

horticultural press, and so long ago as the eighties of last century wrote a valuable series of articles on the Palmaceæ in the *Gardener's Chronicle*. These articles it was hoped might have been republished in book form as a monograph of this natural order, thereby bringing Berthold Seemann's work on the same family up-to-date. This hope, however, was never fulfilled. To vol. 15 of the *Annals of Botany* he contributed an illustrated paper "On the germination of *Bertholletia excelsa*," the Brazil nut.

In later years Watson took a keen interest in the Cactaceæ and succulent plants generally, and his "Cactus Culture for Amateurs" is the standard work on its subject. He also wrote books on "Climbing Plants," "Rhododendrons and Azaleas," and, in collaboration with W. J. Bean, "Orchids, their Culture and Management," all of which met with success. On horticulturists in general he conferred a great boon by editing a new edition of "Thompson's Gardener's Assistant," so much improving it that it became practically a new work. For upwards of twenty years he was editor of the garden section of the *Field*. His life's work, however, was centred in Kew, an institution which owes very much to his forty-three years' devoted service. He was elected an associate of the Linnean Society in 1904.

THE *Chemiker-Zeitung* reports the death on January 6, at the age of sixty-eight, of Dr. Wilhelm Borchers, professor of metallurgy and electrometallurgy at the

Technische Hochschule of Aix-la-Chapelle. Borchers was born at the university town of Erlangen, and after completing his studies there, he spent the next four years in a chemical factory as process chemist. The experience thus gained was of immense value to him in his later career as an investigator, for it enabled him to bring to a successful conclusion many difficult researches in the field of electrometallurgy. In 1891 he was appointed lecturer in chemistry and metallurgy at Duisburg, and six years later he was transferred to the Hochschule at Aix-la-Chapelle. His chief interest lay in the application of electrolytic processes to metallurgical problems, such as the production of metallic calcium, strontium, titanium, cerium, etc. He also conducted numerous researches on the preparation and properties of alloys. Prof. Borchers was the author of several books on electrochemistry, and in 1894 he founded the *Zeitschrift für Elektrochemie*, which he edited until 1900. He also collaborated with Nernst in publishing the *Jahrbuch der Elektrochemie*.

WE regret to announce the following deaths:

Prof. Walther Dieckmann, of the Department of Chemistry in the University of Munich, on January 12, whilst carrying out a research in organic chemistry in the State laboratory.

Miss Lilian Suzette Gibbs, known for her work on the mountain flora of Australasia and on problems relating to the geographical distribution of plants.

Dr. E. E. Klein, F.R.S., formerly lecturer on advanced bacteriology in the Medical School, St. Bartholomew's Hospital, on February 9, aged eighty.

Current Topics and Events.

INTEREST in the therapeutics of consumption has again been roused by the reports of successful treatment, this time by a chemotherapeutic agent which, under the name of sanocrysin, has been investigated by Møllgaard, a professor in the Landbohojskole of Copenhagen. There is no mystery chemically about sanocrysin. It is sodium aurous thiosulphate ($\text{Na}_2\text{Au}(\text{S}_2\text{O}_3)_2$) which has long been known as Fordos and Geles salt. Years ago it was shown that gold salts have a powerful action on tubercle bacilli *in vitro* and several gold preparations, simple and complex, have been tried therapeutically with indifferent success. Møllgaard affirms that sanocrysin inhibits the growth of tubercle bacilli in a dilution of 1 : 1,000,000 and that their progress may be completely arrested in a concentration of 1 : 100,000. In non-tuberculous animals sanocrysin is said to be relatively harmless, whereas in tuberculous subjects very stormy reactions follow its exhibition and may actually end in death. It is believed by Møllgaard that these violent effects are to be attributed to certain poisons, of a tuberculin character, which are liberated from the dying and dead tubercle bacilli from the action of the sanocrysin rather than to a direct toxic action of the thiosulphate. It is said that the violent reactions can be lessened or prevented by the administration of an anti-serum produced by the injection of tubercle bacilli or its products. The sanocrysin treatment is really a twofold process. There is supposed to be the direct bactericidal action of sanocrysin and the neutralisa-

tion of its poisonous results by an antitoxin of sorts. The Møllgaard treatment has been applied for a considerable time both in cases of tuberculous human beings and animals, but judgment must at present be reserved as to whether it is likely to occupy a permanent place in tuberculo-therapy.

