

Current Topics and Events.

SAMUEL F. B. MORSE, of Charlestown, Massachusetts, inventor of the Morse electro-magnetic recording telegraph, was born on April 27, 1791. He died a little more than half a century ago. That Faraday was born also in the same year is an interesting coincidence. The latter, lecturing at the Royal Institution in 1858, said: "Thoughts of an electric telegraph came over the minds of those who had been instructed in the nature of electricity, as soon as the conduction of that power through metals was known." Prof. Morse himself declared that he had "a distinct recollection of the manner, the place, and moment when the thought of making an electric wire the means of communicating intelligence came into my mind and was uttered." He was referring to the year 1832, and specially recalling an experience when a passenger on the *Sully*, a boat plying between Havre and New York. The construction and practicability of apparatus for the purpose in view occupied many anxious years. Morse held that such an invention would mark an era in human civilisation and contribute to the happiness of millions. For long he worked in penury. At last, in March 1843, Congress voted 30,000 dollars for definite experimental projects in connexion with the invention. In May, the following year, success in actual service was achieved. The message, "What hath God wrought," was sent from the Capitol at Washington to Baltimore, Morse operating the transmitter. It is of interest to add that at the Oxford meeting of the British Association in 1847, Sir Robert Inglis, the president, referred to the rapid progress of telegraphy in the United States as the immediate outcome of Morse's work, and alluded with regret to the circumstance that in England this great discovery had been, so far, inadequately adopted.

DR. HENRY FAIRFIELD OSBORN has issued his presidential summary of the work of the American Museum of Natural History during 1924 in advance of the main report. He entitles it "The American Museum and Education," and contrasts the education by means of this (or any properly organised) museum with that of the school and the university, comparing it with that direct teaching through Nature which was the privilege of boys and girls in the Stone Age. That severe but inspiring approach to the duties and pleasures of life has been smothered under cities, lectures, books, and newspapers. Museum teaching should aim at restoring that immediate vision, and should regard "books and learning as the handmaids and not the masters of education." Dr. Osborn passes on to acknowledge the help received by the American Museum. Although a private institution, the museum manages to secure every possible aid from the United States government in its foreign relations. Consequently its expeditions meet with the cordial assistance of viceroys, governors, ministers, and government officials in the numerous foreign countries explored. Foreign sportsmen also, realising the value of the museum's work, readily place their skill and experience at its disposal. We are far from

grudging the help that is here so cordially acknowledged, but we should like to see more of the same assistance given by British governments to British expeditions.

GOVERNMENTS, no doubt, help those that help themselves. This it is that has been the merit of the American Museum of Natural History. Beginning with endowments and financial assistance from a few rich men, it now rests largely on the usual subscriptions of 7952 regular members. The average annual contribution from the City of New York amounts to little more than one-third of the whole. Would it not be possible for the Natural History Museum at South Kensington to obtain similar support? The National Art Collections Fund proves that even government institutions need, and can receive, private help. We in Great Britain need not be ashamed to follow the example of the American Museum of Natural History.

ON Friday, April 18, Dr. Fournier d'Albe gave a private demonstration of his television apparatus at his laboratory at Kingston-on-Thames. The apparatus shown represented a further stage in the simultaneous transmission of several elements of a picture by allocating different audio-frequencies to different elements. An image of the object to be transmitted was projected on a revolving siren disc provided with thirty concentric circles of holes. An image of the disc was, in turn, projected on a transmitting screen studded with thirty small selenium tablets, arranged so that each tablet was exposed to a different audio-frequency of intermittent light produced by the disc. The selenium tablets were connected in parallel with a two-valve amplifier, and the sound produced in a loud speaker at the receiving station was allowed to act upon thirty compound resonators, each of which responded to its own note when it occurred in the medley of sound transmitted. The response manifested itself by the appearance of a luminous patch on a ground-glass screen, reproducing an element of the original object both as to position and intensity. As the response occurs within a twentieth of a second, it is claimed that the apparatus transmits some six hundred signals per second. As, however, the complete transmission of an object such as a changing face requires at least ten thousand signals per second, there is still a considerable gap to be filled. Dr. Fournier d'Albe hopes to do this by increasing the number of resonators and their selectivity, or, in the last resort, by transmitting over more than one wire or on more than one radio-wave-length.

