

Year after year I have urged him to get back to his chalk work. We had even talked of producing a chalk atlas together. I am glad to say that his interest in geology was so far revived that only six weeks before he died, when I was about to visit him, he wrote to me that he was ill but had finished a paper on the serpulids and I hear also one on "The Great Chalk Sea," which he probably, of all men, was the most competent to picture. He had been in bad health but would not give in until the papers were written and told his medical adviser, his former partner, that he had waited to send for him until they were finished. The act was characteristic of the man—he never thought of sparing himself. It is sad that the world is ever selfish and has no way of caring for such men and providing that they use themselves with consideration and full effect: we respect genius but little until we can no longer use it. Some day, when work such as Rowe's is described in readable form, the walls of ignorance will be shattered and the wondrous beauty of the lowly organisms of which chalk is composed will be made manifest. Our present indifference to geology is little short of criminal, seeing that it is the story of our earth.

HENRY E. ARMSTRONG.

REV. F. D. MORICE.

THE Rev. Francis David Morice, well known as an authority on certain families of Hymenoptera, died at Woking in his seventy-eighth year, on September 23. Educated at Winchester, from which he passed in 1866 to New College, Oxford, he gained high distinction as a classical scholar, and in 1874 was appointed a master at Rugby under Dr. Jex-Blake. Here he remained for twenty years, retiring ultimately in 1894 to Woking, where he took a house next to his great friend Edward Saunders, and devoted himself to entomological research.

During the latter half of the years at Rugby, Mr. Morice had frequently consulted Saunders regarding his captures of local bees and wasps. The results were published from time to time (1888-92) in the *Report of the School Natural History Society*. From this time until recently Mr. Morice made numerous contributions to the literature of his subject, at first dealing mainly with the chrysidids (cuckoo wasps), aculeates, and fossiores, but latterly confining himself almost

solely to the Tenthredinidæ (saw-flies). Here, probably, his most valuable work was done in his careful tabulation of British native species (1903-16). His conclusions were arrived at only after full discussions with continental students and an exchange of material, and it had long been his wish to gather his scattered papers in monographic form. But he had barely begun this revision when his death occurred.

Mr. Morice wielded a considerable influence, both among British and continental Hymenopterists. His knowledge of the palæarctic non-parasitic Hymenoptera, and of their distribution, was comprehensive and exact, and he had besides made several specialised studies, e.g. on the structure of the terebra in saw-flies. In nomenclatural discussion also his opinions were valuable, backed as they were by a sound scholarship, aware not merely of the rules but also of the elasticity in practice of classical usage. He will be remembered, however, chiefly as a consultant and helper of younger workers. A constant stream of collections, small and great, found its way to Woking for identification, and the work was never refused.

Mr. Morice joined the Entomological Society in 1889, and became its president in 1911. He was a regular attendant at entomological gatherings, and so recently as July of last year was present at the third International Entomological Congress held at Zurich; for, to the end, he greatly enjoyed the society of his fellow-workers. He also spent much time as a voluntary worker on the British Museum collections at South Kensington, to which institution he presented the important British collection formed by Edward Saunders. His own collection he bequeathed to Oxford.

J. W.

WE regret to announce the following deaths:

Mr. G. W. Lamplugh, F.R.S., lately assistant director of the Geological Survey of Great Britain, and president in 1918-20 of the Geological Society, on October 9, aged sixty-seven years.

Major W. E. Marshall, Principal Medical Officer of Health to the Sudan Defence Force, formerly an assistant bacteriologist at the Lister Institute of Preventive Medicine, on September 24.

Mr. H. W. Page, consulting surgeon to St. Mary's Hospital, London, past president of the Neurological Society of London, and the author of numerous contributions to medical and surgical literature, on September 9, in his eighty-first year.

News and Views.

DURING the recent Church Congress at Southport, one day was largely engaged with discussion on the 'religion and science' issue. The most notable utterances were a sermon by Dr. Lang, the Archbishop of York, and a paper written by the late Vice-Chancellor of the University of Liverpool, the distinguished pathologist Dr. Adami, whose recent death was a grave loss to medical science. Dr. Lang directed attention to the change of outlook in contemporary science, which "is beginning to ask questions about fundamental presuppositions hitherto taken for granted, about the meaning of the universe as a whole." Science, in other words, seems to be becoming more philosophical. The Archbishop then

made a strong plea that this new orientation in science should be met, on the part of the Church, by "an attitude of the fullest sympathy and trust." "The Church will not merely be detached. Its members will be ready to accept whatever truths in the region of natural science or historical criticism seem to be really established, and to welcome them as new revelations of the divine working." This must rank as a really significant utterance, and, if it speaks for the Church of England as a whole, is a most hopeful sign of the times.

