

# Medals Awarded by Franklin Institute

On March 24, The Franklin Institute, Philadelphia, Pa., announced that on April 16, two of the George P. Henderson medals will be awarded for meritorious inventions or discoveries in the field of railway engineering. Dr. Lars O. Grondahl, director of research and engineering at the Union Switch & Signal Company, Pittsburgh, Pa., and Sedgwick N. Wight, engineer of train operation at the General Railway Signal Company, Rochester, N. Y., will each receive a Henderson medal. Grondahl will receive the medal "in consideration of his contributions over a period of years to the development which has resulted in making available a practical system of inductive train communication." Wight will receive the medal "in consideration of his accomplishments in the invention and development of major railroad signaling systems thus contributing to the safety, speed and reliability of railroad operation." Further information, issued by The Franklin Institute, follows:

Dr. Lars Olai Grondahl was born on November 27, 1880, at Hendrum, Minn. He received his B.S. degree



Dr. L. O. Grondahl

in 1904 and his M.S. degree in 1908, both from St. Olaf College, Minn. He became a lecture assistant at Johns Hopkins University in 1906 where he earned his Ph.D. degree in physics in 1908. From 1908 to 1912, he was instructor in physics at the University of Washington. He then joined the faculty of Carnegie Institute of Technology where he became associate professor in 1917. During World War I, he was commissioned captain in the Ordnance Corps and worked on problems connected with

submarine detection, under the direction of the Naval Consulting Board. In 1920 he became associated with the Union Switch & Signal Company of which he is now director of research and engineering. During World War II, he was a division member of the National Defense Research Committee, and chief of section 5.2 of the same committee. Dr. Grondahl is the recipient of the Potts Medal, the Modern Pioneer Award and an honorary degree of Doctor of Science from St. Olaf College. He has written numerous articles on technical subjects, and is the holder of about 75 patents. He is a fellow of the American Physical Society and of the American Association for the Advancement of Science, a founder of the Physical Society of Pittsburgh, and a member of the Electrochemical Society, The Franklin Institute, the American Institute of Electrical Engineers, the Railway Club of Pittsburgh, and the American Institute of Physics.

Dr. Grondahl first began work on train communication in 1923, when railroad men visualized the advantages to be gained by a means for communicating between the two ends of a freight train. Such a system has been developed and has made it possible to communicate not only between vehicles in the same train but between different trains on the same or different tracks, and between trains and wayside offices. With this system a frequency modulated carrier current is induced in wayside wires or any wires not more than 200 ft. from the rails. These carry the communication current, and at the receiving end this current is inductively transferred from the wires into the track and is picked up by the receiving equipment.

Sedgwick N. Wight was born on March 21, 1879, at Andover, Ohio, and received his B.S. degree from Hiram College, Ohio, in 1903. In the following year he started as a draftsman for the Lake Shore & Michigan Southern (now N.Y.C.) in the signal department at Cleveland, Ohio, and was later promoted to signal inspector. He joined the General Railway Signal Company, Rochester, N. Y., as assistant commercial engineer in 1910, working up to his present position of engineer of train operation.

His most outstanding contributions to railroad signaling are his (1) absolute-permissive block sys-

tem, (2) centralized traffic control and (3) entrance-exit electric interlocking. The absolute-permissive block system involves the fundamental principle of automatic detection of train direction. It prevents trains moving in opposite directions



S. N. Wight

from entering the same piece of single track between sidings, but permits trains moving in the same direction to follow each other at speed and with the complete safety they would have if they were operating on a double-track line.

Centralized traffic control is a system of railroad operation whereby the movement of trains over routes in interlockings and through blocks on a designated section of track is directed by signals controlled from a central point. It consists of a control machine at a central office, with auxiliary equipment at outlying points by means of which track switches and associated signals in the prescribed territory are controlled by a single operator, and with checks against human error.

Interlocking is a branch of railway signaling, the purpose of which is to provide a safe path for the movement of trains through switches, junctions, terminal stations, yards and crossings. With the entrance-exit electric interlocking system the entrance of a train is visually and audibly announced on a control panel, and the operator, knowing its destination, has merely to push an entrance button, where the train is entering the route, and an exit button where it is to depart. This is to be compared with the former practice when switches and signals were positioned manually and individually.