EXCAVATIONS at Ur during the final month of the season have brought to light a remarkable stele which Mr. C. L. Woolley, writing in the *Times* of April 15 and 16, regards as the most important monument yet found on the site. As an example of Sumerian art, it ranks with the famous Stele of the Vultures now in the Louvre. The reliefs on this stele among other subjects show Ur-Engur, the

founder of the Third Dynasty and the builder of the ziggurat, actually engaged in its construction. Two series of clay tablets have been found, one dating from 2200 B.C., the other from 2000 B.C., which give an intimate picture of the economic organisation of the temple with its establishment of ministers and court officials, additional to the priests, each in charge of a department—war, justice, lands, the household, the harem, etc. The tablets show in detail the receipts from tithes and rents or shares in the produce of the lands, while monthly balance sheets give the amounts received in kind from each farmer as well as the townsman, the latter paying in hides, gold, silver, copper, and other commodities. A strict account of the outgoings shows the rations issued to each of the numerous inmates of the temple and its precincts. These included a large number of women devotees who worked in factories, chiefly at weaving. The amount of wool thread issued to these and to the piece-workers, who occupied workshops outside the walls, is recorded with the quantity and quality of material it produced in each case. The food paid as wages was proportionate to work done, and children and old women received less than the young women. Temple officials when travelling held letters of credit which enabled them to obtain food in the cities through which they passed.

THE first of the series of lectures on "Illuminating Engineering," arranged under the auspices of the Illuminating Engineering Society at the Polytechnic, was given on Monday, April 20, when Mr. J. W. T. Walsh of the National Physical Laboratory delivered an address on "The Nature of Light and its Measurement." After a short introductory sketch of the development of the illuminating engineering movement, Mr. Walsh explained the chief terms used in dealing with illumination, processes in the photometric laboratory, and the use of portable illumination photometers, several examples of which were exhibited and examined after the lecture. There was a representative audience, including members of the staff of firms in the lighting industry and several of the lecturers responsible for subsequent items in the course. The organisation of a course of this nature, reviewing progress in various aspects of illumination, is a good idea which might be taken up by other educational institutions. It is particularly desirable that representatives of firms commercially concerned with illumination should have opportunities of hearing an impartial and scientific review of the problems with which they are concerned and of obtaining the latest information from specialists on various aspects of the subject.

IN a lecture delivered before the Royal Institute of British Architects on April 20, Mr. P. J. Waldram discussed the natural and artificial lighting of buildings. Mr. Waldram reviewed problems involved in determining access of daylight into buildings, on which he is an expert, but artificial lighting was not dealt with in detail. The paper, however, dealt with several suggestive points, especially in connexion with comparisons between natural and artificial light.

Mr. Waldram apparently thinks that a considerably higher illumination is necessary for most processes in the case of artificial light than is necessary by daylight, but this view was disputed by several speakers in the course of the discussion. This seems to be a question on which further study is needed, and it is somewhat surprising that such a fundamental point should still be a matter of doubt. In view of the effect on the eye of an overhead sky of considerable brightness, and the presence of adjacent objects in general far brighter than those usually encountered by artificial light, one has the impression that the eye is accustomed to a range of illuminations by daylight much in excess of that afforded by artificial means.

