

News and Views.

THE Mathematical Tripos list of 1880 is probably the only list of its kind which has produced three professors for the University of Cambridge—Sir Joseph Larmor, Prof. H. F. Newall, and Sir Joseph Thomson. Happily, all three are still actively at work, though Prof. Newall has announced his coming retirement. Formerly assistant to the Cavendish professor and demonstrator in experimental physics in the Cavendish Laboratory, he became Newall observer in charge of the 25-inch Newall refractor when, in 1890, his father, Mr. R. S. Newall, F.R.S., presented it to the University of Cambridge. In his hands the Newall dome became an active centre of pioneer astrophysical research and the seed of a large and growing department in the University. First of all, in 1907, a Littrow spectrograph fed by a coelostat and a lens of 60 ft. focal length was provided from the bequest of Mr. Frank McClean; then, in 1908, the telescopes with which Sir William Huggins had carried out his pioneer investigations on stellar spectra were presented to the University by the Royal Society, while the whole establishment under Prof. Newall's direction was greatly increased when, in 1911, the University accepted the charge of the Solar Physics Observatory on its transfer from South Kensington, and Prof. Newall became its director. He had already, in 1909, become professor of astrophysics and a fellow of Trinity College. In addition to astrophysics and solar physics, Prof. Newall has throughout actively fostered in the Observatory research in meteorological physics. He has been for many years an elector to the Isaac Newton Studentships, and in that work, as also through the Observatory Club which he founded in 1909, he has exercised a marked influence on generations of the younger students in astronomy. In his retirement, with greater freedom from administrative cares and more time to complete his own work, it may be hoped that his knowledge and influence may make themselves felt for many years to the continued benefit of the science to which he has devoted himself.

By unanimous choice Dr. Robert Ranulph Marett was elected Rector of Exeter College, Oxford, on Oct. 9, in succession to Dr. L. R. Farnell, who resigned that office recently. Dr. Marett, who was educated at Victoria College, Jersey, and was a Domus Exhibitioner of Balliol College, was elected a fellow and tutor of Exeter in 1891, after taking first classes in Classical Honour Moderations and Literæ Humaniores. He won the Chancellor's prize for Latin verse in 1887, and the Green prize in moral philosophy for an essay on "The Ethics of Savage Races" in 1893. From 1893 until 1898 he served his college as sub-rector and was one of the University proctors in 1918. Dr. Marett's interest in the culture of primitive races, which had been shown in his Green prize essay, though outside the straiter lines of academic philosophy, gave his lectures a breadth and unconventionality which was not without effect on the men who came under his hand, and marked him as the obvious man for the appointment of secretary of the Committee for

Anthropology when that body was formed some twenty years ago. He was also made reader in social anthropology. In both capacities he has exercised considerable influence in the movement for the training in anthropology of officials who administer native affairs in the dependencies of Great Britain. Dr. Marett is the author of "Anthropology" in the Home University Library, "The Threshold of Religion," "Psychology and Folklore," and a number of papers in scientific periodicals. He has been president of the Anthropological Section of the British Association and also of the Folklore Society, and took a prominent part in the excavation of the palæolithic cave of St. Brelade, Jersey, in which a tooth of Neanderthal man was found.

AMONG the questions of general scientific interest likely to engage the attention of the British Association when it visits South Africa next year, one of the most widely discussed is the origin, history, and purpose of the prehistoric ruins at Zimbabwe and similar sites chiefly, though not exclusively, in Southern Rhodesia. These monuments have been repeatedly described and partially explored; and on the British Association's previous visit to South Africa in 1905 many points were cleared up by the very careful studies of Dr. Randall MacIver. But since 1905, besides the valuable work of local archaeologists, and Government measures of conservation, discoveries elsewhere of monuments claimed as comparable, have made further excavation desirable. Accordingly, as soon as the South African meeting was arranged, the British Association appointed a committee on South African archaeology: ascertained that the government of Southern Rhodesia would welcome such an investigation; and in response to a similar suggestion on the part of the Rhodes Trustees, guaranteed the necessary funds. The Council of the Association has now appointed to conduct the investigation, Miss Gertrude Caton Thompson, who has varied experience as an excavator in Egypt and Malta. Miss Caton Thompson will probably arrive in South Africa early in 1929 and visit sites and museums until the season permits of excavation on the site selected as most likely to yield evidence as to the history of the whole group of monuments. As it is understood that there is already one other expedition in South Africa engaged in prehistoric studies, and that communications may be expected on remains of similar character in other parts of the continent, it will be seen that at the British Association's meeting full justice is likely to be done to this obscure and fascinating problem.

