

## Current Topics and Events.

It is fitting that some reference should be made in these columns to the fact that it was just fifty years ago that Mr. Edward Clodd, the veteran scientific thinker, happily still with us, published his first book, "The Childhood of the World." In 1920, at the advanced age of eighty, he published his "Magic in Names." In the period which elapsed between the appearance of these two books, Mr. Clodd devoted the leisure of a busy life of affairs to scientific research in branches of study connected with the physical and mental evolution of man. The results were embodied in a number of volumes dealing with various aspects of this central problem, of which the principal are: "The Childhood of Religion," 1875; "Myths and Dreams," 1885; "The Story of Creation," 1888; "The Story of Primitive Man," 1895; "A Primer of Evolution," 1895; "Tom Tit Tot," 1898, perhaps his best known and most enduring work; "The Story of the Alphabet," 1900; and "Animism," in 1906. In addition he produced monographs on his friends and associates—Bates, of Amazon fame, Grant Allen (1900), Huxley (1902), and a volume of "Memories" published in 1916. Mr. Clodd was one of a band of workers, of whom Huxley and Tylor were the best known, and who now, unfortunately, have nearly all passed away. To their untiring efforts to promote and popularise anthropology, its present position as a serious branch of scientific study is almost entirely due. Those of a younger generation who were first introduced to the evolutionary point of view in the study of man and of his religion and mental concepts through the lucid exposition and power of logical demonstration of which Mr. Clodd is a master, owe to him a debt of gratitude which is not likely to be forgotten.

FURTHER details of the progress of excavations at the Temple of the Moon God at Ur of the Chaldees, to which reference was made in these columns last week (see p. 336), are now to hand. Information given in a telegram published in the *Times* of March 7 indicates the relation of the present discoveries to those made by Dr. Hall in the course of his investigations—a point which previously was not clear. It would appear that the portion of the Temple discovered by Dr. Hall was the terrace of the main building which lay underneath. In the course of the present excavations, which have been made mainly in the south-east corner of the mound, one chamber has been found, which it is conjectured may be the innermost shrine, containing a valuable hoard of jewelry including many bracelets and necklaces, mostly of gold, and a tiled courtyard in which a gutter, such as was habitually used for collecting and carrying off the blood of a victim, suggests that it was the place of sacrifice. The cult of the Moon God was evidently re-established by Nebuchadnezzar, who made his daughters priestesses of the Temple, which he restored in the sixth century B.C., as is shown by an inscription. The upper bricks of the ruins were of this period, but

those underneath were much earlier, and it is clear that in the restoration of the Temple the original foundations were, so far as possible, left untouched.

DR. CHARLES HOSE'S lecture on Sarawak at the Royal Colonial Institute on February 27 was opportune in affording material for a comparison in methods of administration and development with British North Borneo, an area which has attracted some little attention recently. Sarawak, a territory of some sixty thousand square miles, is perhaps best known in connexion with the romantic history of the Brooke family and as an independent native state under British protection, which has been ruled for nearly a century by a family of white men. It is, as Dr. Hose said, "perhaps the greatest achievement in state-making of the nineteenth century." It was founded by Sir James Brooke in 1840, and came under British protection in 1888 when its population numbered 600,000. The inhabitants include Malays, Dayaks, Kenyahs, Kayans, and a number of primitive tribes, still pagan, whose customs and beliefs have furnished, as readers of that valuable book "Pagan Tribes of Borneo," by Dr. Hose and Prof. McDougall, will remember, much material for the comparative study of religion, especially in connexion with their methods of divination and their belief in a spirit helper in animal form. The policy of the Brooke family has been to preserve, under an autocracy, as much of native custom as possible, retaining the great offices of state held by Malay nobles at the time of Sir James Brooke's accession to power, and associating the natives with the administration. As Dr. Hose pointed out in his lecture, several chiefs in bygone days endeavoured to establish peace through wide areas, but failed. To achieve enduring success the unifying influence of a central authority was needed. This has been furnished by the Rajahs, who, without breaking up old forms of society, have supplied elements lacking in the old system.