DR. ADAMI'S paper to the Church Congress outlined the attitude of the man of science towards faith and

the spiritual life. Three possible attitudes are indicated: (1) Negation of everything that is outside the boundaries of the senses and therefore incapable of being tested by physical means. (2) Acceptance of and belief in things of the spirit as of a world that is wholly apart from the material universe, and so from science. This was the attitude of Pasteur (under whom, it is interesting to note, Dr. Adami studied). (3) Belief that science and faith are governed by the same laws and that their methods are essentially identical. Rejecting the first two attitudes, Dr. Adami developed the third, showing how scientific knowledge advances by the use of hypotheses and the perpetual revision of theories in respect to new facts. Thus the Newtonian physics has been revised by Einstein, and Dalton's chemistry by J. J. Thomson and Sir Ernest Rutherford. The method of science is that of a search after truth by "progressive assumptions," and the search for religious truth is guided by a similar principle. It, too, is 'pragmatic,' and based on hypothesis and experiment.

DR. ADAMI'S paper was followed by one read by the Rev. J. C. Hardwick, which dealt primarily with certain ethical difficulties presented by the facts of biological science, instancing the behaviour of the ichneumon wasp. He suggested that the difficulties arise from regarding Nature as a completed system rather than as an incomplete process, various stages of which co-exist and find themselves in disharmony. If Nature is to be judged, she should be judged by her latest products, *i.e.* in the light of man and his ideals, rather than by the wasp or the slug. It was refreshing to find authoritative spokesmen expressing views which cannot fail to create a new atmosphere. How far the audience realised the implications of all they heard may be doubtful. Dr. Lang's allusion to the results of "historical criticism" is especially significant, for it is these, rather than the facts of natural science, which create problems for theologians to-day. Furthermore, Dr. Adami's policy of revised hypotheses would spell the end of all theological finality; though, to be sure, this might give religion a new lease of life.

SIR OLIVER LODGE, on October 7, began at the Mansion House, London, a series of lectures endowed by Mr. Halley Stewart on the general theme of religion and science, with special reference to human progress. Sir Oliver said that he is impressed with the majesty and possibilities of the universe, as contrasted with the comparatively narrow outlook of the average of those engaged in the work of the world. With regard to religion and science, he does not feel oppressed by any conflict between them when both are reasonably understood. Both involve knowledge of certain aspects of the same universe, and controversies arising between them must spring from misunderstanding and limitation of outlook. As for scientific knowledge, we little know whither its increase will lead us. The aspect of science which appeals to the majority of mankind is to be found in the applications and conveniences which can be

derived from it. But the power to control the forces of Nature and to adapt them to our ends must depend for its value on what those ends are. The uses we now make of our increased powers may not be such as really conduce to the progress of humanity. In spite of the scientific and mechanical progress of the nineteenth century, no one can feel that we have arrived at a stable and satisfactory stage of civilisation. Though material development ought to conduce to human progress, there is no inevitable connexion between the two. Increased power over Nature involves increased power to destroy. Yet, on the other hand, if competition gave place to co-operation, and if each individual sought the welfare of the whole, the possibilities of life on this planet would be found to be such as have scarcely yet been imagined. Sir Oliver is inclined to believe that the possibilities of Christ's teaching of love and forgiveness are to-day being more clearly realised, and there will come a day when human intercourse will be saturated with it. The lecture was characteristic of the new outlook which sees that the chief problem raised by the rapid development of scientific technique is an ethical problem, and it is doubtful if this can be solved in isolation from religion.

