News and Views

Prof. Hans Spemann

THE Nobel Prize for Medicine for 1935 has been awarded to Prof. Hans Spemann, professor of zoology in the University of Freiburg-im-Breisgau. The presentation is a fitting recognition of a series of investigations which have transferred a large group of phenomena from the domain of metaphysics to that of science, in a way which we are more used to associate with the eighteenth century than with our own. Since his earliest papers, written at the turn of the century, Spemann has devoted himself to the problem of why one part of an egg develops into a certain organ in the adult, another part into something else. When he began his investigations, there was no scientific answer to such questions; one had the choice of invoking, with Driesch, a non-material entelechy, or of putting one's trust, with Roux, in the physics and chemistry of the future. Spemann refused such theoretical flights. He restricted his speculation to the actual data he could obtain from experiment, and his experimentation again to an intensive study of the development of one group of animals, the Amphibia. After twenty years of research, remarkable alike for the clarity with which the problems were envisaged and the beauty and skill of the technical means by which they were attacked, he was able to demonstrate that, in the amphibian egg, the way in which any part develops is dependent on its position relative to a certain region which he named the organisation centre. The formulation of this concept provided the first step in the causal analysis of the differentiation of the several regions of the egg. But Spemann was not content to leave the organisation centre as an unanalysed biological entity. He proceeded to show that some, at least, of its effects are due to its chemical properties, the nature of which he is still actively investigating, in company with his pupils and many others who have followed him in the exploration of the rich country which he has opened up for science.

Prof. E. Maitland Wright

DR. EDWARD MAITLAND WRIGHT, who has been appointed to succeed the late Prof. H. M. Macdonald in the chair of mathematics at the University of Aberdeen, is only twenty-nine years of age. He took his degree at the University of London in 1926 with first class honours in mathematics. He was a scholar of Jesus College, Oxford from 1926 until 1930 and has been a research student in mathematics at Christ Church since. He gained both the Junior and Senior Mathematical Scholarships of the University and first classes in each of the mathematical 'schools'. He has also been a University Senior Student and, for one year, lecturer in mathematics at King's College, London. He was trained in research work in mathematics under Prof. G. H. Hardy in Oxford and Prof. Landau in Gottingen. He has published nearly twenty papers, mainly on the additive theory of numbers and especially on Waring's theorem. A book by Prof. Hardy and him will shortly be published by the Oxford University Press; it will be accurately, though, perhaps, deceptively described as "An Introduction to Arithmetic".

The New Physics

IN the Sir Halley Stewart Trust Lecture delivered on October 24, Sir William Bragg said that an important factor in the rapid progress of science, so marked in recent years, has been the discovery that in one of her chief aspects Nature's constructions are essentially 'particulate'. In the first place, matter is particulate. The atomic theory as now understood dates from the time of Dalton, who established the fact that atoms, of a limited number of kinds, combine in definite numerical proportions to form the substances of the world. This great generalisation is the foundation of chemistry. Forty years ago it was shown that electricity is also particulate, the ultimate unit, when of negative sign, being called the 'electron'. These two generalisations have prepared the way for a third; it has been found that energy may also be described as 'particulate'. The transfer of energy is effected in units, known as 'quanta'. It is now possible to demonstrate the single atom, though a hundred million in line cover only an inch, the single electron and even the single energy quantum. Accurate maps of various molecules can be drawn, showing the signs and positions of the atoms of which they are composed: just as an architect draws the plan of a building. We may study the single ring of six carbon atoms which, with attached hydrogens, forms the molecule of benzene, or the double ring of naphthalene and the treble ring of anthracene, these being of great importance in the dye industry; or the five-ringed structure which is typical of most of those substances that are known to produce cancer. We can examine the details of the long protein molecule which plays so great a part in animal life, or the cellulose molecule of plants, or the arrangements of the atoms in metals and rocks. Nature builds all the substances that we know on certain definite structural lines. It is because we have learnt this fact, and are learning how to follow, very haltingly it may be, that physical science is making such rapid headway.

Atmospheric Electricity

IN the third of the series of Sir Halley Stewart Trust Lectures on "Scientific Progress", on October 29, Prof. E. V. Appleton dealt with recent advances in the study of atmospheric electricity. The surface of the earth is negatively charged in fine weather, while the air immediately above possesses a positive