INFORMATION has been received that an All Russian Agricultural Exhibition will be held in Moscow on August 15–October 1. In a circular issued by the Russian Trade Delegation it is stated that foreign firms, institutions, and private persons are invited to participate in the exhibition, and that all privileges granted to Russian exhibitors will apply equally to foreign exhibitors. Special arrangements will be made to facilitate the delivery of exhibits, all such goods being given preferential treatment on the railways and waterways of the Republic, and for convenience of transit all foreign exhibits will be exempt from Customs examination at the frontier, provided that the goods bear regulation labels. Provision will be made for the insurance and safeguarding of exhibits, both during transit and at the exhibition itself. A fixed tariff of charges for space in the foreign section has been drawn up, all charges being payable in advance and not to be refunded if exhibitors renounce their allotted space or finally abstain from exhibiting.

THE Council of the Institution of Mining and Metallurgy has made the following awards: The gold medal of the Institution to Mr. Edgar Taylor, president, 1909-1911 and 1916-1918, in recognition of his services to the Institution since its foundation in 1892 and as an evidence of appreciation of his honourable record of work in connexion with the development of the mining industry, particularly in India; "The Consolidated Gold Fields of South Africa, Ltd." gold medal to Dr. Leonard Hill, in recognition of his valuable researches on ventilation and for his paper on "Ventilation and Human Efficiency," contributed to the Transactions; and "The Consolidated Gold Fields of South Africa, Ltd." premium of forty guineas to Mr. H. F. Collins, for his paper on "The Igneous Rocks of the Province of Huelva and the Genesis of the Pyritic Ore-bodies," contributed to the Transactions, and in recognition of his researches on the subject.

AN invitation is extended to Farmers' Clubs, Chambers of Agriculture and Horticulture, and other bodies interested in agriculture or market-gardening, to visit the Rothamsted experimental fields during the coming summer. The guide demonstrator is Mr. H. V. Garner, who for the past two summers has very successfully served in this capacity and has been able to make the visits both useful and interesting to farmers. Among important items of interest are: experiments on the manuring of arable crops, especially wheat, barley, mangolds, potatoes; manuring of meadow hay; effect of modern slugs and mineral phosphates on grazing land, hay land, and arable crops; crop diseases and pests; demonstrations of good types of tillage implements, tractors, etc. At any convenient time between May 1 and October 1, there is sufficient to occupy a full day, and there is provision for assuring that the time shall not be lost, even if the weather turns out too bad to allow of close investigation of the fields. The director of the Station, Sir John Russell, will be happy to arrange full details with organisations of farmers, farm-workers, and others wishing to accept this invitation. Small groups of farmers are specially welcomed; if possible, arrangements should be made beforehand, but it is recognised that farmers' movements must often depend on the weather, and no one need stay away because he has been unable to write fixing a date.

THE departmental committee recently appointed to consider the present system of charging for coal gas on a thermal basis has now issued its report as a White Paper (Cmd. 1825, 6*d.*). The main recommendation is that the method of charging for gas on the thermal basis should be continued and extended to all statutory gas undertakings within the scope of the Gas Regulation Act. Thus is vindicated the really scientific method of asking the consumer to pay according to the amount of heat he receives. In the days of Argand and the flat-flamed fish-tail burners, light was produced by the combustion of the particles of gas in the surrounding air, and gas supply was then maintained at an illuminating

standard. With the advent of the incandescent mantle, and the increasing use of gas fires, illuminatory properties in gas became of secondary importance to its heating values, and a calorific standard was introduced in 1916. The heat unit in common use in Great Britain for expressing the value of fuels has been, for many years, the British thermal unit, which is the amount of heat required to raise the temperature of 1 lb. of water 1° F. under appropriate conditions. This unit was used in gas calorimetry, and a gas was said to have calorific value of 500 British thermal units when 1 cubic foot gave out, when burned, sufficient heat to raise the temperature of 500 lb. (about 50 gallons) of water through 1° F. To obtain a conveniently practical unit, the therm, which is equal to 100,000 British thermal units, was adopted.