MR. DANIEL GUGGENHEIM, the copper magnate, has given a sum of 500,000*l.* for the promotion of aeronautics. His son, Mr. Harry Guggenheim, is president, and Admiral H. I. Cone is vice-president, of the board of management of the fund. Admiral Cone was in command of the U.S.A. naval forces on foreign service in 1917-18, was wounded in the sinking of a British destroyer by submarine, is a Commander of the British Empire, and holds the Distinguished Service Order. Major R. H. Mayo, well known in British technical aeronautics, represents the board in Great Britain, and has assisted the president and vice-president, during a recent visit, in considering methods of applying the fund. They have come to the conclusion that the Royal Aeronautical Society is an appropriate body through which direct expenditure may be made in Great Britain towards co-ordinating international scientific and technical information, and a grant of 1000*l.* has been made for the year 1926-27. In the U.S.A. 60,000*l.* has been allocated to each of two Californian institutions—the Leland Stanford University at Palo Alto and the California Institute of Technology at Pasadena—for the purpose of equipping and carrying on schools of aeronautics. Prof. W. F. Durand holds the chair of engineering at Leland Stanford University, and Dr. R. A. Millikan is president of the California Institute of Technology; their names suggest a due balance between technical development and physical research.

THE seventh year of the Tidal Institute of the University of Liverpool, according to the annual report for 1925 just issued, has been devoted mainly to the analysis of tidal observations and the preparation of tide tables. The method devised in 1923 for the execution of such work on a large scale has been thoroughly tested, and has proved effective and in all respects satisfactory. New advances have been

made in regard to the prediction of tides in shallow waters; a request to analyse records from Avonmouth, where the shallow-water effects are extremely acute, led the secretary, Dr. Doodson, to devise harmonic corrections which are more general and more widely applicable than the non-harmonic corrections hitherto used in such cases. An entirely new problem of great importance to navigation in many regions was raised by a request of the Canadian Hydrographic Office for a method of predicting the times of turning of tidal currents, affected by large diurnal constituents, from records of such times alone; Dr. Doodson has devised such a method, which is being applied and tested. The Institute has undertaken tidal analyses or predictions for the Admiralty, the Port of London Authority, the Lower Liao River Conservancy for Newchang, the International Council for the Exploration of the North Sea, the New Zealand and Queensland Governments, and the other bodies already mentioned. A radio receiving set has been installed so that weather reports may be utilised to assist in a proposed new service of daily predictions of meteorological perturbations of sea-level at Liverpool.

THE papers read at the recent Conference of Public Lighting Engineers in Newcastle-upon-Tyne dealt with matters of professional rather than scientific interest, but there were several points mentioned that are not generally known. Mr. Colquhoun, in the course of his paper, stated that Scottish boroughs have a statutory obligation to provide proper public lighting, but there is apparently no similar obligation in England, the only legal requirement being that obstructions on roadways (such as those due to repairs) must be lighted by night. Similarly, in a paper entitled "Lighting Hours," Mr. Beveredge explained that there is no standard legal schedule of the hours for which public lamps must be lighted; each authority acts at its discretion, and there is considerable variation in the practice of different towns. It is only the drivers of vehicles who are required to exhibit lights during specified hours. There was some discussion on the practicability of a standard schedule for lighting hours, but it was suggested that at least two schedules, one for the south and one for the north of England, might be required. The possibility of compliance with a rigid scheme of lighting hours also depends largely on the facilities for lighting up and extinguishing, *i.e.* the extent to which automatic methods of control are available. The question of the lighting of important arterial roads designed for motor-traffic was also discussed. There is a general feeling that the lighting of such routes ought not to be left entirely to the discretion of the individual authorities in areas traversed, and that a portion of the Roads Fund might be applied to lighting by the Ministry of Transport, which is already interested in the maintenance of the surfaces of roads.

AUTUMN in Great Britain has this year continued generally exceptionally fine and mostly warm. In September the weather was fine and dry, the total rainfall being remarkably low in some southern

districts; Southampton had a total of only a quarter of an inch. The weather was very warm in the third week of September, the thermometer in the shade registering 88° at Greenwich on September 19, and in many places the highest temperature of the year was experienced. In the south-east of England, the mean temperature for the month was about 4° above the normal. There were four days during the month at Greenwich with the solar radiation temperature above 140°. For the first three weeks there was not a single day with the mean temperature below the average. There was a considerable drop of temperature after September 25. Some October temperatures during the first ten days of the month touched 70°, mostly registering about 65°; in 1921, five years ago, October was remarkably fine and warm, the thermometer at Greenwich exceeding 80° on several days in the early part of the month. There was a break on Saturday, October 9, due to the arrival over Great Britain of a vigorous secondary disturbance from the Atlantic, and gales were experienced in places on the coasts, with heavy rain-showers in places. Colder weather spread over the country in the rear of the disturbance and the conditions became more normal for the season of the year.

