

CENTENARIES

Chambers, Ephraim (1680–1740)

EPHRAIM CHAMBERS, an early English encyclopædist, was born of a farmer at Kendel in 1680. Having received his education at Kendel and London, he apprenticed to a map and globe-maker and while thus occupied he took up the compilation of a cyclopædia on a larger scale than that of John Harris's *Lexicon technicum* (1704).

THE CYCLOPÆDIA

Chambers published his *Cyclopædia: or an universal dictionary of arts and sciences, etc.*, in 1728; he endeavoured to connect the scattered articles relating to each subject by a system of references based on a specially devised scheme of classification and "both to treat them as so many wholes and so many parts of some greater whole". Immediately after its publication, he was made a Fellow of the Royal Society. It went through several editions and translations. The sixth edition (1750) contained two supplementary volumes compiled by Sir John Hill, the botanist, and George Lewis Scott, the mathematician. It formed the basis of the more extended cyclopædia of Rees which was completed in 45 volumes in 1819. It may be said that Chambers's work originated all the modern cyclopædias.

Chambers lived to the last the life of a recluse and a hard student, reading and writing from morning to night almost without intermission. A person who was his amanuensis for six years is said to have stated that "he transcribed for him and took down from his dictation in that space of time, not less than twenty large folio volumes as those of his *Cyclopædia*".

Chambers died at Islington, May 18, 1740.

Rockwell, Alphonso David (1840–1933)

ALPHONSO DAVID ROCKWELL, an American physician, was born in New Canan, May 18, 1840. He began his medical studies with a local practitioner and having seen service in the army for a few years settled in New York in 1865 for practice.

ELECTROTHERAPEUTICS

In 1866, he collaborated with George M. Beard in the investigation of the therapeutic applications of electricity. At this time electricity was not used to any extent by physicians in the United States and very little elsewhere. It is their pioneer *Medical use of electricity* (1867) which created general interest in the subject. In 1871 they brought out their *Practical treatise on medical and surgical uses of electricity* which went through eleven editions and several translations. Here they described exhaustively and with illustrative case reports the *modus operandi* of general electrization which they had been the first to investigate. In 1886 Rockwell was made professor of electrotherapeutics at New York Postgraduate Medical School. He was also elected President of the American Electro-Therapeutic Association.

ELECTRICAL CHAIR

When the New York State law was enacted changing the method of legal execution, Rockwell was chosen as one of a committee to advise the State upon the apparatus known as the electrical chair. He was a witness of some of the earliest electro-executions in the State.

Rockwell died, April 12, 1933.

S. R. RANGANATHAN.

SCIENCE NOTES AND NEWS

Discovery of Carved Heads in Mexico.—Five colossal heads carved in human form from basalt, each weighing 20 tons or more, have just been discovered in the Tehuantepec Isthmus region of Mexico by a joint archaeological expedition of the *National Geographic Society* and the *Smithsonian Institution*. The expedition was headed by Matthew W. Stirling, Chief of the Bureau of American Ethnology of the Smithsonian Institution. So far, the expedition's excavations have failed to uncover any evidence to indicate the age of the gigantic carvings or what part they played in the religious life of their creators.

According to a *Communique* issued by the *National Geographic Society*, the heads were found near the small village of La Venta in the western edge of the State of Tabasco, about 20 miles from the coast of the Gulf of Mexico. They lay within an area about a quarter of a

mile square, and all were almost completely covered by soil.

The newly found sculptures are similar to the single colossal head unearthed in 1939 by the same expedition at Tres Zapotes, Vera Cruz, a hundred and twenty miles to the west. This was the first of the mysterious big heads to be fully excavated and photographed. The existence of one partially buried head at La Venta had been reported in 1925 by a Tulane University expedition led by Frans Blom; but it was not suspected that five of the huge carvings existed until Mr. Stirling visited the site last month.