THE *Weekly Weather Report* for the week ending March 3, issued by the Meteorological Office, Air Ministry, gives a summary of the weather for the several districts of Great Britain for the past winter, comprised by the thirteen weeks from December 3, 1922, to March 3, 1923. The daily mean temperature for the period ranged from 40.1° F. in the east of Scotland to 46.9° F. in the Channel Islands. During the winter the extreme readings ranged from 61° in the Midland Counties to 15° in the east of Scotland, while in England the lowest temperature recorded was 22° in the Midland Counties and the south-east of England. Total rainfall was greatest in the north of Scotland, where the measurement was 18.52 in., which is 2.17 in. more than the normal; but the greatest excess on the average was 5.47 in., which occurred in the south-west of England. There was an excess of rain everywhere, the minimum excess being an inch in the east of England, where the total measurement was 6.53 in. Rain fell with greater frequency than the normal over the whole of Great Britain: the largest number of days with rain was 74 in the north of Scotland; the least, 53 in the north-east of England. The duration of sunshine was fairly equal to the normal in all districts. At Greenwich the mean temperature for the winter, December, January, and February, was 42.4° F., which is 2.9° above the normal for thirty-five years; temperature ranged from 57° to 24°. Rain fell on 49 days, which is 4 days in excess of the normal, and the total measurement was 6.60 in., which is 1.08 in. more than the average for thirty-five years. The duration of bright sunshine at Greenwich was 118 hours, which is 11 hours fewer than the normal.

NEWS received in Christiania, according to the *Times*, reports the arrival of Capt. R. Amundsen on December 15 at Nome, Alaska, from Wainwright, on the north coast, where he is wintering. His visit to Nome was to ascertain news of the *Maud*, which is now drifting across the polar basin. Capt. Amundsen expects to leave Wainwright or Point Barrow on his flight across the Pole to Spitsbergen in the middle of June. On March 6 a wireless message from the *Maud* reported her position as lat. 74° N., long. 170° 30' E. The ship has drifted about half a degree

north and three degrees west of her position in the middle of December. Her speed of drift is about the same as that of the *Fram* at the same time of year, but the *Maud* is still well to the east of the New Siberia Islands and has not passed beyond the shallow and partially charted waters of the continental shelf.

H.M. THE KING has approved the grant of a Royal Charter of Incorporation to the Institution of Royal Engineers. The Institution, then known as the Royal Engineers Institute, was established as a voluntary association in the year 1875 for the general advancement of military science, and more particularly for promoting the study of such subjects as are of importance to the military engineer. In pursuance of its objects, the Institution has directed its efforts to the advancement of the science and art of engineering, especially in relation to their application to military purposes, and has thus been able to afford material assistance to those engaged in dealing with the important problems of defence connected with the British Empire. The Institution has during the past 47 years published 950 occasional, as well as other, papers on military and other scientific subjects; these papers, except those which are of a "Secret" or "Confidential" character, are available to the general public. *Inter alia*, the Institution now administers an important fund established in connexion with the award of scholarships to the children of deceased officers and other ranks who have fallen in the performance of their duties while on active service.

IN an article in the *Fortnightly Review* for March, Sir Charles Bright discusses the relation between the Empire's telegraphs and trade. He concludes that it is of national importance that there should be a great all-round reduction in cable tariffs. As this would doubtless result in greatly increased traffic it would necessitate laying many additional cables on different routes. He also dwells on the importance of the immediate completion of the Imperial "wireless chain," as well as alternative wireless chains. On March 5, Mr. Bonar Law announced that the Government is to proceed with the erection in this country of a state-owned and operated station capable of communicating with any part of the Empire. At the same time licenses are to be issued to private companies for the erection of stations in this country for radio-communication with any part of the world, subject to the conditions necessary to secure British control. The Marconi Company has thus been granted the license for which it has long asked, and it intends immediately to erect five large power stations to communicate with the Dominions and South America, and five smaller stations for more local traffic. The cost of these stations will be about two million pounds. It seems to us that this extension of long-distance communication will be of immediate benefit to this country, and the ensuing reduction in the tariff may induce the cable companies to co-operate with the radio companies. As Sir Charles Bright points out, this country has consider-

able leeway to make up; America, for example, uses 3400 kilowatts for its radio stations, and France 3150, while the British Empire only uses 700 kilowatts.