THE inaugural address at the opening of the eighty-fifth session of the School of Pharmacy of the Pharmaceutical Society was delivered on October 6 by Dr. J. F. Tocher, of the University of Aberdeen. In the course of his remarks, Dr. Tocher commented on the possible reasons which lead to the adoption of pharmacy as a career, and hoped for the time when students of all kinds might be classified according to their ascertained intelligence, so that their teachers would be able to impart knowledge to them more successfully. But such tests would scarcely distinguish between those who favoured pharmacy as a profession and others whose thoughts turned towards different careers. With increasing knowledge, the training of the pharmacist becomes more arduous: the rapidly expanding list of drugs used in medicine requires knowledge of their properties and uses, and of the tests necessary to ensure their purity. In the Pharmacological Laboratory which the Society has recently opened, the student will be able to gain first-hand experience in the testing of those drugs which require for their assay the use of animals. Thus although the minimum standard of knowledge has been raised with the advance in knowledge in the other sciences, the enthusiastic student will find ample opportunity not only to reach this standard but also to progress beyond it.

A REPORT by Prof. J. Borozdin, quoted by the Riga correspondent in the issue of the *Times* of October 8, gives a brief account of the results of excavations carried out by Prof. Farmakovsky in the neighbourhood of Nikolaieff, where he has been working for the last twenty years, on the site, hitherto not identified, of the Milesian colony of Olbia (which was described by Herodotus), at the mouth of the River Bug. The excavations now embrace an area of 287,000 sq. yd., not including a necropolis, and the objects brought to

light include dwellings, temples, and vaults. In the centre of the town stand the ruins of a temple of Apollo. Nine successive strata of remains have been discovered; these show a variety of influences from several sources, including Attica and the Roman Empire as well as Miletus. Of even greater interest are the excavations at the village of Usatoff, some five miles out of Odessa. Here a culture has been found which is said to exhibit the transition from neolithic to bronze and to be advanced of its type. It is that of a settled agricultural community with earthen dwellings closely resembling the culture of Tripolje. The pottery is of the characteristic painted type, having strong points of resemblance to the widely diffused painted pottery which, with wide divergences and of varying epochs, it is true, is found in China, central Asia at Anau, India, Elam, Mesopotamia, Cappadocia, and Syria, and in Europe in southern Russia, Rumania, Bulgaria, Thessaly, and southern Italy. An example is said to have been discovered in the Crimea. Further information will no doubt confirm the importance of the discovery, which should serve to throw additional light on the difficult question of the relationship and lines of diffusion of this remarkable type of prehistoric ware.

THE Trueman Wood Lecture of the Royal Society of Arts will be delivered on October 27 at 8 P.M. by Dr. R. J. Tillyard, chief of the Biological Department of the Cawthron Institute of Scientific Research, Nelson, New Zealand, who will take as his subject "The Progress of Economic Entomology."

THE James Forrest Lecture for 1926 of the Institution of Civil Engineers, which was to have been given in May, will be delivered at the Institution on Tuesday, October 26, at 6 o'clock, by Senator G. Marconi, who will take as his subject "Radio Communications." Before the lecture, the Kelvin Medal for 1926, which has been awarded by the Kelvin Medal Committee to the Hon. Sir Charles A. Parsons, will be presented to him by Sir William Ellis, president of the Institution.

PROF. HANS THIRRING, professor of physics in the University of Vienna, will deliver a lecture in English on October 19, on "The Position of Science towards Psychical Research," at the National Laboratory of Psychical Research, 16 Queensberry Place, South Kensington, London, S.W.7. This lecture is one of a series arranged for the season 1926-27, which includes one by Mr. Stanley de Brath on "Animism, Spiritism and Spiritualism" (February 15), and another by M. René Sudre (in English) on "Psychical Research and Psychology" (March 15).

