

A. D. Knowlton Honored by ASA

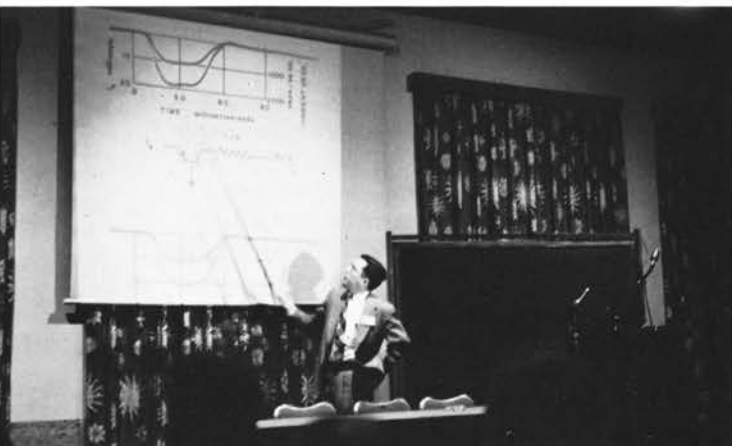
A. D. Knowlton, Laboratories Director of Design Engineering, was honored by the American Standards Association recently in recognition of his work in the development of American Standards.

The citation read: "The American Standards Association presents this certificate in recognition of contributions to the establishment of voluntary standards and in appreciation of sound advice and devotion of energy to the furtherance of the standards movement as a means of advancing the national economy."

Mr. Knowlton represents the Telephone Group, comprised of the Bell Telephone System and the U. S. Independent Telephone Association, on the Standards Council of the American Standards Association. The Council is responsible for the technical program of the A.S.A.

Members of Laboratories Participate in A.I.E.E. General Meeting

Twenty-seven members of the Laboratories participated by delivering papers or presiding over Technical Sessions at the Winter General Meeting of the American Institute of Electrical Engineers, held at the Hotel Statler in New York City from January 30 through February 3.



J. M. Early delivers one of twenty-two papers that were presented by members of the Laboratories at the A.I.E.E. Winter General Meeting.

Five Technical Sessions were directed by members of the Laboratories: the session on Communications Switching Systems was directed by W. Keister; Telegraph Systems by R. B. Shanck; Communication Theory by L. G. Abraham; Metal-

B.S.T.J. CONTENTS

The March, 1956 issue of the Bell System Technical Journal contains the following articles:

An Experimental Remote Controlled Line Concentrator by A. E. Joel, Jr.

Transistor Circuits for Analog and Digital Systems by F. H. Blecher.

Electrolytic Shaping of Germanium and Silicon by A. Uhler, Jr.

A Large Signal Theory of Traveling-Wave Amplifiers by P. K. Tien.

A Detailed Analysis of Beam Formation with Electron Guns of the Pierce Type by W. E. Danielson, J. L. Rosenfeld and J. A. Saloom.

Theories for Toll Traffic Engineering in the U. S. A. by R. I. Wilkinson.

Crosstalk on Open-Wire Lines by W. C. Babcock, Esther Rentrop and C. S. Thaeler.

lic Rectifiers by D. E. Trucksess; and Industrial Television and Broadcast Transmitters by H. A. Affel. In addition, the Laboratories was represented by papers in other sessions including the following: Wire Communications, Transmission and Distribution; Solid State Devices; Solid Dielectrics; Magnetic Amplifiers; Wire Communications; and Electronic Circuits and Systems.

Titles and authors of papers delivered at these sessions are listed on page 118 of this issue.

Tone Ringer May Replace Telephone Bell

The Laboratories has recently described experiments on a new musical "tone ringer" which may ultimately replace the telephone bell if it meets technical standards and customers' approval. The musical tone equipment uses transistors which are rapidly taking over many functions in telephone communications.

The first major field trial of the new device will be held in the Crystal Lake, Illinois, area this spring. The experimental site was selected for the variety of telephone equipment it affords. Some 300 customers on 100 telephone lines, ranging from individual to eight-party rural service, will be asked to participate.

In this field trial the tones will be transmitted with the same amount of power required for a



Miss M. A. Lageda of the Laboratories demonstrates a 500-type set equipped with a tone ringer.

telephone conversation—considerably less than is needed to make a telephone ring. The ordinary telephone bell requires 85 volts; the transistorized device operates on less than a volt.

The experimental telephone sets in Crystal Lake will be almost identical in appearance with the 500-type models placed in service by the Bell System. The only apparent change in the set is a louvered section at the side of the base through which the sound is radiated. Alterations in the telephone central office at Crystal Lake and on telephone lines there will not affect the customer.

Limited field trials and laboratory tests already indicate some of the advantages of the musical tone. Reactions of a panel of men and women participating in laboratory tests indicated that the musical tone can be heard at relatively great distances. It stands out above general room noise and can be distinguished from such sounds as the ringing of doorbells, alarm clocks and fire alarms. Still it was judged to be a distinctive and pleasant sound.

The wire-spring relay, in which electrical contacts now have a thin gold overlay. Tiny contact at left.



Wayne University Honors J. A. Morton

Jack A. Morton, Laboratories Director of Device Development, received an honorary Doctor of Science degree from Wayne University, Detroit, at its Commencement exercises Jan. 31. Dr. Morton was graduated from Wayne in 1935 with a B.S. degree in Electrical Engineering, and received an M.S. degree in engineering from the University of Michigan in 1936. He joined the Laboratories in 1936, and has been Director of Device Development since May, 1955. He also holds an honorary Doctor of Science degree from Ohio State University.

New Contacts for Wire-Spring Relay

The efficiency and dependability of wire-spring relays have recently been enhanced by the Laboratories development of a gold overlay for palladium contacts. Relays with the new type of contact are



Photomicrograph of cross-section of metallic tape used for relay contacts. Palladium has thin layer of gold at top. Magnification about 50 diameters.

now being produced by the Hawthorne Works of Western Electric for use in No. 5 crossbar and automatic message accounting equipment.

The overlay protects palladium contacts from difficulties caused by a "brown powder." With the older relays, this brown powder—derived from organic vapors in the air—was not particularly troublesome, although it sometimes resulted in a "banjo" or strumming sound heard by people using the telephone. However, the new wire-spring relays provide a smaller pressure to close the electrical contacts than do the older types, with the result that the brown powder, in addition to producing the banjo sound, sometimes rendered the relay contacts inoperative. The very small amount of gold applied over the palladium solves the problem. Most relays require gold overlays on only one contact of a pair, but for some circuits handling voice signals, gold is applied to the palladium of both contacts.