

News and Views

Prof. Walther Nernst, For.Mem.R.S.

ON June 25, Walther Nernst, well known as a physical chemist, will celebrate his seventy-fifth birthday. Nernst was born at Briesen, West Prussia, and studied at the Universities of Zurich, Berlin, Graz and Würzburg. He worked under F. Kohlrausch at Würzburg, where he took his degree. His thesis connected his name for all time with the thermomagnetic effects he had discovered. Eventually, he became professor of physical chemistry in the University of Göttingen and principal of the laboratory that he had just equipped for this branch of study. Numerous papers dealing with a diversity of problems were published as the result of work in the new laboratory, among them such subjects as the ionic theory of solutions, electrocapillary phenomena, residual current, polarization capacity, over-voltage, the lead accumulator and the theory of nerve stimulation which explains the painlessness of the application of high-frequency electric currents, known as diathermy. The invention of the Nernst electric lamp made the name of the young physicist well known all over the world. In 1924, Nernst became president of the Reichsanstalt. His "Textbook of Theoretical Chemistry", the fifteenth edition of which has recently appeared in Germany, is well known all over the world and has been translated into several languages. During the Great War he spent some time at the front and was decorated with the Iron Cross of the first and second class. In 1920, he was awarded the Nobel Prize for chemistry. Prof. F. Krüger has written an appreciatory article in the May issue of *Research and Progress* (Berlin, N.W.7, Unter den Linden 8) on Nernst's life and work, filled, he says, with most intensive labour but richly rewarded in respect of research and teaching.

NERNST'S work covers many fields of theory and investigation. His theory of galvanic cells, published in 1889, in which he applied the new theory of ions to the explanation of the development of electromotive force and introduced the idea of an electrolytic solution pressure, still forms the basis of the theory of the cell. Equally important was his study of the theory of the diffusion of electrolytes and the development of the formula for the liquid contact potential (1888-89). The application of the quantum theory to physical chemistry interested him greatly, and his experimental investigations of the specific heats of solids at low temperatures laid a sound basis for one aspect of this theory. Among other important results was the fact that the specific heat of diamond becomes vanishingly small at low temperatures. This result was a consequence of Nernst's so-called Heat Theorem, or the Third Law of Thermodynamics, which he put forward in 1906. This has the most fundamental importance in chemical thermodynamics and gave a new impetus to

theoretical and experimental studies in this field, in which a large number of workers in all parts of the world took part. Another example of Nernst's insight into fundamental problems was his enunciation of the so-called chain mechanism of photochemical reactions, published in 1918. There is scarcely a branch of modern physical chemistry which has not been enriched by some important contribution from Nernst, and his influence on the development of the science has been most fruitful. His insistence on the equal importance of thermodynamics and the atomic theory at a time when the latter was beginning to fall into discredit in some quarters is a tribute to his sound judgment. As an investigator and as a teacher he stands out as one of the great leaders in science.

Plaque in Memory of Edward Clodd

THOSE who knew Edward Clodd personally and the multitude who were instructed by his numerous books and articles will welcome the placing of a plaque on June 15 on Strafford House, his Aldeburgh home during 1889-1930. It was here that he kept his library, where he spent all his spare time, and to which he retired. Strafford House recalls many pleasant and stimulating occasions to those who were privileged to be Clodd's guests. Throughout a long period Clodd invited mixed gatherings of men of very varied interests—literary men who had made their mark in different ways; leading men in other departments of learning, law, history, economics, and politics; administrators of Protectorates, Colonies, and the like; men who had come to the front rank in chemistry and physics, biology, anthropology, and archaeology. Any particular gathering contained representatives of some of these intellectual activities, each of whom blossomed out under the hospitality of the genial host, whose far-reaching interests embraced most aspects of the humanities and sciences. Not only were the talks and discussions memorable, but also the walks and especially trips in the little yacht the *Lotus*, where Clodd busied himself with sailing and in ministering personally to the material needs of his guests. Strafford House thus became a pleasant meeting place for men and women of varied pursuits and was a transient intellectual centre that had a definite social value for some forty years.