THE three Cantor Lectures on thermometry which have been given by Mr. W. F. Higgins of the National Physical Laboratory to the Royal Society of Arts are reproduced in the issues of the *Journal* of the Society for September 3, 10, and 17. They furnish the best account available in English of the properties and behaviour of the mercury-in-glass thermometer, of the methods used in its standardisation, and of the precautions to take in order to obtain the most

accurate results from it. Mr. Higgins looks forward to the time when the mercury-in-silica thermometer will be substituted for the mercury-in-glass thermometer for all accurate work.

THE seventy-ninth annual meeting of the Palæontographical Society was held at Burlington House on October 1, Dr. F. A. Bather, vice-president, in the chair. The annual report announced the completion of Miss Chandler's monograph of the Upper Eocene flora of Hordle, and the early issue of further instalments of the monographs of Gault Ammonites, Malacostracous Crustacea, and Palæozoic Asterozoa. The council appealed for the help of more personal subscribers, the larger number of the supporters of the Society being now public institutions. Prof. W. T. Gordon, and Messrs. G. Barrow, A. T. Hopwood, and J. Pringle were elected new members of council. Mr. E. T. Newton was re-elected president, and Mr. Robert S. Herries and Sir A. Smith Woodward were re-elected treasurer and secretary respectively.

THE council of the Institution of Civil Engineers has made the following awards for the session 1925-1926 in respect of selected engineering papers, published without discussion: A Telford Gold Medal and the Indian Premium to Mr. C. R. White (London); a Telford Gold Medal to Mr. E. L. Everatt (Bombay); and Telford Premiums to Dr. B. Hague (Glasgow); Prof. A. H. Gibson (Manchester) and Mr. S. Labrow (Bury) jointly; and Dr. W. J. Walker (Johannesburg). The following awards have been made in respect of papers read at students' meetings in London or by students before meetings of local associations during the same session: The James Forrest Medal and a Miller Prize to Mr. D. S. Matheson (London); and Miller Prizes to Mr. H. R. Lintern (Shepton Mallet), Mr. R. D. Carr (Cupar), Mr. C. Peel (Frodsham), Mr. R. S. Bamber (Leeds), Mr. N. R. Rice (Dar-es-Salaam), Mr. J. G. Kimber (Eastbourne), and Mr. J. B. Mayers (Birmingham).

THE Earl of Balfour presided at a congregation at Cambridge on Tuesday, October 5, when the University commemorated the three-hundredth anniversary of the death of Francis Bacon, Lord Verulam, by awarding honorary degrees to the Cavendish professor of physics, Sir Ernest Rutherford, and to Prof. W. S. Holdsworth, Vinerian professor of English law in the University of Oxford. The public orator spoke of Bacon, eminent in civil law and natural science, as a follower of the Stoics, who taught us to strive to adjust our laws to the laws of Nature; Dr. C. D. Broad, Trinity College, who lectured to the University on Bacon, described him as the father of inductive philosophy, one who discovered and explicitly stated the methods and principles of scientific research, which his successors have used with success. An afternoon reception was given by Trinity College and a dinner in the evening, at which the Earl of Balfour spoke to the toast of Bacon's memory.

A RECENT issue of the *Weekly News Bulletin* of the U.S.S.R. Society of Cultural Relations with Foreign Countries contains under the heading "Scientific

Life" an account of measures recently adopted for encouraging intellectual activity. The title "merited" has been established, to be conferred for distinguished service by scientific and technical workers. Money premiums are to be given for inventions and suggestions, even though they may not directly result in the saving of expenditure. Instances of pensions for prominent services in science are also mentioned. Under "International Cultural Relations" are reports of visits to Russia by Profs. Erlander of Stockholm, Wiegand and Rodenwald of Berlin, and Tenier of Strasbourg, and visits to Egypt by the Rector of the Russian Hydrological Institute to take part in the International Navigation Congress at Cairo, and to the Balkan countries and Italy by N. P. Sycher of the Russian Academy of History of Material Culture.