IN the course of his fourth talk on "Ether and Reality" given under the auspices of the British Broadcasting Company at the London station, 2LO, on February 17, Sir Oliver Lodge discussed magnetism and its analogies with life and knowledge. Sir Oliver stated that electrification is a matter of transfer, a transfer of pre-existent charges, a disturbance of equilibrium. When equilibrium is established, opposite charges are close together and disappear from our ken. They never go out of existence: we neither create nor destroy. The same is true for magnetism: we can make a magnet, but the magnetism was there beforehand. Magnetic lines of force differ from electric lines in being always closed loops; all we do is to open them out. They tend to shrink, and thereby pull together two things round which they are looped, like an indiarubber ring. They never shrink up to nothingness. One magnet can produce any number of others, for there is no limit to the amount of magnetisation; what one body gains, the other does not lose. In that respect it is analogous with life. Knowledge in this respect is like life and magnetism: there is an unlimited reservoir from

which to draw, and the imparting of knowledge does not lessen the amount possessed by the imparter; it is transferred without loss, though doubtless with the expenditure of some energy. Knowledge grows from more to more. By diffusion it is increased; what one gains, another does not lose. A magnet which has excited other magnets may be even stronger than before; life which has excited other life may still be vigorous. So far as we learn from science, nothing goes out of existence; it only changes its form and may become inappreciable to our senses.

A COGENT restatement by Dr. R. P. Scott of the case for co-operation between England and China on certain lines and under certain safeguards appears in the current issue of the *Contemporary Review*. Those who are best acquainted with conditions in China are by no means so pessimistic as to the outcome of the present situation as the political news appearing in the Press might appear to demand. Private advice from China, however, indicates that this news is by no means exaggerated and that the social and commercial situation is serious. Dr. Scott lays great stress upon the pre-revolutionary character of Chinese ideals in pressing that side of his argument which rests upon the fundamental similarities between the English and Chinese mentality. These, he holds, find their most significant expression in the qualities characteristic of the English "gentleman" and the Chinese "princely man," as well as in business faculties, and in humour. Granting that co-operation is both possible and desirable, of the various suggestions put forward there is much to be said in favour of education as the field. Dr. Scott points out that it is the only one in which continuity can be obtained, and further, it is one to which each of the parties brings something distinctive—the Chinese, a thoroughness of mental grasp, and the English, breadth of outlook. Without attempting to displace literary studies, we could add instruction in those branches of science, especially the higher branches of physics and of surgery, for which the racial characteristics of the Chinese are peculiarly apt, but in which at present they lack opportunities of training. Dr. Scott quotes a letter from the Chancellor of the National University of Peking which should set at rest any doubt as to the willingness of the Chinese themselves to co-operate in this field. While Chinese ethical standards must be respected, what is needed in the opinion of the Chinese themselves is the spirit and tradition of our best public schools. Dr. Scott concludes by indicating in outline the means of attaining this object through joint membership of the Foreign Office Advisory Committee contemplated by the Bill for dealing with the Chinese Indemnity now before Parliament, and by joint committees in China itself.