The five colossal heads of La Venta vary in height from 6 to 8 feet 5 inches, and in circumference from 13 feet 7½ inches to 21 feet 7 inches. It is estimated that the weight of the largest may exceed 25 tons. The archaeologists have as yet found no source of basalt nearer

0 miles. Two of the unsolved prob-connection with the heads are, where ere made and how the huge, heavy if stone were transported to their pres-es in the swampy coastal plain.

American Rhinoceros.—A joint palæont- expedition of the *National Geographic* and the *South Dakota State School* of is now on the field in the Badlands Western South Dakota, seeking the of the queerest creatures—protoceras, ere and other New World types of os—that roamed the plains of North —some thirty millions of years ago. llands area, once a grass covered region ng plains, has undergone, during all ges, radical changes and is now covered rge quantities of eroded materials and ash. Erosion during the last 10,000 d more, has exposed several bones and losed the region to be a rich treasure- or palæontological investigations. Many f vertebrates have been “mined” there ong them only a few complete skeletons othere, protoceras and rhinoceros have covered. According to a communique re *National Geographic Society* dated 4, 1940, the expedition’s chief aim will examine this region thoroughly; it is d that the bones of many other animals found also.

Isiah Horrox (1619-41):—A biographical interest has appeared in *Occasional* or December 1939 (*Royal Astr. Soc.*, 1939, This refers to Horrox, Curate of Hoole ashire, who, to quote from the inscrip- the monument erected in his honour minster Abbey (1874), “in so short a ected the long inequality in the mean of Jupiter and Saturn, discovered the the Moon to be an ellipse, determined tion of the lunar apse, suggested the cause of its revolution and predicted his own observations the Transit of

Retardation of Chemical Reactions.—Work retardation of oxidations in the liquid as been proceeding actively for the last years, and yet unfortunately the worker eks an inhibitor for an oxidation not examined must still be guided almost by trial and error. Kenneth C. Bailly v collected the most important data on phase oxidations in 10 extensive tables *Roy. Irish Academy*, 1939, 45 B, 373) to he worker may refer to discover what s have been tried in a given case, and hat results. Although the compilation ables has been an end in itself, an at- as been made to draw some general ons, however limited they may be, in plicability.

Principles of Photomicrography.—A general of the general principles of microscopy otomicrography is given by Max Poser Bausch and Lomb Optical Company,

Rochester (*Phototechnique*, Feb. 1940). Enor- mous amount of research has been done in recent years on various aspects of the construc- tion and working of the microscope and the author presents these in a general manner and in nontechnical language. The differences be- tween the various light sources are discussed and methods to eliminate glare are suggested. For this purpose the employment of an ade- quate light filter is advised by the author, the selection of the correct colour of the filter being easily determined by means of a small hand-spectroscope manufactured by the Bausch and Lomb Optical Co. The enormous advantage of ultra-violet light as source of illumination over ordinary types of light sources is dis- cussed, especially for photomicrographic pur- poses. Practically twice the resolving power of a given numerical aperture can be achieved by using ultra-violet light of the cadmium line. This fact is bound to revolutionise future work. But it is essential that the entire optical sys- tem in this case, including the slides and coverglasses should be made of quartz, since glass is opaque for this short wavelength. The determination of the magnification of a photo- micrograph is also explained. The paper is illustrated with excellent photomicrographs. Those, especially of the mitotic figures, are amongst the clearest ever published.

Preservation of Wall Paintings.—A process consisting of what is called “application of a reverse humidity gradient”, has been evolved by the Archæological Chemist with the Gov- ernment of India, for preserving the celebrated wall paintings from Central Asia, now on exhi- bition in the Central Asian Antiquities Museum, New Delhi. The deterioration of these paintings has been traced to the presence of injurious salts in the materials originally employed. Variations of atmospheric humidity in the museum galleries causes the salts to go through a continuous cycle of solution and crystallisa- tion, resulting in the decay of the plaster.

