

## Contributors to this Issue

KARL K. DARROW, B.S., University of Chicago, 1911; University of Paris, 1911-12; University of Berlin, 1912; Ph.D., University of Chicago, 1917. Western Electric Company, 1917-25; Bell Telephone Laboratories, 1925-. Dr. Darrow has been engaged largely in writing on various fields of physics and the allied sciences.

W. P. MASON, B.S. in Electrical Engineering, University of Kansas, 1921; M.A., Columbia University, 1924; Ph.D., 1928. Bell Telephone Laboratories, 1921-. Dr. Mason has been engaged in investigations on carrier systems and in work on wave transmission networks both electrical and mechanical. He is now head of the department investigating piezoelectric crystals.

A. L. MATTE, B.S. in Electrical Engineering, Massachusetts Institute of Technology, 1909; Graduate Studies, M.I.T., 1912-13. New England Investment and Securities Company, 1910-12; Detroit United Railways, 1913-18. American Telephone and Telegraph Company, Department of Development and Research, 1918-34; Bell Telephone Laboratories, 1934-. Mr. Matte has been engaged principally in transmission studies relating to carrier telegraphy.

G. S. PHIPPS, B.S. in Electrochemical Engineering, Pennsylvania State College, 1930; M.S. in Metallurgy, Columbia University, 1939. Bell Telephone Laboratories, 1930-. Mr. Phipps has been engaged principally in the metallurgical investigation of solders and lead base alloys.

F. A. POLKINGHORN, B.S., University of California, 1922; U. S. Naval Radio Laboratory at Mare Island Navy Yard, California, 1922-24; A-P Radio Laboratories, San Francisco, 1924-25. Pacific Telephone and Telegraph Company, San Francisco, 1925-27; Bell Telephone Laboratories, 1927-. Mr. Polkinghorn's work has been primarily in connection with the design of radio receiving and test equipment for use at high and ultra-high frequencies.

EARLE E. SCHUMACHER, B.S., University of Michigan; Research Assistant in Chemistry, 1916-18. Engineering Department, Western Electric Company, 1918-25; Bell Telephone Laboratories, 1925-. As

Associate Research Metallurgist, Mr. Schumacher is in charge of a group whose work relates largely to research studies on metals and alloys.

A. M. SKELLETT, A.B., 1924, M.S., 1927, Washington University; Ph.D., Princeton University, 1933; Instructor, 1927-28, Assistant Professor of Physics, 1928-29, University of Florida. Bell Telephone Laboratories, 1929-. Dr. Skellett, formerly engaged in investigations pertaining to the transatlantic radio telephone, is concerned with applications of electronic and ionic phenomena.

R. A. SYKES, Massachusetts Institute of Technology, B.S. 1929; M.S. 1930. Columbia University, 1931-33. Bell Telephone Laboratories, Research Department, 1930-. Mr. Sykes has been engaged in the application of piezoelectric crystals to selective networks, and more recently in the use of coaxial lines as filter elements.

EMIL FRIDSTEIN VAAGE, E.E., Technical University of Darmstadt, Germany, 1921-26; M.S., Brooklyn Polytechnic Institute, 1932. Elektrisk Bureau, Oslo, Norway, 1926-27. American Telephone and Telegraph Company, 1927-34; Bell Telephone Laboratories, 1934-. Mr. Vaage has been engaged in inductive coordination studies, 1927-39. Since 1939 his work has been concerned with open-wire television transmission.

L. G. WADE, B.S.E.E., University of Idaho, 1918; M.S., Cornell University, 1924. Engineering Department, Western Electric Company, 1924. Mr. Wade has been engaged in developing equipment and processes for the manufacture of lead covered telephone cable, particularly on drying and dry storage of cable cores preceding the lead sheathing operation.