THE third and largest of the hydro-electric power generating stations of the North Wales Power Company at Maentwrog was formally opened on Oct. 15. This station is the direct outcome of the work done by the Electricity Commissioners in 1923, when they surveyed the requirements of North Wales. The Company has already 340 miles of main transmission lines in operation, and bulk supplies are given to 15 large and 21 smaller electric supply companies and local authorities, and to 23 large industrial undertakings.

These include slate and granite quarries, cement works, collieries, and the L. M. and S. Railway engineering works at Crewe. The Company supplies an area of over 4000 square miles, and so great is the demand for electric power that a supplementary bulk supply is taken from the Mersey Power Company's steam station at Runcorn. The new power house will supply immediately over 20,000 kilowatts. An artificial lake about two square miles in area has been constructed by damming the river Pryson in the Vale of Festiniog. At present the depth of the water behind the main dam is only 25 feet, owing to the low rainfall this year, but after the winter rains it is expected to reach the spillway level, and it will then be 48 feet deep. The effective head of the water obtained at the foot of the high pressure pipe line at the power station is 630 feet. Under this pressure the water turbines, which are of the double jet type, run at 333 revolutions per minute. For Wrexham and Crewe the voltage is transformed up to 66,000. The mains are carried by white-painted, latticed-steel towers, spaced 180 feet apart, and every care has been taken to make them as artistic as possible. The steel-cored aluminium conductors hang in graceful curves between them. The artificial lake is considered to add to the beauty of the Vale of Festiniog.

At a meeting of the Eugenics Society, held on Oct. 10 in the rooms of the Linnean Society, Major Leonard Darwin was presented with his portrait in oils as a token of appreciation of his services during the seventeen years he has acted as president of the Society. Prof. E. W. MacBride, who made the presentation, said that Major Darwin has seen the Society grow from a handful of people, who might justly be described as a group of eccentrics, to an earnest, level-headed body intent on facing the social problems of the day. This change has been largely due to Major Darwin's wise and moderating influence. Bringing to the Society the prestige of a name universally honoured in biological science and the practical sense of a politician, he saw that the improvement of social affairs is not to be attained by the selection of persons of exceptional abilities, their forced mating and the endowment of their offspring at the public expense, but by the gradual elimination of the unfit, as this is the method universally adopted by Nature for keeping the populations of the lower animals in a healthy condition. This elimination in the past has been effected by the awful toll exacted by disease on young children, and such a toll will continue to be exacted if the reckless reproduction of the unfit goes on. Major Darwin has never wearied in his insistence on the necessity of adopting measures to prevent the unfit from marrying, and there are signs that the essential truth of his position is forcing itself on public opinion. Prof. MacBride predicted that in times to come Major Darwin will be regarded as the founder of sane views on population and society, just as his father is justly regarded as the founder of modern biology.

