

### Heidelberg and Academic Freedom

THE University of Heidelberg is to celebrate this year the five hundred and fiftieth anniversary of its foundation, and it is proposed to give to the commemoration more than national significance. To this end, invitations to participate are being sent out widely, and universities and learned societies in Great Britain are being invited to send delegates. The Bishop of Durham, in a letter in *The Times* of February 4 discussing these invitations, quotes from the opening of the article on the dedication of the Philipp-Lenard-Institut at Heidelberg, which appeared in *NATURE* of January 18 (p. 93). This account, he says, demonstrates that the influence of the racial fanaticism which has swept over Germany and its universities has been specially severe in Heidelberg. In his opinion, which is held by many other intellectual leaders, "The appearance of British representatives at the Heidelberg celebration, and the presenting by them of congratulatory addresses, could not but be understood everywhere as a public and deliberate condonation of the intolerance which has emptied the German universities of many of their most eminent teachers."

### Sensitising Dyes in Scientific Photography

IN his Friday evening discourse at the Royal Institution on January 31, Dr. C. E. K. Mees discussed "Sensitising Dyes and their Use in Scientific Photography". While the eye is sensitive to the visible spectrum, and the brightest colours to the eye are yellow, green and red, photographic materials are in their nature sensitive only to the blue-violet and ultra-violet regions of the spectrum, to which the eye has little or no sensitiveness. In 1873, H. Vogel discovered that the addition of dyes to photographic materials would make them sensitive for the region of the spectrum which was absorbed by the dye, and although Vogel's discovery was at first received with incredulity, it eventually proved the foundation of the change in photography which has been effected by the introduction of orthochromatic and panchromatic materials. Until the beginning of the twentieth century, only orthochromatic plates were available, but in 1904 a series of dyes were made in Germany which sensitised plates very readily for those regions of the spectrum which are bright to the eye, notably the red and yellow, and the first commercial panchromatic plates were made in England in 1906.

THESE new dyes were obtained from organic chemicals containing nitrogen and derived from coal tar, but the general structure of the dyes remained unknown until 1920, when Dr. W. H. Mills and his co-workers at Cambridge showed that they were characterised by a chain of carbon atoms which joined two nuclei each containing a nitrogen atom. This clarification of the structure of the cyanine dyes, as they are called, made it possible to prepare a great variety of these dyes, many of which were superior for photographic use to those which had previously been available. By the use of the new dyes 'super-

sensitive' panchromatic materials were made, and these effected a great advance in the art of photography. In the motion-picture studios the new panchromatic film enabled tungsten lighting with its advantages of convenience and silence to be substituted for arc lamps, and this greatly facilitated the sound recording made necessary by the development of the 'talkies'. Fine-grain panchromatic film has made possible the use of miniature cameras indoors, and by the use of cyanine dyes with especially long chains of carbon atoms, photography by infra-red light has been greatly facilitated. By the use of new dyes of the cyanine series a great variety of plates has been made available for the spectroscopist and the astronomer, who have made discoveries of considerable importance as a result, and it is now easy for the scientific worker to obtain plates sensitive to any spectral region from the ultra-violet to the far infra-red.

### Economic Entomology

AT the annual meeting of the Royal Entomological Society of London, held on January 15, the retiring president, Dr. S. A. Neave, discussed the relations between mankind and insects. The growth of economic entomology, as he pointed out, is a relatively modern development. The first official Government entomologist to be appointed appears to have been in the United States in 1853. Between 1884 and 1895 a number of such appointments were established in various parts of the British Empire. In Great Britain, John Curtis, Miss Ormerod and others were early pioneers in economic entomology, but no permanent post of Government entomologist existed until 1912. From that time onwards the need for skilled entomological advice became increasingly recognised throughout the civilised world, and, at the present day, there are between three and four hundred trained entomologists in the British Empire alone. This increasing attention given to insects in relation to man has, as Dr. Neave pointed out, led to the discovery of hosts of important new species and to a demand for the correct identification of thousands of other species. This, in itself, has led to an ever-increasing pressure on the resources of systematists until, at the present time, they are unable to cope with the material awaiting study. This need for more systematists will have to be met if Government departments are to derive the full benefit from moneys voted towards coping with economic problems in entomology.

### Destructive Hailstorm in the Transvaal

SIX years ago, in a weekly column devoted to remarkable "Historic Natural Events", many records were given in *NATURE* of great hailstorms and damage done by them. There is an authentic record, for example, of a hailstone 17 inches in circumference and weighing 1½ lb. having fallen in Nebraska in July 1928 during a storm when the hailstones were "as large as grapefruit". A hailstorm of this character is reported by *The Times* correspondent at Johannesburg to have occurred on February 1 in a

native area of the Northern Transvaal when nineteen natives of the Barolong tribe were killed. The report states: "About 3in. of rain fell in a few minutes, and then came the hail, which consisted of jagged lumps of ice. In 30 minutes the hail was lying everywhere to a depth of 3ft., and in some cases the dead natives had to be dug out of it. There were many cattle killed, which the natives afterwards dragged away on sleighs. Whole crops were obliterated, and there are said to be over 1,000 native families afflicted in the area".