WE have received from Messrs. Stafford, Allen and Sons, Ltd., Cowper Street, Finsbury, London, E.C.2, a sample of 'Sira' immersion oil and of 'Sira' mountant. Originally produced as a result of researches conducted at the British Scientific Instrument Research Association, these products are now prepared by the manufacturers in accordance with the directions of the Association. The refractive index of the immersion oil (1.524 at 20°) is adjusted to suit modern high-power object glasses, condensers, and micro cover glasses. An important feature of the oil is its freedom from corrosive action on metals or on optical glass. 'Sira' mountant, being quite neutral, may be advantageously used in place of Canada balsam, the acidic properties of which are known to affect certain stains and other substances

when mounted in it. These 'Sira' products, which may be obtained from all scientific instrument makers and dealers, should prove of considerable value to microscopists whose work demands critical observation, in assisting them to obtain the best possible results from their microscope and its accessories.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—A pathologist for the City of Nottingham—The Town Clerk, Guildhall, Nottingham (October 18). A junior inspector of mines for North Wales (Lancashire and North Wales Division)—The Under-Secretary for Mines, Establishment Branch, Mines Department, Dean Stanley Street, S.W.1 (October 25). A mycologist under the Ceylon Rubber Research Scheme—The Private Secretary (Appointments), Colonial Office, 38 Old Queen Street, S.W.1 (January 1). A lecturer in physics in the University of Otago, New Zealand—The High Commissioner for New Zealand, 415 Strand, W.C.2. A junior technical officer at an Admiralty Experimental Establishment, with good theoretical and practical manufacturing knowledge of the design of electrical apparatus—The Secretary of the Admiralty (C.E. Branch), Whitehall, S.W.1. A lecturer in mechanical engineering at the School of Science and Art, Newark-on-Trent—The Secretary, Old Magnus Buildings, Appleton Gate, Newark-on-Trent. A junior mathematical mistress—subsidiary subjects geography and botany—at the Southport High School for Girls—Application forms from the Director of Education, Education Office, Southport, but returnable to the Headmistress.

Our Astronomical Column.

MINOR PLANETS.—Vol. 9, No. 9 of the *Journal des Observateurs*, contains a study of the orbit of No. 117 Lomia by M. Henri Blondel. This covers the period from 1913 to 1925, and includes the perturbations by Jupiter and Saturn. A good agreement with observation is obtained. It is noted that observations over a period of some four months are required to obtain a good orbit from a single opposition. It is suggested that ephemerides should be extended over a longer range than is usually done.

This is a favourable time for observing the interesting planet 132 Aethra, which was recovered a few years ago after being lost for half a century. It is in high north declination and of magnitude 11. Ephemeris for 0^h by H. Hartog (*Astr. Nach.* 5464):

	R.A.	N. Decl.
Oct. 16	3 ^h 33 ^m 16 ^s	41° 16'
„ 28	3 23 36	40 30

ANOTHER DETONATING FIREBALL.—Mr. W. F. Denning writes that a very large meteor was visible on the evening of Saturday, October 2, at 19^h 25^m G.M.T. As observed at Bristol, its path was from $330^\circ - 7^\circ$ to $34^\circ + 14^\circ$. A considerable number of observations have been received, and a comparison of these shows that the object passed from over the English Channel (45 miles south of Brighton), northwards over the western suburbs of London, and on to the northern region of Hertfordshire, where it exploded at a height of about 11 miles. The radiant point was in Capricornus at $305^\circ - 13^\circ$. The velocity of the fireball was

about 13 miles per second along a real course of about 125 miles. The nucleus was green, followed by red sparks. The weather being generally clear in the south of England, the phenomenon was pretty generally witnessed, though observers differ materially in their impressions concerning it. The radiant of the fireball agrees with that of a well-known shower in July and August.

C. SCHOCH'S RESEARCHES ON ANCIENT ECLIPSES.—Allusion has already been made in these columns to Schoch's conclusions on the eclipse of the Odyssey, which he identified as that of April 16, B.C. 1178. He has now discussed a still more ancient eclipse, that in the tenth year of the Hittite king Mursilis II. He identifies this as the annular eclipse of B.C. 1335, March 13, which was central in the region of the Azzi (about Erzeroum). The total eclipse of Jan. 8, 1340, is excluded, since military operations would not take place so early in the year in that elevated region. Schoch notes that the region is the same as that afterwards traversed in the retreat of the Ten Thousand. He has also identified various eclipses mentioned by Greek poets:

Poet.	Date B.C.
Mimnermos, same as eclipse of Thales	May 28, 585.
Stesichoros and Kydias	May 19, 557.
Agathokles eclipse, concluded position of Agathokles in Straits of Messina	Aug. 15, 310.