

Current Topics and Events.

THE National Academy of Sciences and the National Research Council of the United States announce the forthcoming publication of the International Critical Tables. The first volume is to appear early in 1926 and is to be followed by four other volumes, comprising altogether about 2500 pages. The tables have been edited by Dr. Washburn, with Drs. Dorsey, West, Bichowsky, and Klemenc as assistant editors, who have had the co-operation of some three hundred experts in different parts of the world, but mainly drawn from the United States. According to the instructions to these experts, the tables are to differ in an important respect from many of the existing tables of physical and chemical constants. Instead of recording all or most of the determinations of a given constant which have been made, the co-operating experts were requested to give the most probable value of the constant after a critical consideration of all the determinations available. If this has been generally done with good judgment, the tables will be of great value to science. In a leaflet issued by the editors, the contents of the first volume, and the projected contents of the remaining volumes, are given. It is evident that very special attention is given to the needs of the technologist. The arrangement of the first volume is curious: an article on crystal structure is followed by articles on "dispersoidology, sweetening agents, odoriferous materials," and then by one on radioactivity. The published price of the set of five volumes is 60 dollars, but up to the appearance of the first volume early in 1926, members of scientific and technical societies, government departments, educational institutions, public libraries, etc., can subscribe at 35 dollars. The editorial expense of the tables, about 170,000 dollars, has been contributed by American industrial firms and benevolent foundations.

CORNELL UNIVERSITY, New York, has received an anonymous gift of 250,000 dollars, the income of which is to be used for the benefit and advancement of teaching and research in chemistry and allied fields. The gift is to enable the University to carry out a plan formulated by Prof. L. M. Dennis, Head of the Department of Chemistry, whereby prominent men of science will be invited to Cornell, each for one or two semesters, to present recent advances, and the methods and results of their own investigations. A private research laboratory will be placed at the disposal of the non-resident lecturer, who will thus be enabled to instruct a limited number of properly qualified students in his special field. The lecturers will be chosen so that different branches of chemistry or of allied sciences will be presented from term to term. The first incumbent of the lectureship in chemistry will be Prof. Ernst Cohen, professor of physical and inorganic chemistry in the van 't Hoff Laboratory at the University of Utrecht, Holland, who will be at Cornell during the second semester from February 1 until June 1, 1926. Prof. Cohen is the author of many books and pamphlets, comprising lectures and texts in the fields of inorganic and

physical chemistry, and biographical studies of various distinguished chemists, including his famous predecessor, J. H. van 't Hoff. The original investigations of Prof. Cohen and his co-workers cover a wide range of topics in thermodynamics, thermochemistry, electrochemistry and piezochemistry. Prof. Cohen's researches upon metastable and allotropic forms of the elements have attracted particularly wide attention.

PROF. S. PARKER SMITH, of Glasgow, read an interesting paper to the Institution of Electrical Engineers on December 3 on an "all-electric house." The house he described was the ten-roomed house in which he lives. The total annual cost for heating and cooking, hot water, lighting and power last year amounted to only 43*l.* 8*s.* although neither coal nor gas was used. Seeing that about 16,600 electric units were used the average cost per unit works out to about $\frac{3}{8}$ ths of a penny. In Glasgow arrangements can be made for heating water continuously between the hours of 11 P.M. and 8 A.M. at a price of $\frac{3}{8}$ ths of a penny per unit. In order to get good thermal storage it is necessary to design a well-lagged tank. Cork lining was found well suited for this purpose, the fall in temperature during the daytime being less than 1° F. per hour. The hot-water tank installed had a cubical capacity of 87 gallons, the average consumption per person for all purposes being about 15 gallons per day. The tank is fitted with a thermometer marked "high," "medium," and "low" to indicate in which position the switch has to be placed in the evening. In summer it is sometimes only necessary to switch it on to the "low" position. This method of heating water economically is well known in districts which have a hydro-electric supply, and it is interesting to notice that it is making progress even when steam turbines are used. The Corporation of Greenock is offering energy for heating hot water during the night time at a farthing per unit. The scheme for ventilation adopted by the author was to draw fresh air into the rooms through air bricks behind the electric fires in the recesses, and to get rid of the vitiated air by means of a wooden grid let into the frieze and communicating with the flue in the external chimney. In all houses in or near towns, work is caused by the dirty or dusty air which surrounds them. It would therefore be better to use a small electric fan and a suitable filter to clean the air. The author points out that the absence of coal fires in a house may make it possible to dispense with one domestic servant, and so not only more than repay the total cost of the electric energy, but also lighten the domestic labour problem.