THE American Institute of Weights and Measures in pursuance of its main policy of defending the use

No. 3077, VOL. 122]

and preserving the legal status of the system of weights and measures based on the yard and pound, has declared itself ambitious to secure that material official standards be sent from the United States of America for comparison with the British Imperial Standards in 1932, when the next decennial comparison of the latter with their Parliamentary copies takes place. As mentioned in these columns on Aug. 4, p. 179, the Institute regards the present official recognition of the superior status of the metric units as constitutionally irregular and suspects the administration of fostering pro-metric tendencies. In a paper entitled "A Precision Value for the Inch," published as one of the Scientific Papers of the Institute (in format closely resembling those of the U.S.A. Bureau of Standards), Luther D. Burlingame proposes that the United States of America, Great Britain, Canada, and other British Commonwealths should accept the International Metre as stabilised at 1,553,164.13 times the wave-length of the red ray of cadmium and agree to define a precision inch as a fundamental unit for practical use, equal to 25.4 millimetres or 39,450½ wave-lengths. Whatever practical virtues this proposal may possess, the arguments employed in its justification are not altogether sound. For example, it is stated that the Order in Council of 1898 defines the yard as 0.914399 metre, whereas it merely authorised this value as a conversion factor, resulting from the most reliable experimental results then obtainable, without any prejudice to the definition of the yard in terms of the material standard bar as laid down in the Act of 1878.

THE *Graf Zeppelin* (LZ127), which started from Friedrichshafen on Oct. 11, arrived at Lakehurst Naval Airship Station in the United States on Sunday last, after a stormy voyage of 112 hours. The attempt to avoid the bad weather of the northern route across the Atlantic, covered by the R34 in 108 hours, was not successful, and the stabilising surface was damaged seriously by a squall. The excitement in Germany over the safe arrival is a measure of the anxiety which accompanied the fragile giant on its voyage, and of the intense hopes which have been placed in a legendary 'freedom of the air.' The German constructors have very much wider and more continuous experience in the design, construction, and handling of airships than the rest of the world, as is evidenced by the serial number LZ127. The *Graf Zeppelin* is larger, more powerful, and more costly than its predecessors, and will in turn be surpassed by the British airships R100 and R101 now under construction. The damage to the stabiliser was not vital, but is a serious symptom of structural weakness. The delay in starting, the slowness and stormy nature of the passage in spite of meteorological information, the limited number of passengers and the heavy cost of building and running, all lead to a belief that a commercial service of airships is impracticable with the materials at disposal.

THE following details of the *Graf Zeppelin* are given in the German technical press: Length, 237 metres; mean diameter, 32 metres; power, 5 × 400 k.w.

Maybach engines in separate external gondolas; volume, 105,000 cubic metres; gross lift, 110 metric tons; speed, 110-130 km. per hour. Experiments have been carried out on a gaseous fuel of the same density as the air with some success, but difficulties of supply have prevented its adoption for the *Graf Zeppelin*.

Two flying expeditions are now on their way to the Antarctic by steamer. A dispatch from Sir Hubert Wilkins to the *Times* announced that he had arrived at Monte Video and intended to sail on Oct. 24 in a Norwegian whaler for Deception Island, the whaling base in the South Shetlands. He is taking with him two Lockheed Vega seaplanes. Accompanying him are Lieut. Eielson, Mr. J. Crossan, and two mechanics. Sir Hubert Wilkins' plan, as originally announced, was to take off from a whaler in the Ross Sea and fly across the edge of the Antarctic continent to Deception Island, a distance of some three thousand miles. Com. R. E. Byrd is now on his way to the Ross Sea with another expedition. He proposes to make his base at the Bay of Whales on the Ice Barrier, and fly southward towards the Pole.

ON the evening of Tuesday, Oct. 16, the president, council, and fellows of the Royal Anthropological Institute were entertained at a conversazione at the Wellcome Historical Medical Museum, by invitation of the Director, Dr. Henry Wellcome. A large number of fellows and other distinguished guests, who had been invited to meet them, were present. In the course of the evening Miss Blackman gave a demonstration of the magico-medical methods of the fellahin of Egypt, using for the purpose specimens which for the most part had been collected by her for the Museum. The fellows and other guests had then an opportunity of examining the collections, which to a great extent have been, and still are, in process of rearrangement under the present conservator, Mr. L. W. G. Malcolm. Originally started by Dr. Wellcome as a collection to illustrate the history of medicine, the Museum is now one of the most important collections in the world illustrating both the history of medical and surgical science and the magico-religious ideas from which those sciences have developed among savages and as they survive among the folk of civilised peoples. Owing to lack of space, only a small part of Dr. Wellcome's collections can at present be inspected by the public; but when fully displayed they will illustrate the development of human thought and culture in a manner which will be unrivalled even in public institutions.