THE Spring Foray of the British Mycological Society will be held at Bristol on April 20-23. Headquarters for the meetings will be at the botany department of the University.

AN exhibition of Carboniferous corals has just been completed by Dr. W. D. Lang and Dr. Stanley Smith in the Geological Department of the British Museum (Natural History). Polished specimens and transparent sections have been prepared to illustrate the structure of each genus, and explanatory diagrams have also been added.

THE second annual general meeting of the National Institute of Industrial Psychology will be held in the rooms of the Royal Society on Tuesday, March 20. Among the speakers will be the Earl of Balfour, Sir Lynden Macassey, Dr. C. S. Myers, Sir Robert Hadfield, and Sir Charles Sherrington.

AT a representative meeting of botanists held at the Linnean Society's rooms on Friday, March 2, it was decided to hold an Imperial Botanical Conference of British and Overseas botanists in 1924 about the beginning of July. An executive committee was appointed, with Sir David Prain as chairman, Mr. F. T. Brooks as honorary secretary, and Dr. A. B. Rendle as treasurer. An invitation to attend the conference will be sent at once to Overseas botanists.

PROF. JOSEPH S. AMES, who gives an account of recent aeronautic investigations in the United States elsewhere in this issue, has been chosen to deliver the eleventh annual Wilbur Wright memorial lecture of the Royal Aeronautical Society. The lecture, the subject of which will be "The Relation between Aeronautical Research and Aircraft Design," will be given at the house of the Royal Society of Arts on May 31.

THE Royal Irish Academy devoted its meeting on February 26 to a commemoration of the centenary of Pasteur. Addresses were delivered by Dr. W. R. Fearon, Prof. A. C. O'Sullivan, and Prof. Sydney Young (president of the Academy), dealing with various aspects of his work, and an address in French by Prof. R. Chauviré dealt with Pasteur as a typical Frenchman.

A SCIENTIFIC superintendent under the Fishery Board of Scotland will shortly be appointed. He will conduct and supervise the scientific fishery investigations which the board may consider necessary, and be in charge of the board's laboratories at Aberdeen. Applications for the post, accompanied by copies of any published papers of the applicants, if deemed desirable, and the names of at least two referees, must reach the secretary of the board, 101 George Street, Edinburgh, by, at latest, March 31.

THE Ministry of Agriculture and Fisheries will shortly appoint an inspector in connexion with agricultural and horticultural education and research. Applicants for the position must have taken

a course in science or agriculture at a university or college of agriculture, and should have had special training in the science and practice of dairying. Forms of application and copies of the regulations governing the appointment may be had from the Secretary of the Ministry, 10 Whitehall Place, S.W.1. Application forms must be returned by March 26.

WE have received intimation of the opening at Lake Trasimeno of a laboratory for the study of the biology of the lake, including researches on the fresh-water fishes. The lake, which is about thirty miles in circumference, offers many opportunities for limnological work. It is to be hoped that this new station will receive the support which will justify its continuance. The premises have been provided by the University of Perugia, and Dr. Osvaldo Polimanti, professor of physiology in the University, has been appointed director, and intending workers should communicate with him.

MR. G. M. B. DOBSON will deliver a lecture to the Royal Meteorological Society on March 21 on "The Characteristics of the Atmosphere up to 200 km., as obtained from Observations of Meteors." Meteorological observations in the free atmosphere by means of *ballons-sondes* have not been carried to

heights much greater than 30 kilometres, but Prof. Lindemann and Mr. Dobson have recently put forward a method of determining the temperature at much greater elevations by means of observation of meteors (see NATURE, December 9, 1922, p. 794). Those interested are invited to attend the meeting which will be held in the Society's rooms at 49 Cromwell Road, South Kensington, London, S.W.7.