IN the *Electrician* for February 6 some results are given of radio signal measurements between Great Britain and the United States made during the eclipse, which supplement the communication from Dr. W. H. Eccles on p. 260 of this issue. The experiments were carried out in Great Britain by the

General Post Office, the Radio Research Board, and the International Western Electric Co. In the United States the Radio Corporation transmitted special signals from an experimental station situated at Rocky Point, Long Island. In Great Britain the Leafield and Northolt stations sent signals. Similar observations were made on the day preceding and the day following the eclipse. Measurements were made both of the intensity and the apparent bearing of the signals. On the day of the eclipse, there was a well-defined rise to a very sharp maximum of the signal intensity. This was followed by an equally well-defined minimum. The rise corresponded approximately to the intersection of the path of the beginning of the eclipse with the great circle passing through the transmitter and the receiver. The minimum of signal intensity coincided to within one or two minutes with the intersection of the path of totality with the corresponding great circle. The radio bearings of Rocky Point were observed at Slough on January 24 and 25 and were found to be very steady in each case. There was no appreciable effect that could be attributed to the eclipse. Observations were also carried out at Slough on the signal intensity and bearings of Leafield, which is distant 48 miles. In this case the erratic behaviour of both measured quantities was very marked. These variations are a normal daily occurrence at this period of the year and neither of the measurements seemed to be affected by the eclipse.

THE Wireless Telegraphy and Signalling Bill which has been introduced in the House of Commons by the Postmaster-General, Sir William Mitchell-Thomson, is a measure of such questionable quality and scientific detriment that it is scarcely likely to pass through Parliament without substantial change. The Bill is particularly objectionable from the point of view of the scientific investigator and inventor, as by its officials from the Post Office may demand, under heavy penalties, to enter any laboratory and inspect apparatus and experiments even though these do not involve any outside transmission. True, this oversight of experimental work is claimed already as being in departmental regulations, but these could never be upheld. The new Bill, however, would make it possible for the Postmaster-General to impose them on any experimenter or inventor. What the Bill provides for specifically is control of "the installation and working of apparatus for utilising etheric waves . . . as they apply to the installation and working of apparatus for wireless telegraphy." Mr. A. A. Campbell Swinton points out in a letter in the *Times* of February 17 that a candle or any other source of radiation is producing "etheric waves" and that, as the existence of the ether itself is now questioned in certain scientific circles, much interesting litigation might be anticipated if the words now in the Bill are retained without statutory qualification. So many objections have, however, been raised to some of the clauses, as they stand at present, that the measure must meet with considerable opposition when it is under discussion in Parliament.

WE have received from Prof. G. Friedel, of Strasbourg, a somewhat lengthy communication in which he maintains that his classification of Lehmann's so-called liquid crystals is valid. He calls this state of matter "mesomorphic" and so early as 1911 recognised that this embraced two distinct forms which he then called "liquides à conique" and "liquides à fils." He supposes that in the former there is a kind of periodicity in the sense that the molecules are distributed irregularly in parallel equidistant layers. In the latter there is no periodicity at all, but only a general parallel orientation of the molecules. These valuable conceptions sharply differentiate the mesomorphic states from the complete periodicity of true crystals on one hand and from the complete irregularity of amorphous bodies or liquids on the other. In 1922 he re-named the two states "smectique" and "nematique" (from *σμηγμα*, soap, and *νημα*, thread, from the thread-like appearance of the sharp boundaries of different portions observed in polarised light under the microscope). He suggests that the English name for the former should be derived from the French rather than that the existing English word "smegmatic" (derived from the original Greek) should be used. He differs strongly from McBain in holding that such bodies as soap curds do not consist of crystals but are mesomorphic, and it is for this reason that he no longer uses the designation "liquid." If, as affirmed by McBain (see photograph in NATURE of July 12, 1924, p. 49), there is at least one other form of soap which may be described as a "conic anisotropic liquid," this would merely show that the same body can exist in several different "smectic" forms. This, however, leaves scope for speculation as to how to explain these different varieties.