IN his presidential address to the Ipswich and District Natural History Society, Mr. J. Reid Moir, as reported in the *East Anglian Times* of April 2, surveyed the archaeology of Ipswich from Pliocene to Anglo-Saxon times. The evidence of the fossils of the Red Crag, indicating a gradual lowering of the temperature, together with the occurrence of striated flints and far travelled rocks in the underlying detritus bed, suggests that the crag was laid down in the first glacial period of East Anglia. The Cromer Forest Bed of Norfolk is not represented at Ipswich, but a series of gravels rest upon the Red Crag in which are implements, of Early Chellean Age in most cases, evidently derived from some older deposit. It is possible that this deposit was of Cromer Forest Bed age. The Tills and Contorted Drift of Norfolk overlying the Cromer Forest Bed are probably represented at Ipswich by the Kimmeridge Boulder Clay belonging to the second glacial period of East Anglia. The receding ice left hollows, often of considerable depth, such as the Foxhall Road Site, which contain in the brick earth and gravel filling hand axes of Acheulean and Mousterian types. The glacial deposits overlying the brick earths represented the third glacial epoch of East Anglia. The Upper Chelky Boulder Clay contains Mousterian implements torn from the brick earths by the ice. In a following period of climatic improvement, Upper Mousterian man inhabited the area, followed by Aurignacian man, whose occupation level was on the surface of a layer of stoneless loamy sand. This period was sealed in by a deposit of hill-wash, the result of a lowering of temperature, in which Solutrean implements had been found.

FOR several years past a Synonym Committee, working at first in connexion with the Ministry of Agriculture and later with the National Institute of Agricultural Botany at Cambridge, has been endeavouring to reduce the confusion which exists in respect of the names of potato varieties and their synonyms. The results of the investigations have been embodied in a pamphlet which includes information concerning varieties that have been definitely tested in regard to their susceptibility to wart disease. Most of the tests for immunity were carried out at Ormskirk, but some were conducted by the Scottish Board of Agriculture. Two years' freedom from wart is officially required to establish immunity, and the

list includes as immune only such varieties as have been unaffected by wart disease in at least two seasons tests, though a single test is sufficient to brand a susceptible variety. Two lists are given, one of distinct varieties, in which case the immunity or otherwise is recorded, the other of synonyms, in which reference is made to the distinct variety of which the synonym is but another name. While acknowledging assistance received in the compilation of the lists, the Synonym Committee accepts full responsibility for the publication and for the inclusion or otherwise of any given name.

REFERRING to our note (NATURE, April 11, p. 545) on Prof. R. Hamer's suggestion to name the undiscovered element of atomic number 43 "moseleyum," after H. G. J. Moseley, Prof. Irvine Masson writes that such action would not, as stated, be an innovation, as "one element is named after an individual: namely, Gadolinium, a rare-earth element, called after Gadolin." The historical facts appear to be as follows. The mineral gadolinite, discovered in 1788, was named after the Finnish chemist Johann Gadolin, who in 1794 discovered a new earth—yttria—in it. About a century later, Marignac showed that yttria (which he had obtained from samarskite) contained a new element, and when Lecoq de Boisbaudran announced to the Paris Academy of Sciences that Marignac had chosen for it the name "gadolinium," he gave no reason for the selection (*Comptes rendus*, 1886, p. 902). The case of the element samarium is somewhat similar. The complex parent mineral samarskite was, apparently, named after a Russian mine officer, Samarski. When the existence of the element was proved, Lecoq de Boisbaudran told the Academy that the honour of its discovery really belonged to several investigators, and he proposed the name "samarium" because the word was "derivé de la racine qui a déjà servi à former le mot 'samarskite'" (*Comptes rendus*, 1879, p. 214). Whether the words "gadolinium" and "samarium" were derived directly, or indirectly, from the names of men or minerals appears of little moment; both perpetuate the names of individuals, and therefore, in this sense, the appellation "moseleyum" would have two precedents.

A MEMORANDUM, addressed to the Council of the Industrial Institute, 102 Belgrave Road, London, S.W.1, has been issued suggesting an inquiry into "Balanced Industrial Development." The objects outlined include the promotion of scientific research and its organised application to industry, the strengthening of the foundation of industrial ethics, the formation of a clearing house for the collection and diffusion of information on all questions of industrial relations, and the examination of legislative and other proposals affecting industrial relations. The recently formed Industrial Institute is essentially non-political and it receives influential support from eminent representatives of both labour and capital, scientific and industrial bodies. It is hoped that the co-operation it affords will promote not only a better recognition of the value of science to industry, but the viewing of controversial questions in a more impartial and

scientific spirit. The memorandum suggests the appointment of a special committee of the Institute to investigate all such problems.

