can receive. In making the award the Institution has secured the co-operation of the leading mechanical engineering institutions and societies in all parts of the world. Mr. Michell, who was elected a fellow of the Royal Society in 1934, is best known for his work in connexion with thrust and journal bearings, but he has, in addition, made a number of extremely valuable contributions to the science of engineering in connexion with centrifugal pumps and crankless engines. His outstanding achievements as a man of science, a mathematician of international fame, an inventor, and a producer fulfil in a unique way the conditions of the award of the Medal. Without the Michell bearing the high-powered modern ship and the large central power station would scarcely have been possible to-day; and it is, therefore, most appropriate that the Institution of Mechanical Engineers, which is so largely concerned in the development and application of power, should have recognized the pioneer work of Michell by awarding him this Medal. The last award of the Medal was made to an eminent Continental engineer, Prof. Aurel Stodola, who was associated with the development of the scientific basis of the design of steam turbines.

Carl von Linde, 1842—1934

CARL VON LINDE, the centenary of whose birth falls on June 11, and whose work on refrigeration is the subject of an article by Mr. J. H. Awbery elsewhere in this issue (p. 630), was one of the outstanding German engineers of his time. A lecturer of distinction, he was also a successful inventor, a sound constructor, and an indefatigable investigator. Born at Bernsdorf, Oberfranken, Bavaria, he was the son of a pastor, being the third child in a family of nine. His early training had much to do with his success, and in one of his writings he pays a touching tribute to his mother. From school at Kempen he was able to enter Zurich Polytechnic and there came under the influence of the remarkable trio Zeuner, Reuleaux and Clausius. The lectures of Clausius on heat greatly influenced him. From Zurich he entered Borsig's locomotive works at Berlin, and then joined Krauss's new works at Munich. In 1867 he drove Krauss's first locomotive to the World Exhibition at Paris. Soon after this he became an assistant professor at Munich Technical High School, and it was there that he first turned his attention to refrigeration, publishing in 1871 a paper on "Improved Ice- and Refrigerating Machines". The first machines built to his designs were constructed at the famous Maschinenfabrik-Augsburg, which afterwards built the first Diesel engines and has recently been in the news. On April 5, 1876, he took out his patent for an ammonia machine. His work proved so valuable to the brewing industries that in 1879 he resigned his professorship and founded at Wiesbaden the Gesellschaft für Lindes Eismachinen. A.-G., a concern dealing with the planning and design of refrigerating installations.

By 1891 Linde's success was such that he was able to resume his experimental work, establishing for this purpose a research institute at Munich. In 1895 he produced liquid air on a scale hitherto unknown, and in 1902 he erected the first oxygen works. The company founded in 1879 led to Linde machines being made in many countries. In 1901 a gas liquefaction works was opened at Höllsriegelskreuth near Munich, in 1920 a factory for pumps and compressors was started at Sürth near Cologne and another branch was opened at Mainz. An energetic member of the Verein deutscher Ingenieure, in 1897 Linde was awarded its highest distinction, the Grashof Medal. He was especially interested in Oskar von Miller's work in founding the Deutsches Museum at Munich, and some of his original apparatus is preserved there. He lived to the great age to ninety-two, passing away at Munich on November 16, 1934. His portrait is reproduced in Matschoss's "Great Engineers" (1939).

Physicists during and after the War

IN his address delivered at the annual general meeting of the Institute of Physics in London on May 28, the president, Sir Lawrence Bragg, spoke of the vital part physicists are playing in the national effort and referred to some of the many interesting applications of the science that have been brought to fruition under the stress of the War. The main part of his address was, however, concerned with the future, and his proposals were based on the assumption that mankind is at present in the throes of one of the great mutations of history. He believes that the oncoming technological age will require many scientific workers to continue as technologists into which they have had to turn themselves in these war years, and he suggested that the present training of physicists will need considerable modification to produce more men suitable for this type of work. Anyone who has had experience as an internal examiner is familiar with the type of graduate who knows all about the constitution of the atom but cannot read a vernier scale or perform simple exercises in mensuration. "Industry", he said, "wants physicists who have some idea how thick a piece of copper wire has to be to carry a hundred amperes."

The Planning Committee of the Institute of Physics, of which Sir Lawrence is chairman, is examining the whole question of the training of physicists after the War, although rightly, at present, many of its meetings were concerned rather with the present training and supply of physicists. Having in mind the Government's declared policy of devoting attention to post-war planning and especially to that part concerned with our export trade, the Board of the Institute has instructed the Planning Committee to examine the position of physicists after the War. A memorandum on training has, therefore, been prepared with the view of provoking open discussion, and copies of it will be available to non-members of the Institute on request. Sir Lawrence urged the constant interchange of physics students and staff from the universities with corresponding personnel from industrial and Government laboratories and made some concrete suggestions for the realization of this project. The Institute of Physics in co-operation with other scientific and engineering institutions has certain of these and similar proposals under examination. Physics will have to play an ever-increasing part in both our old-established and newer industries if they are to be enabled to compete fairly in the world's markets after the War. The Institute must, therefore, give the lead in seeing that Great Britain has a sufficient number of adequately trained and able physicists to meet the requirements of industrial and Government undertakings.