ALTHOUGH a number of investigators using X-rays have failed to obtain radiograms with any liquid crystals except for soap curds, the classification of which is in dispute, Friedel maintains that this is due to faulty technique in the case of smectic bodies such as transparent soap solutions, whereas no nematic body should give such a radiogram. He announces that his son, E. Friedel, has now obtained such a radiogram with ethylazoxybenzoate. Publication of this evidence will be awaited with interest. Friedel appears, however, to be mistaken in his assertion that radiograms of soap curds disclose only one set of planes; Piper (J. Phys. Soc., 1923, 35) found three spacings; namely, one wide spacing of the order of 4Å and two of the order of 4Å . R. E. Gibbs (J. Chem. Soc., 1924, 125, 2625), referring to the higher fatty acids, the X-ray photographs of which resemble the soap curds, remarks: "Owing to the doubt that has existed as to the nature of the fatty acids, it is of interest to note that, since this paper was written, further work has been done with stearic acid showing it to be of a true crystalline nature and demonstrating its extinction directions and brush figures. Several single crystal X-ray photographs of it have already been taken."

THREE Cantor Lectures, on January 19, 26, and February 2, were delivered at the Royal Society of

Arts on "Radiological Research—A History," by Mr. V. E. Pullin, Director of the Radiological Research Department, Woolwich. Mr. Pullin said that radiological research may be said to have begun in the year 1705 with the experiments by Mr. Hawksbee, F.R.S., on electrical discharges in vacua, followed by those of Mr. William Morgan in 1785, the latter probably the first experimenter to produce X-rays. The great advance in knowledge made by scientific workers during the nineteenth century, particularly Faraday and Sir William Crookes, paved the way to the sensational discovery of X-rays by Röntgen at the end of 1895. The controversy as to the nature of the cathode stream was eventually settled by the classical work of Sir J. J. Thomson in 1897. The nature of the X-rays was finally determined when, aided by Planck's theory of radiation, Prof. von Laue was able to show that X-rays could be diffracted by means of crystals. The accidental discovery of X-rays by Röntgen in 1895 was due to his use of fluorescent screens. Much important research during the next crowded years resulted in Sir Herbert Jackson's use of a concave cathode, Mr. Campbell Swinton's platinum target, and the introduction of the vacuum regulators gave us the modern gas-tubes, leading up finally to the introduction in 1913 of the Coolidge tube. To-day it is possible to operate a tube on 200,000 volts and to examine castings 3 in. thick. Voltages up to 400,000 are already available at Woolwich, but no X-ray tube can stand up to more than 200,000 volts owing to vacuum and other difficulties. These difficulties may call for a new type of tube, and research on this subject is now being carried out at Woolwich. Modern research is also being directed on the problem of focussing, and design of very high tension direct current electrical machines. Radiology should be the indispensable adjunct of all modern engineering practice, owing to the great saving that can be effected by detection of flaws in heavy castings, before expensive machining has been done. During the previous week, with some new apparatus, designed and made at Woolwich, a mass of steel 4 in. in thickness was penetrated. This constitutes a record in penetration.

DR. J. H. JEANS, secretary of the Royal Society, and Sir William Henry Ellis have been appointed members of the Advisory Council to the Committee of the Privy Council for Scientific and Industrial Research.

SIR WILLIAM HARDY and Miss Ida Bircumshaw will deliver the Bakerian Lecture at the meeting of the Royal Society of March 19. They will take as their subject "Boundary Lubrication. Plane Surfaces and the Limitations of Amontons' Law."

THE Council of the Chemical Society has nominated Dr. Arthur W. Crossley as president, Dr. T. Slater Price as secretary, and Prof. F. G. Donnan as foreign secretary. The annual general meeting will be held on March 26 at 4 P.M., and the anniversary dinner will be held the same evening at the Hotel Victoria, Northumberland Avenue.

SIR THOMAS H. HOLLAND has been elected president, and the Rt. Hon. Viscount Cowdray of Cowdray, Sir John Cargill, Bart., Mr. Alfred C. Adams, Mr. Alexander Duckham, Mr. Arthur W. Eastlake, and Mr. Robert Redwood have been elected vice-presidents of the Institution of Petroleum Technologists for the ensuing year.

THE International Health Board of the Rockefeller Foundation has made a grant of 1,100,000 kröne (about 62,000*l.*) to the Danish State Serum Institute at Copenhagen for the purpose of extending the building and laboratories. This is the third grant made to Denmark by the Rockefeller Foundation during the last year or two. Previous grants were allocated to the Veterinary School and to Prof. Niels Bohr.