THE first ordinary meeting of the Electroplaters' and Depositors' Technical Society was held at the Northampton Polytechnic Institute on December 9, when Mr. S. Field read a paper on electrodeposition. He pointed out that there is a great need of organisation and co-operation by those engaged in the science and art of electrodeposition. The history of the art goes back for a hundred years, and the greatest

credit belongs to Faraday for his discovery of the laws of electrolysis. The great progress that has been made of recent years is due to the greater attention that has been given to scientific principles. The systematic research that has been made for addition agents has greatly improved the deposition of tin, lead, iron, cobalt, cadmium and chromium. The practical applications also have increased. A striking application is the copper matrices used for moulding gramophone records. Another recent application is the deposition of iron and nickel so as to repair the worn parts of machinery. When the metal deposited has to withstand mechanical wear, further investigation is needed. There are still too many unsolved problems in the practical processes, some of which would doubtless yield to organised research. The work should be undertaken by men who can devote their whole time to the problems. The position of the electroplating industry is unsatisfactory. There is neither standardisation of nomenclature nor of method. It is hoped to replace the many so-called formulæ for plating solutions by a few comparatively simple scientific formulæ. By organisation, research, standardisation and discussion it is hoped to advance the interests of the whole industry. Prof. F. G. Donnan, president of the Faraday Society, presided at the meeting and welcomed the formation of the Society. It was announced that permission to use rooms in the Northampton Polytechnic for meetings had been obtained.

A GROUP of activities of the Soviet Republics, referred to in a recent issue of the *Bulletin of the U.S.S.R. Society of Cultural Relations with Foreign Countries*, which is of special interest to anthropologists, is connected with the more primitive peoples of what was formerly the Russian Empire. An attempt is to be made to settle the nomads of Kazakistan Republic (Kirghiz Steppes) by the establishment of cultural and educational points which will serve as bases of settlement. The nomad Karagasses of S.W. Irkutsk Province, the remnants of the ancient Samoyed tribes who once inhabited the Upper Yenisei, and of whom not more than 500 are left, are to be protected and their culture adapted to modern conditions. Already, by being brought into the co-operative movement, they have been placed in a position to dispose of the products of their hunting expeditions to greater advantage. A Red Cross expedition has been sent out to study their conditions, social, economic, and sanitary, and will pay special attention to the possibilities of making available medical service. Further, a number of cultural bases are to be established among the Samoyeds, Ostyaks, Voguls, Tunguses, and other peoples of the north, which will provide education, medical and veterinary services, and shops for the supply of primary necessities. A special expedition has been sent to the basins of the Lena, Yenisei, and Obi, for the purpose of studying the life of, and conditions among, other small peoples of these areas. A report of the results of these activities will be awaited with interest. It is well known that conditions among these tribes and peoples have for long been bad, and it may be hoped that the material organisation of the

Soviets, of which the reports are not encouraging, may be equal to carrying out these measures of amelioration. On the scientific side, to be of any wide utility, much greater expedition in the publication of results than has been shown hitherto is urgently needed.

EARLY skating this winter in Great Britain coupled with the keen November frost and unusually early snow-falls, as well as the strong northerly gales, have given an impression that no such weather has occurred in November for many years, and some would take us back to 1890, when the great frost of 1890-91 commenced on November 25 and lasted until January 22. The Greenwich Observatory records published in the Registrar-General's returns enable a full survey of the daily temperatures for November. The mean for the whole month was $40^{\circ}.7$ F., which is $3^{\circ}.3$ below the normal for the thirty-five years 1881-1915. The mean of the maximum or day temperatures was $46^{\circ}.0$ and the mean of the minimum or night readings was $35^{\circ}.3$. In November 1923 the mean temperature at Greenwich was about 2° colder than this year. The maximum or day temperature was below 40° on 10 days, this year only on 5 days, and the minimum or night temperature fell to 32° or below on 12 nights in 1923 and only on 10 nights this year. The absolute minimum shade temperature in November 1923 was $22^{\circ}.7$, this year $24^{\circ}.9$. The mean temperature for November was also lower than this year in 1921, 1919, 1915, and 1910, but these are the only years since 1880. Snaps of cold weather still seem persistent; on December 4 the thermometer at Greenwich was below the freezing-point throughout the twenty-four hours, and on December 5 the minimum temperature was $21^{\circ}.4$, which is the lowest in December since 1920. An increase is shown in the deaths from influenza, the deaths in London being 22 in the week ending December 5, and in the hundred and five great towns of England and Wales the deaths numbered 100.