The process employed for restoring and pre- serving the panels consists in mounting them on the sides of a humidity chamber, with the painted surface exposed inwards to a relative humidity of over 85 per cent. Wet paper pulp is applied to the outer (plaster) surface of the panels. The layer of pulp, which removes the salts by absorption is removed when dry; the treatment is repeated, until the concentra- tion of salts in the plaster is reduced to a negli- gible fraction. The paintings are then taken out of the chamber, the surface coated with vinyl acetate solution to strengthen the decayed sur- face and to fix the colcurs and finally the surface is pressed down carefully with hot iron.

Fight against Soil Erosion in India.—We are gratified to note that energetic steps are being taken by the *Imperial Council of Agricultural Research* to fight the problem of soil erosion in this country which here, as in other parts of the world, has led to disastrous consequences of a permanent character to the cropping power of the land. Controlled grazing, contour trench- ing and bunding are among the methods that have been adopted in India to attack soil erosion

and some results of practical value are reported from various parts of the country, where the methods have been under trial for some considerable time. Recommendations have also been made for the formation of anti-erosion Provincial Boards and an All-India Anti-Erosion Committee to tackle the problem systematically and to bestow continuous attention to the subject. Among examples of successful attempts are mentioned certain experiments in the U.P. where the regulation of grazing resulted in a great improvement in the quality and quantity of fodder grasses and indigenous trees and shrubs, encouraging their natural rejuvenation and effectively preventing soil erosion and the formation of ravines. It was also found that the cutting of grasses twice or thrice a year yielded much more than a single cutting at the end of the season, that closure to grazing alone resulted in increasing the yield of fodder grasses from three to fifteen maunds per acre and that grass samples from enclosed areas were greatly superior in quality to the grass from the ordinary hillsides. A notable example of large-scale contour trenching is that carried out in the Singbhum District of Bihar where a distance of 25 miles has been covered with encouraging results. Contour trenching combined with controlled grazing has resulted in striking increases in the yield of grass. These methods are also useful in mitigating the danger of floods, and the Governments of Bengal and Orissa are said to be looking to these methods as practical expedients. In Bombay much has been done by that Government for popularising the methods of constructing field bunds for preventing erosion and in the Punjab the Government has accepted a proposal for the grant of remissions of assessment as an inducement for the adoption of the practice by cultivators. A. K. Y.

Jute Research in India.—(1) A somewhat surprisingly quick result following the establishment recently of the Jute Research Laboratory of the *Indian Central Jute Committee* is published in a press note issued by that Committee. It relates to the infection of the jute seed by *Macrophomina* (*Rhizoctonia*). It is now said to have been definitely established, that the infection is carried *within* the capsularia seed as well as on its surface. This source of infection was hitherto unknown in jute. The strain called D. 154 proved infected to the extent of between 12 and 15 per cent. and 4 to 6 per cent. of the seeds carried the infection within the seed, the balance being due to the infection of the outer surface of the seed-coat. The incidence of the disease in a crop of D. 154 on the Dacca Farm was found to amount to 20 per cent. of the plants. (2) The lines on which the Committee is working out an accurate method of forecasting the jute crop forms the subject of another press note and the random sampling method recommended by Prof. P. C. Mahalanobis for this purpose have won both approval and high commendation from the well-known American Economic Statistician, Prof. Harold Hotteling who examined and reported on the scheme. "No technique of random sampling", says Prof. Hotteling, "has so far,

as I can find, been developed in the U.S.A. or elsewhere which can compare in accuracy or in economy with that described by Prof. Mahalanobis"—high praise which sets the seal upon a method which offers a practical solution to a knotty problem. (3) A third press note of the Committee draws attention to the decision arrived at during the last meeting of the Committee to conduct research on jute blended with flax. In view of the urgency of the flax question and the possibility of India capturing a share of the flax market, not only now but in perpetuity it has also been thought desirable to install machines as soon as possible for thoroughly testing such flax as may be grown in India in the season 1940-41. A. K. Y.