ANOTHER violent earthquake occurred off the Mexican coast on the night of Oct. 8 (local time), by which nine States were shaken. It was recorded at Kew at 3 hr. 13 min. 29 sec. G.M.T., on Oct. 9. The record indicates that the epicentre lay about 70 or 80 miles off the coast in lat. 16° N., long. 101° W. Seven earthquakes from the same neighbourhood have been recorded at Kew this year, the shock of Oct. 9 being the most violent. According to a message published in the *Times* for Oct. 10, the shock caused some damage at Acapulco (90 miles from the centre),

Oaxaco (230 miles), and Mexico city and Chalco (270 miles), and the total disturbed area cannot have been less than 350,000 square miles. An interesting point about this earthquake is the westerly migration of the origin since the great earthquake of June 16, the epicentre of that earthquake, according to the Kew bulletin, lying in lat. 16° N., long. 100° W., or about 65 miles to the east of the last epicentre.

THE warming of passenger trains is a problem on which much thought has been expended by railway engineers. In making estimates of the running costs, the time required for the preliminary heating of the train before it starts has to be taken into account. At least half an hour has to be allowed for this preliminary heating. This necessitates increasing the working hours of the employees, which always cause difficulties. In large railway stations in Switzerland, according to the *Brown Boveri Review*, central heating plants are provided for heating the trains by steam. This method, however, is objectionable, as steam escaping from insecure couplings often makes disturbing noises and causes unpleasant vapours. To get over these difficulties, the Swiss Federal Railways have been making experiments on doing the preliminary heating electrically. The large station at Zurich has a transformer plant with eleven heating connexions and the auxiliary station has eight heating connexions. The current is taken directly from the 15,000 volt contact lines and transformed down to 1000 volts. In an extensive railway network, frequent short circuits causing excessive voltage drops are to be expected. A device is therefore provided which recloses the heating switch automatically once or several times after the switch has opened due to a sudden voltage drop. The plant at Zurich has now been in continuous operation since December 1927 and has given complete satisfaction.

AFTER the formal business had been concluded at the annual meeting of the British Horological Institute on Oct. 10, Mr. B. T. Greening, who presided, presented to Sir Frank Dyson, the Astronomer Royal, the first gold medal awarded by the Institute. The medal is awarded for the greatest advance in the science of horology in each year or some achievement of merit beneficial to the science or practice of time measurement. Sir Frank Dyson has been Astronomer Royal since 1910, and has devoted particular attention to precision in time measurement. In presenting the Institute's medal in recognition of this and other work, the chairman referred to the Greenwich time-signals, to the inauguration of the six-dot seconds through the British Broadcasting Corporation, and last, but not least, to the initiation by Greenwich of the first official government service throwing a girdle round the earth in the form of the Rugby rhythmic transmissions, which are unique in character and unsurpassed for accuracy. Reference was also made to the adoption by the Astronomer Royal of a novel form of precision clock which had recovered for the British Empire the record for accuracy in time measurement. In the course of a short speech Sir Frank said that he had encouraged his colleagues

at Greenwich to get the best out of clocks that could be secured and to determine time with all possible accuracy: he regarded the presentation not only as a tribute to himself personally, but also to his co-workers at Greenwich and, particularly, Dr. Jackson and Mr. Bowyer.