PRELIMINARY announcements have now been issued of the Kansas City meeting of the American Association for the Advancement of Science, to be held on December 29-January 2, under the presidency of Prof. M. I. Pupin, of Columbia University, New York. This will be the eighty-second meeting of the Association, but the first occasion on which it has visited Kansas City. General sessions for the whole gathering include the address of the retiring president, Dr. J. McKeen Cattell, on "Some Psychological Experiments"; the fourth annual Sigma Xi Lecture, by President F. D. Farrell, of the Kansas State Agricultural College, on "A Desert becomes a Garden"; an address by Prof. Dayton C. Miller, of the Case School of Applied Science, on "The Michelson-Morley Ether-Drift Experiment, its History and Significance"; the third annual Josiah Willard Gibbs Lecture of the American Mathematical Society, by Prof. James Pierpont, of Yale University, on "Some Modern Views of Space"; discussions on the rôle of science in education and on the relations of engineering to the fundamental sciences; and a lecture by Dr. F. R. Moulton, of the University of Chicago, on "The Origin and Evolution of Worlds." Popular citizens' lectures are also being arranged. The third annual

American Association Prize of 1000 dollars is to be awarded for "some noteworthy contribution to scientific advancement presented at the meeting." Last year this prize was divided between two scientific workers, but this will not be done in future. A publicity office for the release of news to the Press is being organised in association with Science Service, and a comprehensive exhibition of apparatus and books has been arranged.

THE library of the Chemical Society will be closed for the Christmas Holidays at 1 P.M. on Wednesday, December 23, and will reopen at 10 A.M. on Tuesday, December 29.

LIEUT.-GENERAL SIR WILLIAM FURSE, K.C.B., has been appointed Director of the Imperial Institute, in succession to Sir Richard Redmayne, who has been acting as Director during the period of reorganisation and amalgamation with the Imperial Mineral Resources Bureau. Sir Richard now becomes chairman of the Advisory Council of Minerals of the Institute. The appointment of Sir William Furse as Director is in accord with the recommendation of the committee of inquiry into the Imperial Institute, presided over by Mr. W. Ormsby-Gore, that the director of the Institute should be an administrator officer rather than a scientific or technical expert.

By virtue of the Importation of Plumage (No. 1) Order, 1925, the names of the Common Cormorant and the Common Shag have been added to the Schedule to the Importation of Plumage (Prohibition) Act, 1921, which contains the names of certain birds the plumage of which may be imported without licence. The Board of Trade accordingly desires it to be known that as from December 10 it will be possible to import the plumage of the above-mentioned birds without Board of Trade license.

THE following officers and new members of council of the Royal Physical Society of Edinburgh have been elected for the session 1925-26: *President*: Dr. James Ritchie; *Vice-Presidents*: Dr. Marion I. Newbigin, Prof. J. A. Thomson, Mr. Wm. Williamson; *Secretary*: Mr. H. Maxwell Vickers; *Assistant Secretary*: Prof. J. Russell Greig; *Treasurer*: Mr. Thos. V. Campbell; *Librarian*: Mr. J. Kirke Nash; *New Members of Council*: Mr. T. Cuthbert Day, Prof. T. Hudson Beare, Mr. P. F. Kendall, Prof. Donald C. Matheson, Rev. J. M. McWilliam.

