

Physics of the Solid State

FIFTIETH ANNIVERSARY OF THE PHYSICAL SOCIETY OF ZURICH

THE Physical Society of Zurich celebrated its fiftieth anniversary by holding a meeting on January 13-16 to discuss the "Solid State".

This Society was originally founded by students in order to discuss physical and technical problems. One of the early and rather unusual rules governing the selection of new members was that no professors should be admitted. This rule was abandoned later when the Society included in its list of members such distinguished names as: P. Weiss, A. Einstein, M. von Laue, P. Debye and E. Schrödinger, who were all at some time on the staff of either the University or the Technical High School in Zurich.

The jubilee meeting was opened by the president of the Swiss Board of Education, and his address was followed by a speech from Prof. P. Weiss, of the University of Strasburg, who represented the foreign members of the Society.

The first scientific address was given by Prof. P. Niggli, of the Technical High School, on the subject of "Mineralogical Problems of Crystal Structure". Prof. Niggli gave first a general survey of the various crystal types and discussed in particular the case in which whole groups of the constituent parts of the crystal are partially substituted by other groups without thereby altering the lattice. He gave the rules governing these substitutions, and discussed the problem on the basis of the geometrical structure theory.

On the following day, Prof. W. L. Bragg, of the University of Manchester, gave an account of the structure of binary alloys in connexion with the Hume-Rothery rule, and discussed the lattice transformation in alloys in their relation to order-disorder phenomena.

Prof. P. Debye, of the Kaiser Wilhelm Institute of Physics, Berlin, dealt in his lecture with the semi-crystalline nature of liquids. He discussed the effect of the waves of thermal agitation in a liquid upon the scattering of monochromatic light by the liquid. Whereas, in a gas, light originally monochromatic

becomes slightly less so after it is scattered, in an ideal crystal, this light splits into two components; and in a liquid, generally speaking, into three spectral lines, except when the coefficient of expansion becomes zero, as for example in water of maximum density, where only two lines appear, as predicted by the theory. From these experiments, Prof. Debye concludes that a liquid is, on the whole, much nearer to a solid than it is to a gas.

On the following day, Dr. A. Müller, of the Royal Institution, London, gave a summary of the work on long-chain compounds of the paraffin type. He discussed the relations between the structure and physical properties of these substances and dealt with the problem of crystal transformations.

Prof. H. Mark, of the University of Vienna, lectured on the kinetics of polymerization of certain substances which form very long chains, and gave an account of the elasticity of rubber, which he treated as a problem of statistics of the configuration of these long chains.

The evening lecture was delivered by Prof. A. Sommerfeld, of the University of Munich, who gave an excellent account of the modern theory of the metallic state, and of the specific heat and electrical conductivity of metals.

The final address was by Prof. M. von Laue, of the University of Berlin, who discussed the theory of the "Kossel- and Kikuchi-lines" which are observed when a source of X-rays or electron waves is placed inside a crystalline medium.

The papers presented at the meeting will be published together.

The meeting was well organized and attended, for which the president of the Society, Dr. R. Sängler, was largely responsible. At the same time, there was an informal atmosphere and lively discussion. The meetings arranged by the Physical Society in Zurich nearly every year are now well-known in scientific circles, and provide opportunities for the exposition of recent scientific work in a place convenient for scientific men of all nations. A. M.

International Cancer Research

REFERENCE has already been made in these columns to the Second International Congress of the Scientific and Social Campaign against Cancer which was held in Brussels last autumn (NATURE (1936), 138, 727). The text of fifty-five reports or reviews which were read at the Congress have now been published*. Each report is given at length in one of the six official languages, while summaries of the reports are given in all six languages. Some of the reports, such as that of Cook, Haslewood, Hewett,

Hieger, Kennaway and Mayneord on "Chemical Compounds as Carcinogenic Agents" and that of Reding on "Predisposition and Resistance to Cancer", have good bibliographies, while others have no references. The greater part of the volume is concerned with the biology, diagnosis and therapy of cancer, and there are interesting reviews on the statistical investigation of mortality from cancer in different States and among different races.

The last four papers on the statistics of morbidity and mortality from cancer are from London, Munich, New York and Batavia, and show that the total mortality from cancer is of the same order in almost

*IInd International Congress of the Scientific and Social Campaign against Cancer. Vol. 1. Reports. Pp. xvi+503. (Bruxelles: Ligue Nationale Belge contre le Cancer, 1936.)