THE following officers of the Royal Astronomical Society were elected at the anniversary meeting on February 13: *President*, Dr. J. H. Jeans; *Vice-Presidents*, Dr. A. C. D. Crommelin, Dr. J. L. E. Dreyer, Prof. A. Fowler, Dr. J. W. L. Glaisher; *Treasurer*, Lieut.-Col. F. J. M. Stratton; *Secretaries*, Dr. J. Jackson, Rev. T. E. R. Phillips; *Foreign Secretary*, Prof. H. H. Turner.

ON Thursday next, February 26, at 5.15, Sir Arthur Smith Woodward will deliver the first of two lectures at the Royal Institution on dinosaurs, and on Saturday, February 28, at three o'clock, Sir Ernest Rutherford will begin a course of four lectures on the counting of the atoms. The Friday Evening discourses on February 27 and March 6 will be delivered by Sir James Irvine, on sugars from the point of view of the organic chemist, and by Sir Arthur Keith, on the rate of man's evolution, respectively.

AT the annual general meeting of the Meteorological Society on January 18, the following officers were elected: *President*, Mr. C. J. P. Cave; *Vice-Presidents*, Dr. C. Chree, Mr. J. S. Dines, Mr. L. F. Richardson, Mr. Gilbert Thomson; *Treasurer*, Mr. Francis Druce; *Secretaries*, Mr. Richard Corless, 21 Wimborne Gardens, W. Ealing, W.13; Commander L. G. Garbett, Meteorological Office, Air Ministry, Kingsway, W.C.2; Major A. J. H. Maclean of Ardgour, Ardgour, Argyllshire; *Foreign Secretary*, Mr. R. G. K. Lempfert, 24A Trebovir Road, S.W.5; *Assistant Secretary*, Mr. A. Hampton Brown, 49 Cromwell Road, South Kensington, S.W.7.

THE discovery of a new urinary antiseptic by the Johns Hopkins School of Hygiene and Public Health is announced in the *Times* of February 12. Hexylresorcinol, as the new compound is named, is the outcome of several years' work by Dr. Leonard, of the National Research Council, in collaboration with Dr. Treat Johnson, professor of organic chemistry in Yale University. It is stated to be a potent antiseptic for the treatment of infections of the kidneys and urinary tract, long-standing infections of the kidneys clearing up under its use in 48 hours. The cures appear to be permanent, and no ill effects were observed.

THE Royal Society has now been notified that His Majesty's Treasury proposes to make provision in the

Estimates for 1925-1926 for an increase of the Royal Society Publication Grant from 1000*l.* to 2500*l.* in the current year. This grant is available for helping the publications of other scientific societies as well as for assisting the separate publication of books, memoirs, etc., of a scientific nature. Applications for grants for the current year will be considered by the Council of the Royal Society at its meeting early in July. Applications from societies will be received by the secretaries of the Royal Society; those from individuals should be brought forward by members of Council.

Two noteworthy gifts, for research and for education, are announced by the New York correspondent of the *Times*. A fund of 600,000*l.* has been raised for the establishment at Johns Hopkins University of a centre for ophthalmological research to be called the Wilmer Institute. The General Education Board has given half the money and the remainder has been subscribed by friends and former patients of Dr. William Holland Wilmer, of Washington, who will retire from private practice to assume direction of the new centre. The other announcement is of a gift of 100,000*l.*, by Mr. Cleveland H. Dodge, of New York, to the fund for the Near East Colleges. The institutions which benefit by the gift are the Robert College, Constantinople, the American University of Beirut, the Constantinople Women's College, and other institutions at Smyrna and Sofia. The gift is sufficient to cover a fifth of the working expenses of the colleges for the next five years.