PROF. A. P. KNIGHT, chairman of the Biological Board of Canada, writes that since his letter on "The Losses in Trout Fry after Distribution" appeared in NATURE of October 17, p. 573, he has had the report on the distribution and losses of trout fry for the past summer (1925). He states that 4000 were distributed in a brook on Prince Edward Island, and at the end of three months, only 27 per cent. of these were alive. The seining showed 300, more or less adult trout present in the stream, 80 fundulus, 31 salmon parr, and 15,000 two-spine stickleback. The presence of these fish natural to the stream, and the lack of adequate supply of natural food, probably accounts fully for the heavy loss of 73 per cent. of the total number distributed.

THE Norman Lockyer Observatory, Sidmouth, is offering a research studentship in astrophysics of the value of 150*l.* per annum for one or two years to a student with a knowledge of spectroscopy. The astronomical and laboratory instruments and material of the Observatory will be at the disposal of such a student for the purposes of practical work; while the large number of negatives of stellar spectra and other observational data which is available for study, together with the extensive library, will provide valuable material for more theoretical research work. The opportunity thus offered should be of great value to a post-graduate student who wishes to apply his knowledge to the study of astrophysical problems and to undertake research work in this subject. Further particulars can be obtained from Capt. W. N. McClean, 1 Onslow Gardens, S.W. 7.

A CHADWICK lecture on "encephalitis lethargica (sleepy sickness) in England" was delivered by Dr. Salusbury MacNalty on December 9. The lecturer said that this disease made its appearance in England in the spring of 1918 and has since become increasingly prevalent, no less than 5040 cases, with 1419 deaths, occurring in England and Wales last year. For practical purposes the disease is a new phenomenon, though certain epidemics in the past may have been examples of it. It is probably caused by a minute filter-passing micro-organism which causes an inflammatory process in the brain, to which the chief clinical features are due. The question of the evolution of the organism was raised, and the possibility was suggested that the central nervous system of man to-day is more vulnerable than in former centuries, owing to the fatigue and strain of modern life.

At the Court of Governors of the London Hospital on December 9, the Chairman of the Hospital announced that an anonymous donor had given the large sum of 50,000*l.* for the purposes of medical research in that institution. It is not yet known how the money will be spent. The material for investigation of disease is superabundant at the London Hospital, and it is to be hoped that part at any rate of the money will be expended in individual or concerted effort to solve some of the disease mysteries on the spot where the necessary material exists. It would, in our opinion, be a mistake to fritter away the money, as is often done, in giving grants to a number of young men to produce amateurish work. It is to be hoped that the London Hospital will eventually be able to give a good account of work done and results achieved through assistance afforded by the recent gift.

IN our issue of December 5, p. 828, we printed an announcement from *Science* that the triennial prize for 1925, for the best original work contributing to scientific advancement in the technical applications of electricity offered by the Fondation George Montefiore of Liège, had been awarded to Dr. J. B. Whitehead, of Johns Hopkins University, Baltimore. We have since received information showing that this was one of four awards. The jury of award decided that no memoir submitted merited the single prize of

22,500 francs. The prize was divided and awarded to Mr. F. Creedy, electrical and mechanical engineer, London, for papers on "Some Developments in Multi-speed Cascade Induction Motors" and "Variable Speed Alternating Current Motors without Commutators" (6000 francs); Prof. J. B. Whitehead (4000 francs); and to Mr. Checholowsky, electrical engineer, Antwerp, for his "Study on Operating and Releasing Times of Telephone Relays" (4000 francs). An exceptional prize (2000 francs) for the description of "A New Form of Converter" was awarded to Mr. Raymond Wilmotte, London, in virtue of article 5 of the Foundation permitting the jury to allot a prize to a thesis showing a new idea capable of important developments in electrical engineering.

THE London County Council publishes each year an Annual Report and volumes of Accounts, Estimates, Statistics, etc. These publications, however, do not appeal to the great mass of Londoners, and the Council is therefore publishing a series of booklets on "The London County Council and what it Does for London," of which that entitled "Public Health" (Hodder and Stoughton, Ltd., price 6d. net) has

recently been received. It deals in three chapters with main drainage, disease prevention, and treatment of disease, respectively, and gives a popular summary of what the Council has done and is doing for these aspects of public health. The booklet is well produced and illustrated, including a map showing the drainage system of London, and is very readable.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—Test assistant at the Aeroplane and Armament Experimental Establishment, R.A.F., Martlesham Heath, Suffolk—Secretary to the Air Ministry, Adastral House, Kingsway, W.C.2 (January 4). Technical assistant for the Aerial Photographic Department—Superintendent, Royal Aircraft Establishment, South Farnborough, Hants (January 9). A principal officer of the University of London—Secretary to the Senate, University of London, South Kensington, S.W.7 (February 1). Several men possessing good scientific training and technical experience—Secretary, Chilian Nitrate Committee, Friars House, New Broad Street, E.C.2.