Museums and Schools

AN exhibition designed to demonstrate some of the opportunities for co-operation in function between museums and schools in the work of education opened in the Department of Archaeology and Egyptology of University College, University of London, Gower Street, London, W.C.1, on June 20 and will remain open daily until July 15. The material exhibited

has been contributed, mainly from their publications, by the museums of London and of the United States of America. It serves to bring out with considerable clarity the very different approach by the museums of the two countries to the problem of education. In London, largely owing to the manner in which the great national collections originated, and the way in which they have been built up, emphasis is laid on the function of the museum as a store-house of research and advanced critical appreciation, as well as, of course, as a place of exhibition of such part of the national wealth as is embodied in objects of artistic or historical interest and value concentrated in London. In the United States, on the other hand, the museums rely almost entirely upon funds from unofficial sources, whether from endowment or in the form of current income. In consequence, the latter have consistently stressed their educational function, directing it, naturally, in the first instance to the satisfaction of the interests or needs of their more immediate clientele.

THIS difference is to be noted in the character of the posters advertising the national collections of Great Britain exhibited by the London Transport Board, and those shown here by the United States Museums, which consist of carefully devised and prepared propaganda material. The same difference is to be noted in the character of the two sets of publications. Whereas the English museums have prepared series of postcards and guides which offer a wealth of material bearing upon nearly every aspect of art, science and history, from which teachers are left to select for themselves, in the United States the museums, undertaking the direct educational function, circulate among the schools illustrative material selected by their own education departments, but rely mainly on the organized work and lectures of their own educational staffs, for which special accommodation is provided in the museum building.

Human Problems of Management

IN an address at the Commencement Exercises, Massachusetts Institute of Technology, on June 6, Sir Harold Hartley pointed out that, apart from new inventions and discoveries, the great changes in industry in this century have been largely in the direction of transforming traditional methods depending on the personal skill of the operator to scientifically controlled processes in which measurement has largely taken the place of craftsmanship. A new standard of certainty based on scientific measurement has invaded every branch of industry and engineering. The human problems of management, however, are equally important and are much more difficult than the selection and working of inanimate material. Success or failure may depend on the wise choice of men, in which there is no figure of merit as guide. There are also the wider human problems of industry and the collective life of the factory; the emotional response of the individual, the human understanding of the supervisor may influence efficiency and output as much as scientific planning. These human problems

of management, Sir Harold said, become increasingly important with the size of the concern, and the rapid growth of the great corporations constitutes a new factor in our social organization, so that any danger of their inability to utilize human effort to the best advantage is an urgent problem. When an organization becomes too large for personal leadership, it is in danger of losing its character and vitality, of becoming mechanical, with all the loss of efficiency implied thereby in a human agency.

ORGANIZATION, however, implies not only order in the distribution and co-ordination of the functions of the separate parts, but freedom for the individuals within their sphere of action. The remedy for the dangers of specialists through their ignorance outside their limited sphere of knowledge is a synthesis, which is the object of a large industrial undertaking in securing the co-operation of a team of specialists. Its smooth running depends on the ability of each of its component groups to engage intelligently in its particular task in proper co-ordination with the rest. Sir Harold Hartley does not believe that individual initiative disappears with increasing size. Without initiative there cannot be the steady flow of ideas, not merely outwards from the centre but inwards from each section, which is essential for success. The key problem is that of supplying adequate motive power in place of the self-interest motive, which must largely disappear. Accordingly, he stressed the importance of the study of incentives based on personal satisfaction, the development of the team spirit, and of the value of recognition in sweeping away negative inhibitions which hinder the possibility of achievement. It is the business of a leader to find the opportunities for success and to see that everyone is made to feel his part in them and to know that his part is recognized.

Pre-Roman Archæology in Shropshire

IN view of recent developments in the study of British archæology and prehistory in the period preceding the Roman invasion, considerable interest is attached to the announcement that the earthworks which crown the slopes of the Wrekin in Shropshire are to be excavated by the Society of Antiquaries of London in co-operation with the Shropshire Archæological Society. It is thought probable that the Wrekin was the headquarters of the tribe of the Cornovii before they were removed by the Romans to the riverside site of Viroconium or Uriconium, the modern Wroxeter, some time about A.D. 60-70, much as the tribesmen were removed from Maiden Castle to Dorchester in the same period. Uriconium itself, the Roman site, has recently been excavated by Miss Kathleen Kenyon, and it is now the opinion of archæologists that the time has come to investigate the earlier site. It will be a matter of interest to see whether the suggestion thrown out by Dr. R. E. Mortimer Wheeler of an indication in his recent excavations in southern Brittany pointing in the direction of Shropshire is in any way borne out by the results of the investigation now contemplated.