Control of the Pyrilla Pest on Sugarcane.—An interesting contrivance by which the biological method of controlling this pest can be greatly enhanced in its effectiveness has been devised by the Biological Control Research Officer at the Palhera Farm near Meerut Cantonment (*Indian Farming*, March 1940). The device consists in enclosing egg masses of pyrilla, both parasitised and healthy, in small portable wooden cages with wire-gauze panels, the gauze having 90 meshes to the square inch, and then distributing these cages in different parts of the field. The mesh is found large enough to allow the parasites to fly out on emergence but too small for the exit of the pyrilla nymphs. It was observed that all parasites emerging from the parasitised eggs in the cage flew out into the field through the meshes of the gauze while hundreds of pyrilla nymphs emerging from healthy eggs were trapped in the cages and perished. The parasites were thus helped to tide over their numerical weakness and thereby to gain very materially in their power as a controlling agent. In the experiment reported the percentage of parasitised eggs in the field rose from 30 to well over 60 in the course of three weeks, as the result of the new contrivance. The method has also been found applicable to the parasites attacking pyrilla in the winter, which are different from those described above. A. K. Y.

New Salt Find at Sambhar Lake.—Deposits of common salt have recently been found near the Sambhar Lake, and vast quantities of this material are now being scraped out in a form ready for the market. The area from which the salt is now being scraped out, has been functioning as the main bitterns-area for the surrounding kyars or collection of manufacturing pans. For years and years the refuse liquor (or bitterns) is being thrown away into this area.

Ordinarily, after the rains, this area remains covered with brine, but this year, owing to deficiency in rainfall, the whole of the deposit lay exposed and its exploration led to the discovery by Mr. Rahim Baksh, Superintendent in the Northern India Excise and Salt Department at Sambhar, of a regular layer of crystal salt of good quality about 3" in thickness, beneath 1"-2" thick crust of impure salt, which was easily removable from the top. On excavation by normal methods, the layer breaks up

easily into separate and well matured crystals, medium and large in size, and absolutely white in colour. Washed with condensed brine, the salt attains a purity which compares very favourably with the ordinary salt manufactured or mined in India, or imported from abroad, the percentage of sodium chloride varying between 95 and 99. Even in unwashed samples, the percentage is 92 to 97.

It is anticipated that in the edge of the area where crystal salt has been discovered, there is about 10,00,000 maunds of powdered salt.

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The Comparative Strengths of Some Important Indian Timbers and their Uses.—The publication of the booklet by Mr. V. D. Limaye (*Indian Forest Records*, New Series, Utilisation, Vol. 1-A) is opportune just now when it is of urgent national importance to replace, with suitable substitutes, some of the conventional timbers hitherto imported in large quantities to Great Britain. Apart from durability and, of course cost, the strength factors of timbers constitute limiting factors in many forms of utilisation; and Mr. Limaye has presented here the strength data of about 36 common Indian timbers (and also of six commonly imported timbers) in a simple and vivid manner by adopting the method of "Stick diagrams" with the corresponding Teak value arbitrarily taken as 100. Short explanatory notes indicating the distribution of the species and the uses for which the timber is suitable add to the value of this publication which should be welcome to engineers and laymen alike as a sort of "Who's who?" in Indian timbers.

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EMMENNAR.
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Handedness in Inheritance.—It has now come to be recognised that handedness is a quantitative and therefore a graded trait. No simple Mendelian explanation accounts for either right- or left-handedness but the more frequent occurrence of left-handedness as a familial trait is clearly noticeable. This phenomenon is discussed by D. C. Rife in a recent paper (*Genetics*, 1940, 25, No. 2). If one of the parents is left-handed, it is more likely that children are also left-handed than if both parents are right-handed. And if both parents are left-handed about 50 per cent. of the children are left-handed. In twins of both mono- and dizygotic kinds left-handedness occurs more commonly and frequently among twins one member is right-handed and the other left-handed. Even so, twins where one member is left-handed have a higher percentage of left-handed relatives than pairs composed only of right-handers. It is believed that handedness being a quantitative trait, many individuals are genotypically intermediate and may be influenced either way by environmental conditions. More left-handedness can be expected among the relatives of genotypically intermediate twins than among the relatives of genotypic right-handers.