It is now stated that at the Second International Conference on Bituminous Coal to be held at Pittsburgh, U.S.A., under the auspices of the Carnegie Institute of Technology, on Nov. 19-24, more than a hundred speakers, representing twelve countries, are expected to be present. Major subjects of discussion will include coal preparation, pulverised fuel, gas production and purification, liquefaction and hydrogenation of coal, carbonisation and combustion, tars and ammonia. The chief purpose will be to present the results of recent studies that have to do with improved methods of utilisation and combustion of bituminous coal. The speakers expected include many with international reputations in their respective fields, and more than sixty of them will come from countries outside the United States. The British delegation, as anticipated, may include about fifteen prominent chemists and engineers, while Lord Melchett will also speak.

THE Report of the Fuel Research Board (Department of Scientific and Industrial Research) for the period ended Mar. 31, 1928, which has been issued (H.M. Stationery Office, 1928. Pp. 70. 1s. 3d. net), covers the activities of about two years. It shows that the survey of national coal resources—one of the original objects of the Fuel Research Department—is now in operation in coalfields producing 85 per cent of the British output. The work of standardising methods of sampling and analysing coal has been taken up by the British Engineering Standards Association with the view of reaching national and possibly international agreement. Several plants for the low temperature carbonisation of coal have been tested and reported on, while plant embodying the retort system developed at the Fuel Research Station and now being erected by the Gas Light and Coke Company, is expected to be in operation shortly. It is pointed out that low temperature carbonisation is important rather as a source of smokeless fuel than of liquid fuel, while its effect in creating useful employment is not negligible.

Low temperature carbonisation processes can scarcely be expected to render Great Britain self-supporting in the matter of liquid fuels. Hydrogenation when commercially feasible would be much more effective. The Report of the Fuel Research Board states that work on hydrogenation of coal is being continued on an intermediate scale, and the staff is studying the chemical changes during the process, development on commercial lines being now undertaken by Imperial Chemical Industries, Ltd. Great attention is being paid to the properties of coke for all purposes, especially for domestic use, here in collaboration with the Building Research Board. Briquetting, coal purification, internal combustion engines are dealt with, but the prospects of a large production of

power alcohol in Britain have been shown to be unpromising. Reference is also made to work carried out with the financial assistance of the Board by workers in the universities and other institutions throughout the country. The report shows that the original objects of the establishment of the Board are being fulfilled in a large measure.

THE Irish Tourist Association has made arrangements with Mr. George Fletcher, until recently assistant secretary of the Department of Agriculture and Technical Instruction in Ireland, to deliver lectures on Ireland in various centres during the period Oct. 1-Mar. 31. Mr. Fletcher has a close personal knowledge of Ireland, extending over more than a quarter of a century, and is well known as a writer on Irish matters and as editor of five volumes on "Ireland and the Irish Provinces" (Cambridge University Press). The subjects of the present lectures are: (1) Ireland: its scenery and people; (2) the art and antiquarian treasures of Ireland; (3) the evolution of Irish scenery; (4) the economic and industrial resources of Ireland. The lectures will, if desired, be fully illustrated by lantern pictures, and, in addition, Mr. Fletcher can give short addresses to interested local organisations where this can be arranged. No charge will be made for the services of the lecturer, but all local expenses, such as provision of suitable lecture room, with optical lantern and operator, must be borne locally. Particulars of the lectures can be obtained from the Secretary, Irish Tourist Association, American Chambers, Lower O'Connell Street, Dublin.