THE eighth of the public lectures on "Physics in Industry" being delivered under the auspices of the Institute of Physics will deal with "Physics in the Rubber Industry with special Reference to Tyre Manufacture." The lecture will be given by Dr. W. Makower in the rooms of the Royal Society, Burlington House, London, on Wednesday, April 29, at 5.30 P.M.

THE summer meeting of the Institution of Electrical Engineers will be held this year at Birmingham on June 9-12. As three hundred members and their ladies have already sent in their names, others wishing to take part are advised to send their applications without delay to the Secretary of the Institution, Savoy Place, Victoria Embankment, London, W.C.2.

THE Council of the Royal Statistical Society will, in 1925, award the Frances Wood Memorial Prize value 30*l.* The prize will, as before, be awarded for the best investigation received not later than October 26, of any problem dealing with the economic or social conditions of the wage-earning classes, the subject to be treated on statistical lines. Particulars can be obtained from the honorary secretaries of the Royal Statistical Society, 9 Adelphi Terrace, W.C.2.

THE Coopers Hill War Memorial Prize, founded by members of the Royal Indian Engineering College, Coopers Hill, in commemoration of members of the College who fell during the War, is awarded annually by the Institution of Civil Engineers and triennially in turn by the Institution of Electrical Engineers, the School of Military Engineering, Chatham, and the School of Forestry, Oxford. The triennial award will be made this year by the Council of the Institution of Electrical Engineers for a paper on "The Applications of Electricity to Metalliferous Mining." Papers should reach the Secretary of the Institution not later than October 31.

A BILL has recently been passed by Congress, by which the United States Coast and Geodetic Survey is "authorised to make investigations and reports in seismology, including such investigations as have been heretofore performed by the Weather Bureau." In at first placing such work under the Bureau, the United States Government followed the example of other countries, for example, of Italy, where, since 1887, the system of earthquake stations has been under the control of the Central Meteorological Office. The advantage of the change in the United States is obvious, for the Coast and Geodetic Survey may at any time, as in 1906, be called on to measure the crustal deformations in the central district of a great earthquake.

THE highly successful conference held at Hoddesdon in September 1924, on Special Libraries and Information Bureaux, has resulted in financial support being obtained from the Carnegie United Kingdom Trustees for a period of two years in order to give the new movement an opportunity of becoming self-supporting.

Mr. G. W. Keeling has been appointed organising secretary to the committee which was formed during the conference to ensure the continued co-operation of the interests there represented. Active arrangements are being made for the holding of a second week-end conference at the end of September of this year, and for the preparation of a directory of special libraries and information bureaux for the United Kingdom.

The gold medal of the Institution of Mining and Metallurgy has been awarded to Dr. Richard Pearce in recognition of his lifelong services in the advancement of metallurgical science and practice. Dr. Pearce was for many years engaged in metallurgical work in the United States, and since his return to England has been associated with the tin-smelting industry. The Council of the Institution has awarded "The Consolidated Gold Fields of South Africa" premium of forty guineas to Mr. Thomas Pryor, for his paper on "The Underground Geology of the Kolar Gold Field," and the "Arthur C. Claudet" and "William Frecheville" students prizes of ten guineas each to Mr. F. H. Edwards (Birmingham) and Mr. D. W. Bishop, respectively