A MEMORANDUM on the probable character of the weather in north-west India in January, February, and March has recently been issued by Mr. J. H. Field, the officiating Director-General of Observatories for the Government of India. The forecast states that "the winter rainfall of north-west India together with the snowfall on the western Himalayas may be expected to be normal or in slight excess." These winter rains are brought by a series of depressions from south-west Europe and the Mediterranean. The tendency for persistence in the winter affords indication for the later months to be based on the weather in December. The application of statistical methods to seasonal forecasting in India has been very definitely studied, and with considerable success. In addition to the factors which have been in use for some time past, another feature which seems likely to prove of importance is the seasonal change of the upper air currents in northern India at a height of 4 miles above ground obtained from observations at Agra.

THE report of the Council of the Optical Society submitted to the annual general meeting of members on February 12 shows that the efforts of the Society to promote and advance the theory and practice of optical science are being well maintained. The steadily increasing interest that is being taken in this subject is evidenced not only by the nature and number of the papers presented to the Society, but also by the interest taken in the Society's Transactions, in which these papers are printed. By means

of special exhibits and demonstrations at recent meetings, attention has been directed to instruments and apparatus of historic interest as well as to modern developments of various optical instruments. The financial position is now so satisfactory that a further extension of the Society's activities is under consideration. The following officers have been appointed for the current session: *President*, Mr. T. Smith; *Vice-Presidents*, Instr.-Comdr. T. Y. Baker, Prof. Archibald Barr, Sir Frank Dyson; *Hon. Secretaries*, Mr. F. F. S. Bryson, Prof. A. F. C. Pollard; *Hon. Treasurer*, Major E. O. Henrici; *Hon. Librarian*, Mr. J. H. Sutcliffe; *Editor*, Dr. J. S. Anderson.

"TAKING a Museum to School" is the heading of an article in the *Manchester City News* of February 7. It describes a scheme which has been inaugurated by the Salford Museum for the distribution to schools of portable cases containing natural history specimens, photographs of trees, types of architecture, furniture, etc. The underlying principle is sound though by no means new. The idea has been greatly elaborated by the American Museum of Natural History, and in 1922, 475 schools were supplied with sets. Of course, in a large museum where the staff is adequate, or when there are official guide lecturers, it were better to bring the classes to the museum. When such is not possible, then exhibits may, with great advantage, be sent to the school. The cases thus supplied may show birds, animals, and so on, which children would not otherwise see, and may encourage them to visit the museum itself and so extend their knowledge. But the great difficulty is the "text" accompanying the cases. Such exhibits placed in the hands of teachers having no special knowledge of the subject may tend to grave misconceptions, whereas a stereotyped lecture may become irksome. Children have a way of asking peculiar questions. Before receiving such cases the teachers should have a "lesson" themselves, given by the person responsible for the exhibit.

ON February 26 occurs the bicentenary of the birth of Nicolas Joseph Cugnot, the French military engineer who built the first vehicle driven by a steam engine. Born at Void in Lorraine in 1725, Cugnot joined the French army, served in the Low Countries, and afterwards in Paris gave lessons in military affairs. In 1766 he published his "*Éléments de l'art militaire ancien et moderne*" and three years later a volume on fortification. He appears to have made two steam vehicles, the first in 1769 and the second in 1770. The earlier was put into motion in the presence of the Duc de Choiseul, then Minister of War, and of General Gribeauval, and it carried four persons. Its steaming capacity, however, was very small, and it had to stop at short intervals to allow the steam pressure to rise. The demonstration led to the construction of a second vehicle at the Paris Arsenal, and this is now preserved in the Conservatoire des Arts et Métiers. It is doubtful if this vehicle ever ran. Intended for the transport of artillery, it was designed to carry a load of about $4\frac{1}{2}$ tons at a speed of $2\frac{1}{4}$ miles per hour and cost 800*l.* Though

designed by Cugnot it was made by Brezin. General Morin in 1851 gave an interesting account of the machine to the Paris Academy of Sciences. Cugnot continued to reside in Paris until the Revolution, when he went to Belgium. Poverty appeared to have dogged his steps, but under the Consulate he was given a small pension of 1000 livres, and he returned to Paris, where he died on October 4, 1804.