THE courses of lectures arranged at the Royal Institution during November and December will commence with the Tyndall Lectures to be delivered by Prof. H. L. Callendar, who will give three lectures on co-aggregation versus continuity in the change of state from liquid to vapour, beginning on Tuesday, Oct. 30, at 5.15 P.M.; and on Tuesday, Nov. 20, Sir William Bragg delivers the first of four lectures on diamonds. On Thursday afternoons, beginning on Nov. 1, there will be lectures by Captain G. Pitt-Rivers on the clash of culture: (1) Race and culture; (2) culture-clash in a Maori village; (3) the Empire and the native problem; two by Dr. E. D. Adrian on the mechanism of the nerves, and two by Sir Richard Paget on human speech as (1) a method of expression by gesture, (2) a musical phenomenon. On Saturday afternoon, Nov. 3, at three o'clock, the Rev. T. E. R. Phillips will deliver the first of two lectures on recent observations and discoveries respecting the planets; on succeeding Saturdays there will be three lectures by Dr. W. G. Whittaker on (1 and 2) North Country folk music, (3) violin sonatas of William Young, with musical illustrations. The Juvenile Lectures this year, the one hundred and third course, will be delivered by Mr. Alexander Wood on sound waves and their uses: (1) Waves (Dec. 27); (2) signalling in air and water (Dec. 29); (3) notes and noises (Jan. 1); (4) how sounds are analysed (Jan. 3); (5) the ear and what it does (Jan. 5); (6) how sounds are recorded and reproduced (Jan. 8).

A RECENT issue of the *Chemisch Weekblad* contains a detailed account of the proceedings of the chemical section of the Sixth Congress of Czechoslovak Naturalists, Physicians, and Engineers, which was held in Prague from May 25-30. This congress, which is a continuation of the pre-War Czech scientific congresses, was a scientific celebration of the tenth anniversary of the Czechoslovak Republic and was attended by about 2300 members, including 400 foreign visitors, chiefly from Slavonic States such as Poland, Yugoslavia, Bulgaria, and Russia. The congress was under the patronage of President T. G. Masaryk, and its chairman was Prof. E. Votoček, the distinguished organic chemist from the Polytechnic High School at Prague. In the five sessions dealing with chemistry, 111 communications were presented from 98 authors. The foreign guests included Profs. W. P. Jorissen (Leyden), T. Miłobędzki (Poznań), St. Tołłoczko (Lwów), and G. Urbain (Paris). Summaries of all the communications were published in Czech and also in English or French; copies may be obtained from Prof. J. Heyrovský, Prague-II, Preslova ul. 1, who presided over the Chemical Section.

THE executive committee in charge of the centenary celebrations of the Faculty of Medicine in Cairo and the International Congress of Tropical Medicine and Hygiene has issued a circular giving details of the programme for the week Dec. 15-22, and the list of guests from all parts of the world who will then assemble in Cairo. The most significant ceremony will take place on Dec. 16, when, in the presence of King Fuad, the foundation stone of the new medical school and hospital will be laid. As the first serious study of ankylostomiasis and bilharziosis was begun in Cairo, it is fitting that the most prominent place in the comprehensive programme of the scientific proceedings should be occupied by discussions of these worldwide scourges. Arrangements have been made for a series of excursions in Egypt, Palestine, and Syria. The Tourist Development Association of Egypt has issued a beautifully illustrated guide entitled "Egypt and the Sudan," containing a series of articles by Prof. George A. Reisner and other well-known archaeologists and authorities on Egyptian and Oriental subjects, ranging from the beginning of architecture and sculpture to the practice of aviation in Egypt and Mesopotamia, duck-shooting in the Delta, and the presentation of Shakespeare's plays in the Cairo theatre. Correspondence relating to the Congress should be addressed to the Congress Bureau, 1 Sharia Mazloum Pacha, Cairo.

THE Council of the Institute of Metals has just issued the new session's programme of the Institute and of its local sections in Birmingham, Glasgow, London, Newcastle-on-Tyne, Sheffield, and Swansea. An outstanding meeting is that planned for Mar. 6, when the 'coming-of-age' celebrations of the Institute will be held in London under the presidency of Dr. W. Rosenhain. Another interesting feature is the annual autumn meeting, which will be held in Düsseldorf in September. This is the first occasion that any British scientific society has held a meeting