At the annual general meeting of the Institute of Metals held on Wednesday, March 7, the following officers for the year 1923-24 were elected:—*President*: Mr. Leonard Sumner. *Past-Presidents*: Sir Gerard A. Muntz, Bart., Engineer Vice-Admiral Sir Henry J. Oram, Sir George Beilby, Prof. H. C. H. Carpenter, and Engineer Vice-Admiral Sir George Goodwin. *Vice-Presidents*: Sir John Dewrance, Mr. W. Murray Morrison, Sir Thomas Rose, Dr. W. Rosenhain, Sir William E. Smith, and Prof. T. Turner. *Honorary Treasurer*: Mr. A. E. Seaton. *Members of Council*: Mr. W. H. Allen, Mr. L. Archbutt, Mr. G. A. Boedicker, Mr. T. Bolton, Dr. H. W. Brownsdon, Engineer Vice-Admiral R. B. Dixon, Prof. C. A. Edwards, Mr. S. Evered, Dr. R. S. Hutton, Mr. F. C. A. H. Lantsberry, Sir Charles A. Parsons, Mr. H. A. Ruck-Keene, Dr. R. Seligman, Mr. James Steven, Mr. F. Tomlinson, and Mr. H. B. Weeks.

### Our Astronomical Column.

**GREAT FIREBALL IN NORTHERN INDIA ON DECEMBER 28, 1922.**—Mr. W. F. Denning writes that "letters have been received reporting a splendid fireball which appeared over the Punjab at about the time of sunset on December 28. It was observed by a great number of people, and accounts published in the *Civil and Military Gazette* (Lahore) include descriptions from Simla, Peshawar, Balloki, Moghalpura, Sargodha, Jhelum, Rawalpindi, Bakloh, Dharamsala, Lahore, Sharaqpur, Murpur, and other stations.

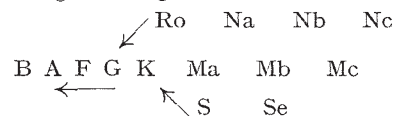
Many of the accounts are of little service, but Col. W. E. Pye and Lieut. Stephenson at Shagai, Khyber Pass, North-West Frontier, give an excellent description of the phenomenon. The observed path at the latter place was from  $6^{\circ}$ - $43^{\circ}$  to  $20^{\circ}$ - $48^{\circ}$ , and the fireball exhibited moderately slow motion. It left a long white streak which endured about fifteen minutes. A large number of the observers allude to the streak as perfectly straight at first, but it soon assumed a zig-zag shape, and drifted away from the place of its early projection. At one station the streak, which appeared to be vertical when formed, became horizontal in twelve minutes, the lower end having moved the required distance. At Sargodha, six minutes after the great illumination due to the meteor, loud rumbling sounds were heard, caused by the disruption of the object. These would indicate a distance of 75 miles.

From a comparison of the observations the fireball seems to have been an early Quadrantid with a radiant at  $234^{\circ}$  +  $55^{\circ}$ . The height was about 54 to 29 miles, and velocity about 25 miles per second. The luminous course was directed from N.N.W. to S.S.E. It crossed the river Chenab, and ended about 100 miles N.E. of Mooltan.

These results are only approximate. The object was one of great splendour, and it is hoped that further observations will be forthcoming.

**STELLAR SPECTRA OF CLASS S.**—In the current number of the *Astrophysical Journal* (December 1922) Mr. Paul W. Merrill directs attention to a number of red stars having spectra similar to that of R Geminorum, which differ from any of the well-known types of spectra which form the Harvard classification. In this classification the red stars are known as M and N types and each of these is subdivided, but no stars are known which have a spectra intermediate between them; M stars have characteristic titanium flutings and N stars carbon flutings. This peculiarity has led to the adoption of a break in the main series of stellar evolution types of spectra.

Thus an M star of increasing temperature becomes consecutively in the evolutionary series a K, G, F, etc., type star, while an N star, also a giant, becomes an Ro, G, F, etc., type star in its progressive stages. Mr. Merrill shows in this paper that the stars he has discussed should properly form a third division of the giant series joining on to the main sequence of evolutionary stages between the types Ma and K. This progression may be likened to three sets of railway lines joining up at two positions near each other and continuing as a single line. Thus:



It is interesting to note that the Harvard classification is based to a great extent on the replacement of metallic lines by ionised lines, and eventually by gaseous lines, the higher the temperature; but Mr. Merrill points out that while some M stars show ionised lines, so also do the S stars; this presents, as he says, "an anomalous circumstance which invites investigation."