IN a discourse delivered before the Royal Institution on February 13 on the forces of law and order in a primitive community, Dr. B. Malinowski gave an account of his conclusions in regard to primitive law arrived at during his years of field-work among savages in Melanesia. In his opening remarks he referred to the Imperial value of anthropological studies for the government of savage races, and said that such studies must be directed to the actual and practical problems of savage life in order to be useful. The real task of the administrator is legislation and the meting out of justice to the natives, and the most important practical subject of anthropology should be primitive jurisprudence. Upon this question anthropology hitherto has often been silent and sometimes even incorrect. Nothing could be more misleading than the statement frequently made that "all societies have passed through a stage of communal ownership and communistic sexual relation." Taking Melanesia, Dr. Malinowski showed that, in spite of most illusive appearances, the ownership of property is strictly defined and there is no trace of real communism. The so-called communism is the result of the observers looking at native custom through European eyes. Another legal dogma constantly used by some modern anthropologists is: "The clan or kin is the unit in primitive law and not the individual." Exogamy is usually quoted as the most perfect index of the homogeneity of the clan. This again is an illusion. Dr. Malinowski urged that it is in this type of anthropological analysis of savage institutions that the anthropologist can join hands with the administrator in working out a practical science of administrative anthropology.

ARRANGEMENTS are in progress for the next annual meeting of the British Association, to be held in Southampton on August 26-September 2, under the presidency of Dr. Horace Lamb, formerly professor of mathematics in the University of Manchester. Presidents of the several sections have been appointed as follows: *Mathematics and Physics*, Dr. G. C. Simpson, director of the Meteorological Office; *Chemistry*, Dr. C. H. Desch, professor of metallurgy in the University of Sheffield; *Geology*, Prof. W. A. Parks, of the University of Toronto; *Zoology*, Mr. C. Tate Regan, keeper of zoology in the British Museum (Natural History); *Geography*, Mr. A. R. Hinks, secretary of the Royal Geographical Society; *Economics*, Miss Lynda Grier, principal of Lady Margaret Hall, Oxford; *Engineering*, Sir Archibald Denny, Bart.; *Anthropology*, Dr. Thomas Ashby, director of the British School at Rome; *Physiology*, Dr. A. V. Hill, professor of physiology in University College, London; *Psychology*, Dr. C. E. Spearman,

Grote professor of the philosophy of mind, University of London; *Botany*, Prof. J. Lloyd Williams, of University College, Aberystwyth; *Education*, Dr. W. W. Vaughan, headmaster of Rugby; *Agriculture*, Dr. J. B. Orr, head of the Rowett Research Institute, Aberdeen. Among the principal items already set down for discussion are transport problems, to which the Sections of Economics and Engineering will devote two days, with special reference to the railway centenary of the present year; the cost of farming and the marketing of agricultural produce (Sections of Economics and Agriculture); the functional significance of size (Zoology and Physiology); the ignition of gases (Chemistry and Engineering); tidal lands (Geography and Botany); variations in gravitational force and direction (Physics and Geology); recent investigations upon vocational guidance (Psychology and Education); the distribution of animals and plants in relation to continental movements (Geology, Zoology, and Geography); the acquisition of muscular skill (Physiology and Psychology), and discussions on health in schools, the disciplinary value of subjects, the training of teachers, and the teaching of biology. Prof. Parks, of Toronto, as president of the Geological Section, succeeds the late Dr. Willet G. Miller, the Ontario Government mineralogist, who was to have occupied the chair of the Section.

