carrier and radio systems. During World War II, he worked on sonar systems. Since 1956, he has been concerned primarily with the development of high reliability components for Bell System submarine cable systems and, more recently, for military applications.

Since 1945, he has supervised a group responsible for transformer and inductor development. Senior Member, IEEE.

CHARLES A. VON ROESGEN, Dipl. Ing., 1952, Swiss Federal Institute of Technology; Bell Telephone Laboratories, 1953—. Mr. Von Roesgen worked on development of automatic test sets, repeaters and multiplex equipment for submarine cable systems. He is a supervisor in the Digital Multiplex Department. Member, IEEE.

A. J. WAHL, B.S., 1942, University of Kansas; Ph.D., 1950, Princeton University; United States Air Force, 1951–1953; Bell Telephone Laboratories, 1950–1951, 1953—. Since 1953, Mr. Wahl has been engaged in various phases of transistor development. His early work was in the area of surface effects relating to device behavior, particularly in regard to device reliability. Later he was concerned with providing the semiconductor devices for the Telstar satellites. He has supervised the Bell Laboratories efforts in providing the transistors and diodes for the SF Submarine Cable System. He is currently supervisor of a group concerned with the development of microwave transistors and submarine cable devices. Member, IEEE, Sigma Xi.

E. WASSERSTROM, B.Sc., 1956, M.Sc., 1960, Technion-Israel Institute of Technology; Ph.D., 1964, Brown University; Division of Sponsored Research at M.I.T., 1962–1964; Department of Aeronautical Engineering at the Technion, 1964–1968, 1970—; Bell Telephone Laboratories, 1968–1970 (on leave of absence from the Technion). He is currently engaged in numerical analysis.

JACK K. WOLF, B.S.E.E., 1956, University of Pennsylvania; M.S.E., 1957, M.A., 1958, and Ph.D., 1960, Princeton University; Bell Telephone Laboratories, 1968–1969. Mr. Wolf is a Professor of Electrical Engineering at the Polytechnic Institute of Brooklyn; for the academic year 1968–1969 he was on a leave of absence to the Communications Theory Department at Bell Laboratories, Murray Hill, New Jersey. His main interests are in information theory, algebraic coding theory, and detection theory. Member, Tau Beta Pi, Sigma Xi, Sigma Tau, Eta Kappa Nu, Pi Mu Epsilon, IEEE, American Association for the Advancement of Science, American Association of University Professors.

PAUL A. YEISLEY, JR., B.S. (Physics), 1952, Lafayette College; Bell Telephone Laboratories, 1952—. Mr. Yeisley first worked on

the development of the L3 Coaxial Cable System. Since 1954, he has worked on the physical design of the SB, SD and SF Submarine Cable Systems. He has more recently been involved in the physical design and development of the SD-C and SG Submarine Cable Systems. He is a consultant in numerical control.