THE National Academy of Sciences having approved the recommendation of the Committee on Award of

the Daniel Giraud Elliot Medal for 1924, the medal and honorarium will be presented at the April meeting of the Academy to Abbé Henri Breuil for his work, in collaboration with MM. Capitan and Peyrony, on the volume "Les Combarelles des Eyzies," as the most outstanding contribution of 1924 in this field. Henri Breuil is the foremost living authority on the archaeology of the Old Stone Age. His chief contributions are the recognition of the great Aurignacian upper palæolithic stage and the monographing of the entire Stone Age art of France and Spain. He is a man of untiring endeavour, great personal courage, and deliberate and philosophic interpretative powers. He is the head of the Institut de Paléontologie Humaine, which was founded by the late Prince of Monaco. This is the eighth award of the Daniel Giraud Elliot Medal.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned: junior assistants at the National Physical Laboratory—The Director, National Physical Laboratory, Teddington (May 9); Superintendent of a Government Research Establishment in Lancashire—"S.U.," c/o Chas. Barker and Sons, Ltd., 31 Budge Row, E.C.4; a junior lecturer in science at the Royal Military Academy, Woolwich—The Under-Secretary of State, the War Office (S.D.3), Whitehall, S.W.1 (May 30).

Our Astronomical Column.

THE BRILLIANT FIREBALL OF EASTER SUNDAY.—Mr. W. F. Denning writes: On the evening of Easter Sunday, April 12, at 21^h 40^m G.M.T., a fireball of large size and dazzling brilliancy was seen by hundreds of observers in the south-west of England. A great number of descriptions have been received from spectators in Cornwall, Devon, Somerset, Pembroke, Glamorgan, and other places. According to most of the estimates, the fireball moved rather slowly and passed over the sea between Cornwall and Pembroke. It concluded its path when about twenty-five miles west-north-west of Strumble Head, near Fishguard. The fireball may have fallen into the sea when it had traversed another twenty-five miles, but it is doubtful if it survived, and no reports have come in that it was actually seen to fall.

The object was one of the most brilliant that has appeared in recent years. The illumination of the atmosphere and landscape which it occasioned just before its disappearance was remarkably vivid and startled many observers. Two or three minutes afterwards a deafening noise, like a double explosion, was heard at Fishguard, and at other places in the neighbourhood.

The nucleus of the fireball is described as emitting a steel-blue colour, and it left a broad train of fiery sparks in its wake, but this vanished immediately. During its visible course the object descended from about sixty-nine to twenty-two miles at a very moderate speed, and was directed from a radiant point in Virgo, but the exact position of this is not defined by the observations available at the present time.

COMETS.—The three comets (Schain, Reid, and Orkisz) have all been observed recently in England. The two latter are fairly bright, about magnitude seven, but Reid's is getting too low for easy observation here.

Mr. Orkisz discovered his comet at the small observatory on the summit of Mt. Lusina in Poland, a few miles south of Krakow. It is rapidly moving north and will soon become circumpolar.

Mr. G. Merton (B.A.A. circular No. 5) has computed the following orbit from a combination of ten observations extending from April 5 to 14:

T	1925 April 1-2904 G.M.T. (new)
ω	35° 55' 17.3"
Ω	318 1 25.3
i	99 57 22.6
log q	0.045126

EPHEMERIS FOR 0^h G.M.T.

	R. A.	N. Decl.	log r .	log Δ .
Apr. 25	22 ^h 51 ^m 35 ^s	40° 13'	0.070	0.180
May 3	23 7 31	51 5	0.087	0.170
" 11	23 31 53	62 2	0.108	0.172
" 19	0 17 14	72 17	0.130	0.185

In May the comet will be observable throughout the night.

Schain's comet is still a difficult object, of about magnitude eleven. It is receding from the earth, and this more than offsets its slight approach to the sun. Perihelion passage will probably be about August, and the perihelion distance promises to exceed that of any known comet, being apparently somewhat greater than that of the comet of 1729 (4.05 astronomical units) which has held the record until now. The orbit was an extremely difficult one to compute from the early observations, and the dates found for perihelion passage ranged from November 1924 to February 1926.

The following approximate ephemeris should suffice for finding the comet:

	R. A.	N. Decl.
Apr. 28	10 ^h 50 ^m	4° 3'
May 6	10 41	4 17
" 14	10 32	4 27