

## Contributors to this Issue

ALBERT L. BLAHA, B.S. in E.E., Polytechnic Institute of Brooklyn, 1950; Bell Telephone Laboratories, 1936-. In 1937 and 1938, Mr. Blaha was in the quartz crystal development shop. Since then he has been primarily concerned with the testing and development of relays. During World War II he worked on magnetostriction type sonar devices.

A. J. BRUNNER, B.S. in M.E., Lewis Institute, 1934; Western Electric Company, 1920-. During Mr. Brunner's early association with Western Electric he was included in an engineering group developing special machines for the manufacture of telephone products. Later he worked on the development of die casting processes. For the past decade his assignments have been in the field of plastic molding. He did notable work in connection with molding 500-type handset parts and is presently engaged in engineering the facilities required to manufacture molded parts for the wire spring relay. He is the holder of numerous patents.

F. HAROLD CHASE, University of Illinois, 1921; Western Electric Company, 1917-1918; Bell Telephone Laboratories, 1921-. Until joining the Power Engineering Group in 1943 he was concerned with the design of carrier system equipment and maintenance practices on toll equipment. Since 1951, he has been developing new uses for transistors in the control of power equipment.

H. E. COSSON, B.S. in M.E., Michigan College of Mining and Technology, 1949; Allis Chalmers Manufacturing Company, 1949-51; A. O. Smith Corp., 1951; Western Electric Company, 1951-. Mr. Cosson served thirty-one months during World War II, fifteen of which were on a naval aircraft carrier. Since joining the development engineering group at Western Electric Company, he has worked on problems associated with straightening wire for the wire spring relay. Junior member A.S.M.E.

THOMAS E. DAVIS, B.S. in E.E., University of Arizona, 1928; Bell Telephone Laboratories, 1928-. He has been concerned with apparatus development projects, including those related to microphones, handsets

and echo suppressors for long telephone lines. During World War II he worked on underwater sound systems for the Navy and was awarded the Naval Ordnance Development Award by the U. S. Navy. Since then he has been working with the wire-spring relay and line concentrator for the No. 5 crossbar system. Member American Institute of Electrical Engineers and Tau Beta Pi.

B. H. HAMILTON, B.S. in E.E., University of Kansas, 1949; Bell Telephone Laboratories 1950-. With the Laboratories he has worked on development of equipment to power the L3 carrier system and has been concerned with fundamental studies of new types of regulated rectifiers. Member American Institute of Electrical Engineers, Tau Beta Pi, Sigma Tau, Sigma Xi, Kappa Eta Kappa.

A. L. QUINLAN, B.S. in E.E., University of Kansas, 1921; Western Electric Company, 1921-. Prior to World War II, Mr. Quinlan worked extensively on the development of manufacturing methods and machines for loading coils. He was granted patents on loading coil case designs and on toroidal coil winding machines and was co-author of an article, *Recent Improvements in Loading Apparatus for Telephone Cables*, published in the A.I.E.E. Journal, Dec. 1947. During the war he had engineering assignments on gun director, precision coil manufacture and vacuum tube projects. Since then he has developed manufacturing facilities and methods for welding precious metal contacts to telephone switching apparatus. Notable among these are the roll welding of contact tape to crossbar switch multiples and the resistance and percussion welding of contacts to wire spring relays. Member A.I.E.E.

WILLIAM SHOCKLEY, B.Sc., California Institute of Technology, 1932; Ph.D., Massachusetts Institute of Technology, 1936; Teaching Fellow, M.I.T., 1932-1936; Bell Telephone Laboratories 1936-1942; Director of Research, Antisubmarine Warfare Operations Research Group, Division of War Research, Columbia University, 1942-1944; Expert Consultant, Office of the Secretary of War, 1944-1945; Bell Telephone Laboratories 1945-. Appointed Director of Transistor Physics Research December 1, 1953, he had directed the group which invented the point-contact transistor. During the past six years he has made many contributions to solid state physics particularly in connection with the transistor. In addition to solid state physics and semiconductors, his work has also included vacuum tube and electron multiplier design, studies of various physical phenomena in alloys, radar development and magnetism. Medal for Merit, U. S.

War Department, 1946; Air Force Association Citation of Honor, 1951; Morris Liebmann Memorial Prize, I.R.E., 1952; Oliver E. Buckley Solid State Physics Prize, American Physical Society, 1953; Certificate of Appreciation, Department of Army, 1953; Comstock Prize, National Academy of Sciences, 1954. Fellow of American Physical Society; Senior Member Institute of Radio Engineers; Member of National Academy of Sciences, Tau Beta Pi, Sigma Xi. For the past few months he has been on leave to California Institute of Technology for teaching and study in the field of solid state physics.

DONALD H. SMITH, B.S. in E.E., University of Minnesota, 1944; Bell Telephone Laboratories, 1947-. After working with the Systems Department of the Laboratories on trial installations, Mr. Smith was concerned with rectifiers and regulating systems in power development. He is currently in charge of the group doing long-range engineering on power development. Member of A.I.E.E. and the Amateur Astronomers Association.

R. W. STRICKLAND, B.M.E., University of Florida, 1951; Western Electric Company, 1951-. Mr. Strickland served two and a half years in the U. S. Armed Forces prior to receiving his degree. Since coming to the Western Electric Company, he has been active in the development of equipment and processes for molding of plastic components of the wire spring relay. Junior member A.S.M.E.

HARRY SUHL, B.Sc., University of Wales, 1943; Ph.D., Oriel College, University of Oxford, 1948. Admiralty Signal Establishment, 1943-46; Bell Telephone Laboratories, 1948-. Dr. Suhl conducted research on the properties of germanium until 1950 when he became concerned with electron dynamics and solid state physics research. His current work is in the applied physics of solids. Member of the American Institute of Physics and Fellow of the American Physical Society.

ERIC E. SUMNER, B.M.E., Cooper Union, 1948; M.A. Degree in Physics, Columbia University, 1953; Instructor of Physics, Cooper Union, 1947-48; Non-resident instructor of Massachusetts Institute of Technology on *Probability and Statistics — Applications to Sampling and Quality Control*, summer, 1950; Bell Telephone Laboratories, 1948-. Mr. Sumner was given rotational assignments in apparatus, switching, and Television transmission development and switching research, and has worked on a number of projects, including the card translator, the mag-

netic drum, video transmission evaluator, vibrating reed selector, development of wire-spring relay, trouble-recording apparatus development, and transistor circuitry for a subscriber line concentrator. He is currently engaged in developing small functional circuits for an electronic switching system. Member of Tau Beta Pi and Pi Tau Sigma.

ERLING D. SUNDE, E.E., Technische Hochschule, Darmstadt, Germany, 1926. Brooklyn Edison Company, 1927; American Telephone and Telegraph Company, 1927-1934; Bell Telephone Laboratories, 1934-. Mr. Sunde's work has been centered on theoretical and experimental studies of inductive interference from railway and power systems, lightning protection of the telephone plant, and fundamental transmission studies in connection with the use of pulse modulation systems. Author of *Earth Conduction Effects in Transmission Systems*, a Bell Laboratories Series Book. Member of the A.I.E.E., the American Mathematical Society, and the American Association for the Advancement of Science.

LAURENCE R. WALKER, B.Sc. and Ph.D., McGill University, 1935 and 1939; University of California, 1939-41. Radiation Laboratory, Massachusetts Institute of Technology, 1941-1945; Bell Telephone Laboratories, 1945-. Dr. Walker has been primarily engaged in research on microwave oscillators and amplifiers. At present he is a member of the physical research group concerned with the applied physics of solids. Fellow of the American Physical Society.