#### Ancient Shafts at Ipswich

MESSRS. BOLTON'S brickfield at Ipswich, already well known to archæologists as a valuable source of evidence bearing on the cultures of the Old Stone Age, recently has been the site of another remarkable discovery, unique in the annals of British archæology, but not yet explained with certainty. Three shafts of a remarkable character and of a previously unknown type have been exposed, of which two have been partially cleared by Mr. J. Reid Moir. Of these, the first, according to a report in *The Times* of January 29, was cylindrical in shape, and approximately three feet ten inches in external diameter, with walls of puddled clay nine inches thick. It was followed through the London clay into the Eocene sands; but neither here nor in the second shaft did excavation reach the bottom. Work in the second shaft had to be abandoned at a depth of seventy feet owing to the presence of water. This shaft was larger than the first, being some six feet in diameter, and more complex in its filling, at least down to a depth of eighteen feet. It had as a central core a pillar of puddled clay, with two walls of white clay between it and the outer wall. In both shafts at a considerable depth the clay walls coalesced to form a species of basin or false bottom, sealing the lower part of each shaft. Finds of archæological significance were scanty. Fragments of Roman brick, two pieces of silver sheeting, such as might have formed part of the cover of a casket, and a fragment of polished marble, which might have been part of the casket itself, when taken in conjunction with the proximity of a Roman burial ground and the later Roman Castle Hill villa, have afforded a basis for the suggestion that these may be Roman burial shafts, such as the *Puits funéraires* of France, or the late Roman shafts leading to burial chambers of Cyprus.

#### Journal of the History of Science

A NEW token of the growing interest in the history of science is provided by the appearance of the first number of "a quarterly review of the history of science since the Renaissance", under the title of *Annals of Science*. This new periodical is edited jointly by Dr. D. McKie of University College, London, Dr. Harcourt Brown, of Washington University, St. Louis, U.S.A., and Mr. H. W. Robinson, librarian of the Royal Society. It aims at dealing with the development of modern science in much the same way as *Isis* deals with the science of the earlier eras, and to encourage the study of

the life and work of the great masters and makers of science. "The personal note in the history of Science," adds the editorial, "is, indeed, just as interesting and just as valuable as the personal note in the history of Literature or the Arts. And there remain many inviting unworked corners in the field of scientific biography which still await the attention of the interested student and will amply reward his spade-work". The first issue runs to 113 pages, and includes seven articles and two signed book-reviews.

PROF. E. N. DA C. ANDRADE describes an attempt of John Wilkins, Warden of Wadham, Bishop of Chester, and originator of the Royal Society, to found a universal language, based upon a system of signs, or characters. There are articles on early nautical charts; the history of the Chile nitrate industry; Descartes and Henry More on the beast-machine—a translation of their correspondence pertaining to animal automatism; and the detection and estimation of electric charges in the eighteenth century. Prof. T. S. Patterson contributes an interesting identification of a certain Richard Boyle, who was admitted among the original members of the Royal Society. The closing contribution, by Dr. McKie, describes a MS. set of notes of Joseph Black's chemical lectures, made by Thomas Cochrane in 1767-68; these throw some interesting light on Black's chemical views at this early period in his career. Two new sketches of Black at his lecture table, by Cochrane, are reproduced. The journal is well printed and illustrated on a page of satisfying dimensions, with generous margins. Judging from the first issue, it will make a strong appeal to all who are interested in the history of science. It is published by Messrs. Taylor and Francis, Red Lion Court, Fleet Street, London, E.C.4, and the annual subscription is £1, including postage.

#### British Industries Fair

THE British Industries Fair, 1936, will be held at Olympia and the White City, London, and at Birmingham, on February 17-28. The general exhibits will be seen at Olympia, the furniture and textiles section at the White City and the engineering and hardware section at Birmingham. There will be no less than twenty-four miles of exhibits, of which London's stand frontage will be 12½ miles and Birmingham's 11½ miles. The Overseas catalogue recently issued contains a classified list of exhibitors which alone occupies 170 pages, and the key-parts of the catalogue are printed in nine languages. The organisers are able again to say, as they have said in each preceding year, that it will be a record-breaking Fair. The exhibitors number 1,421, London contributing most of them—775. Other cities and districts sending exhibitors to the Fair are, following the order of their contributions: Birmingham, the Potteries, Manchester, Sheffield, High Wycombe, Nottingham, Leeds and Liverpool. Seven sections are larger than last year, and the display of furniture at the White City will be the largest in the history

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