in Germany since 1914, and it is expected that the meeting will be largely attended by members from the continent as well as from the British Isles. The programmes of the six local sections of the Institute include 42 papers and meetings. Several of the papers will be discussed at joint sessions with other bodies, notably the Institution of Engineers and Shipbuilders in Scotland, the Institute of British Foundrymen, the Birmingham Metallurgical Society, and the Staffordshire Iron and Steel Institute. These joint meetings constitute an important new feature in the work of the local sections which were first developed by the Birmingham Local Section. The London Local Section has arranged a discussion on "Some Present-Day Metallurgical 'Tools' and Methods," the latter including the X-ray spectrometer, quantitative spectroscopy analysis, high-magnification microscopy, the dilatometer, and the preparation of some unusual metallographic specimens. Short addresses by various experts on each of these subjects will be given. The North-East Coast Local Section strikes out a new line in planning an exhibition of metallurgical preparations and products. Membership of the Institute is now approaching 2000. Particulars of the meetings and invitations can be obtained from the secretary, Mr. G. Shaw Scott, 36 Victoria Street, London, S.W.1.

THE Right Hon. Earl Fitzwilliam has consented to act as president of the fortieth Congress and Health Exhibition of the Royal Sanitary Institute, to be held at Sheffield on July 13-20, 1929.

THE twenty-fifth anniversary of the foundation of the Faraday Society will be celebrated on Friday, Nov. 9, at a meeting at the Royal Institution, when Sir Oliver Lodge will deliver the first Spiers Memorial Lecture, on "Some Debatable Problems in Physics." The chair will be taken by Sir Robert Hadfield. The Lecture, it will be recalled, was established in memory of Mr. F. S. Spiers, one of the founders of the Faraday Society, and its secretary and editor until his death on May 21, 1926.

THE Lord President of the Council has appointed Sir David Milne-Watson and Mr. Robert Whyte Reid to be members of the Advisory Council to the Committee of the Privy Council for Scientific and Industrial Research, in the place of members who have retired on the completion of their terms of office. Sir James Hopwood Jeans has been reappointed a member of the Advisory Council for a further period of one year.

THE presence of living micro-organisms in the centre of ancient rocks is claimed to have been demonstrated by Prof. Charles Lipman of the University of California (*Science*, Sept. 21, p. 272). He states that certain organisms of a strikingly different type from any usually associated with soils and rocks were cultivated from specimens of pre-Cambrian and Pliocene rocks after drastic sterilisation of the exterior and all precautions to avoid contamination. We shall await with interest the further detailed studies of the subject which are promised.

THE *New Coal Age* is a monthly periodical (price 6d.) published at 1 Buckingham Street, Strand, London, W.C., under the editorship of R. W. Johnson. It is described as a journal of low temperature carbonisation and the scientific treatment of coal. The first number contains open letters to Mr. Baldwin and British industrialists pleading for a national policy of coal carbonisation. There is also general and historical matter, and some account of a plant to be installed by Continuous Carbonisation, Ltd., at Erith. Mr. D. Brownlie contributes a survey of developments abroad, and there are a few short articles on steam-raising on land and sea.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned :—An assistant lecturer in physics and electrical engineering at the Municipal College of Technology, Belfast—The Principal, Municipal College of Technology, Belfast (Oct. 23). An assistant pathologist at St. Thomas's Hospital—The Secretary, St. Thomas's

Hospital, S.E.1 (Oct. 29). An assistant bacteriologist in the department of pathology and bacteriology of the University of Sheffield—The Registrar, the University, Sheffield (Oct. 29). A junior lecturer in electrical engineering in the University of the Witwatersrand, Johannesburg—The Secretary to the High Commissioner for South Africa, Trafalgar Square, W.C.2 (Nov. 1). A woman lecturer in education in the Department of Education of the University of Bristol—The Secretary, The University, Bristol (Nov. 2). A research officer in the Civil Veterinary Department of the Government of Burma to carry out researches in connexion with the diseases of elephants, draught buffaloes, and other domestic animals in Burma—The Secretary to the High Commissioner for India, General Department, 42 Grosvenor Gardens, S.W.1 (Dec. 31). A chief librarian of the University of Birmingham—The Secretary, The University, Birmingham. A chemistry master at the Sandown County Secondary School—The Director of Education, County Hall, Newport, Isle of Wight.