WITH the January number the *Illuminating Engineer* begins a new stage of its existence. Formerly it was merely the official organ of the Illuminating Engineering Society; it has now been extended so as to appeal to a much wider class of reader. This number is brightly written and shows that good methods of illumination are of general interest. During last year no very striking progress was made in inventing new lamps or incandescent mantles,

but considerable progress was made in the methods of applying illuminants. It is considered that the time has come to enlighten the public as to what is being done. Playing games by artificial light, lighting developments at the Zoological Gardens in Regent's Park, the psychology of illumination, lighting and tobacco, inadequate lighting and defective vision, illuminated name plates for motor cars, and artistic illumination are only a few of the subjects discussed. We were specially interested in the "possibilities and limitations" of motor-car headlights. It is pointed out that the glancing beam of the headlight does not show to the driver puddles of water in the road. During the floods of December, inability to locate fairly deep water ahead often proved embarrassing. This shows that headlight illumination is far from perfect.

IN our issue of February 14, p. 242, reference was made to an article by Mr. F. W. Shurlock on the Rev. A. Bennet, F.R.S., in the January number of *Science Progress*. Mr. Shurlock writes to point out that the statement that Bennet died at Fenny Bentley is inaccurate. He held the rectory of Fenny Bentley concurrently with the curacy of Wirksworth, where he lived, died, and was buried; a memorial tablet is in the church, on the south wall of the nave.

AN assistant is required in the new chemical laboratory of the City Analyst for Leicester. The work of the person appointed will be mainly in connexion with the analysis of food and drugs, water and sewage effluents. The latest date for the receipt of applications by the Medical Officer of Health, Leicester, is Thursday, March 5.

ERRATUM.—In NATURE of February 14, p. 236, column 2, line 46, for words "that is" read "at all events."

Our Astronomical Column.

THE LUNAR ECLIPSE OF LAST AUGUST.—C.R. *Acad. Sci.* of Jan. 19 contains a research on the brightness of the moon at this eclipse, made by J. Dufay and A. Conder at St. Geniez (height 3500 ft.) in a clear sky. They used the Dufay photometer, which gives results that are independent of the diameter of the body measured. The moon was compared with Mars and Jupiter, the magnitudes of which were taken as -2.6 and -1.8. In the following table D is the distance in minutes of the moon's centre from the centre of the shadow, V its visual and P its photographic magnitude, C the colour-index.

D	V	P	C	D	V	P	C
10'	-0.9 ^m	.. m	.. m	18'	-1.35 ^m	+0.7 ^m	2.05 ^m
12	-1.0	+3.2	4.2	20	-1.65	0.0	1.65
14	-1.1	+2.3	3.4	22	-2.1	-0.7	1.4
16	-1.2	+1.4	2.6	24	-2.7

The increase of red in the centre of the shadow is very noticeable, and was also observed in the telescope, the outer portion of the umbra being greenish grey, the next zone orange-red, the centre brownish red.

The colour-index of Mars was determined as 1.37^m ± 0.06^m. It presumably varies with the character of the markings on the disc at the time.

Comparison was made with the eclipse of Oct. 16, 1921, observed by M. Danjon. It was concluded that the moon in 1921 was four times as bright as in 1924,

presumably owing to greater cloudiness in the earth's atmosphere in 1924.

ASTROGRAPHIC ZONE 21° SOUTH (HYDERABAD).—The Hyderabad Observatory (Director, T. P. Bhas-karan) has shown most praiseworthy zeal and energy in completing not only the zone originally undertaken but also the zone -21° to -23°, which had been undertaken by two other observatories in turn, but abandoned by both of them. It was thanks to the liberality of the Nizam and his Government that this extension was possible. The present volume contains the measures of stars on the plates the centres of which are in declination 21° south. The average number of stars per plate is 491, a higher average than in previous zones; this is ascribed to improvement in the quality of the plates. Plates were rejected that did not show at least twice as many stars as Schön-feld's map. In the galactic zones, some fifteen times as many stars are measured as are contained in the map, although the measurers were instructed to pass over the very faint stars in these regions.

The catalogue contains the measured diameters, with data for deducing the magnitude, and the x, y co-ordinates to 3 decimals of a réseau interval; also provisional plate constants for reducing to R.A. and decl. The plates in the present volume were exposed between Dec. 1920 and June 1923.