Our Astronomical Column.

DAYLIGHT FIREBALL.—Mr. W. F. Denning writes: "On November 25 at 4^h 5^m P.M., when the sun was shining, a fine meteor was seen by several persons from Cornwall and Devon. It was directed from the south-west and disappeared in the north sky at a somewhat low altitude. It left a train as it passed with moderate velocity across the heavens, and with an estimated duration of 3 seconds. The meteor was quite conspicuous and appeared like a brilliant silver ball descending at an angle of about 35° as seen from Brentor, near Tavistock. The observations are not sufficiently exact for accurate computations to be made of the real path. The height was, however, probably about 77 to 41 miles and the velocity about 34 miles per second; radiant near β Boötis or, farther back in the line of flight, at Corona (233° + 34°). The position of the meteor was over the sea W.N.W. from Fishguard to over Carmarthen in S. Wales. This meteor was the second object of the class observed in sunshine this year, the previous one being on June 4, 4^h 10^m P.M."

THE ERROR OF NEWCOMB'S POSITION OF THE EQUINOX.—All the leading fundamental observatories agree in finding a large correction (amounting to a second of arc) to the position of the equinox given by Newcomb. Prof. Eichelberger and others have concluded that this error is increasing, and that Newcomb's rate of precession is wrong. Mr. R. T. Cullen, in *Monthly Notices of the Roy. Ast. Soc.* (vol. 85, No. 9), gives reasons against this conclusion. He shows that when allowance is made for two changes of practice at Greenwich, the errors of equinox cease to be progressive. These changes are the application of variation of latitude and the introduction of the travelling wire micrometer. The annual part of the variation of latitude causes a systematic shift of the equinox as deduced from observations of the sun, and the use of the travelling wire micrometer has altered mean personality of the observers in the solar observations. Removing the effect of these corrections from the recent observations, the error of Newcomb's equinox since 1851 is found to exhibit no progressive change. The reality of the present error of 1" in the equinox is not denied, but it is concluded to arise not from a wrong

rate of precession, but from the omission from the early solar observations of certain corrections which are applied to the recent ones.

COMETS.—The comets of Van Biesbroeck and Peltier-Wilk are still readily observable with small instruments, the latter being the brighter. The orbits of both comets are now known within narrow limits; that of Van Biesbroeck has been improved by Messrs. G. Merton and A. C. D. Crommelin, using their observations of the morning of December 10. The following elements (referred to the equator) are near the truth, but need slight adjustment.

T	1925 Oct. 1-9848 U.T.
ω'	94° 2' 43.1"
Ω'	340 3 53.2
i'	70 18 20.6
log q	0.185531

An ephemeris from these elements is not yet available, but that from the Möller-Strömgen orbit will suffice for finding the comet with a little sweeping.

EPHEMERIS FOR 0^h.

	{R.A.	N. Decl.	log r.	log Δ .
Dec. 18.	12 ^h 6.3 ^m	25° 48'	0.2615	0.1647
26.	12 2.8	23 50	0.2772	0.1538
Jan. 3.	11 56.5	22 0	0.2929	0.1431
11.	11 47.3	20 17	0.3085	0.1329

The comet is now high enough for observation soon after midnight.

M. A. Schaumasse has discussed in detail the several returns of Borrelly's Comet in recent Nos. of the *Journal des Observateurs*. In No. 10 (Vol. 8) he gives the predicted orbit for the present apparition.

T	1925 Oct. 8.193 U.T.
ω	352° 25' 25.42"
Ω	77 2 7.10
i	30 30 40.29
log q	0.1424289

Period 6.885463 years.

Recent observations give a correction of +0.60 day to T.