Our Astronomical Column.

COMETS.—Taylor's Comet of 1915 is now due at perihelion. Prof. G. van Biesbroeck and Mr. Chang, of the Yerkes Observatory, have computed the perturbations by Jupiter, which were very large, the distance between comet and planet in June 1925 being less than a quarter of a unit. They give the following elements and ephemeris (*Harvard Announcement Card*, No. 73) :

T 1928 Oct. 22.38 U.T.
 w 355° 31'.8
 Ω 108 15'.3 } 1928-0
 i 20 44'.9
 ϕ 29 10'.1
 Period 6.7580 years

Ephemeris for 0^h U.T. :

	R.A.	N.Decl.	log r .	log Δ .
Oct. 16	8 ^h 54 ^m 59 ^s	14° 44'	0.263	0.281
24	9 13 18	14 44	0.263	0.264
Nov. 1	9 31 12	14 46	0.264	0.246
9	9 48 30	14 54	0.265	0.228

The magnitude may be about 13. It will be remembered that the comet divided into two portions in 1915, so both should be looked for.

Dr. Baade obtained a photograph of the comet 1927*i* (Schwassmann-Wachmann) at Bergedorf as follows: 1928 Sept. 21^d 0^h 52^m.1 U.T., R.A. (1928-0) 3^h 48^m 41^s, N. Decl. 30° 31', mag. 16.5.

It will be remembered that this comet has a remarkable orbit, which lies entirely between those of Jupiter and Saturn; the new observation is seven months later than the previous ones, so will greatly strengthen the determination of the orbit. It appears, however, that the elements of Messrs. Berman and Whipple are not much in error, as the ephemeris by C. Vick, based upon them, represents the place within 4'.

THE PERIOD OF THE VARIABLE STAR TT HYDRÆ.—The variability of this star was discovered by Dr. H. E. Wood from Johannesburg photographs taken between March and May 1926. He found that it was of the Algol type, with a period of about 6.96 days.

With the aid of Prof. E. Hertzsprung, who examined old Harvard Observatory plates, and found images of the star going back to 1894, it is now possible to deduce very accurate elements which are published in *Union Observatory Circ.*, No. 77. The period is 96.53401 days, with a probable error of 0.000008.

The range is from 7.5 mag. to 10.1 mag.; the minimum is apparently quite flat for $\frac{1}{3}$ of the period, or nearly 6 hours, indicating total eclipse of the brighter component. Once a fairly exact period was found it was possible to improve it by considering photographs taken at the time of most rapid light-change.

The article affords a good example of the value of the Harvard storehouse of plates, and of the methods for using them to the best advantage.

THE COMPANION OF SIRIUS AND THE EINSTEIN SPECTRAL SHIFT.—Prof. W. S. Adams's investigation of the spectrum of the companion of Sirius was of such extreme difficulty, and led to such important conclusions both as to the Einstein shift and the high density of the star, that an independent verification of the result is welcome. This has now been obtained by Mr. J. H. Moore, using the 36-inch Lick reflector, and a one-prism spectrograph with a camera of 16 inches focal length (*Pubs. Astr. Soc. Pacific*, Aug. 1928). The investigation is based on four spectrograms obtained last February and March. The type of the companion's spectrum was studied. Its type is slightly later than that of Sirius; it is classified as A5, possibly A3 or A4, but certainly not so late as F0, the value adopted by Eddington. One of the four results was excluded from the mean, as it was seriously affected by scattered light from Sirius; the mean of the other three gives 24 km./sec. as the radial motion of the companion relatively to Sirius; deducting 5 km./sec. for orbital motion, the remainder 19 km./sec. is in exact accord with Adams's result. No correction has been applied here for the superposed light of Sirius; if corrections were applied according to Adams's formula the result would be increased to 21 km./sec., but the agreement is still good considering the difficulty of the research.