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Toxicity of Lead Arsenate to a Leaf-feeding Insect.—Many insects feed upon a variety of host plants,—certain of which appear to be inferior to others as a diet. The effects of

different diets of this type are often apparent in the rate of growth of the insects, the fecundity of the adults, the resistance to disease and even in the pigmentation of the individuals. These physiological variations have been noted from time to time, by Mr. M. C. Swingle of U.S. Department of Agriculture, in the case of the southern armyworm, *Prodenia eridania* Cram. (*J. Econ. Ent.*, 1939, 32.) It appeared possible, therefore, that other physiological changes may have occurred, which would result in a change in the resistance of the insect to certain insecticides. A short series of tests made by him definitely showed that the resistance of southern armyworms to lead arsenate could be controlled by previously feeding them with particular species of plants.

Further research in this direction is expected to considerably add to the knowledge of better utilization of insecticides in the control of harmful insects.

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Tellurium in Tin Alloys.—It was shown by Dr. Hanson and Dr. Pell-Walpole some time ago that a little tellurium improves the creep strength of pure tin, both in the rolled and the cast conditions. A convenient method of determining tellurium in these alloys has been worked out by Dr. Pell-Walpole. He ascertains the loss of weight that occurs on distillation *in vacuo* when tin telluride (TeSn) distills without dissociation. A note of the method forms Publication 96 of *The International Tin Research and Development Council*.

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The Inter-University Board has rendered valuable service to the cause of higher education in India by publishing the report of the Proceedings of the 15th Annual Meeting (1940). This body of educational experts have considered several outstanding problems in university education, and in many cases they have offered wise and practical solutions. They have set up, as it were, certain sign-posts in educational thought and administration, certain goals towards which effort may be directed. Thus, for instance, Dr. C. R. Reddy in his welcome address to the assembly, makes a powerful plea for harnessing the resources of Indian Universities towards practical ends in industry and commerce. He sees a great opportunity in the present war for doing this, since supplies of technical products from the advanced countries of Europe are now cut off.

Among other questions of general interest brought up at the Conference was the problem of separate courses of study for women candidates in Indian universities. This is an important matter regarding which certain universities have already made some headway; but the lead given by the Board in favour of this step is likely to strengthen the hands of these pioneers. Another valuable suggestion, supported by no less a scholar than Sir Jadunath Sarkar, aims at bringing about a closer association between historical research departments of Indian universities and the Imperial Record Department of the Government. That this is a very desirable move will be admitted by all students of Indian history. In recent years the contribution of Indian savants to our knowledge

of India's past has been steadily expanding; but this expansion can be greatly accelerated by affording improved facilities for research on the lines suggested in the proposal.

A matter of, perhaps, less general interest, but nonetheless an important matter from the point of view of educational administration, is the status of Cambridge School Certificate Examinations in relation to university studies in this country. Not only Anglo-Indians but many Indian boys and girls are now appearing for these examinations. It is therefore urgently necessary that there should be some uniformity of practice among Indian universities as to the treatment of these candidates.

Finally it may be observed that the already useful work of the Inter-University Board may be further enhanced by providing a conspectus of the arrangements existing in the various departments of Indian universities. A beginning has already been made in this direction in regard to certain faculties such as Education and Law. These studies may be extended to other faculties as well as brought up to date from time to time.

Such an effort will help to bring about greater uniformity in university arrangements. It is not suggested here, however, that absolute uniformity of practice throughout India is either practicable or even desirable. Nor has the Board any statutory authority for co-ordination, its resolutions being no more than mere recommendations. But still, there are certain matters in regard to which voluntary uniformity may be attained. For this purpose a knowledge of what is going on elsewhere is necessary. The Board may legitimately provide this knowledge. Perhaps the suggestion of Mr. N. S. Subba Rao, advocating more stable foundations for the Board, will be helpful in this connection.

D. S. GORDON.

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Research Institute, Ayurvedic and Unani, Tibbi College, Delhi.—The annual report of the Director for 1938-39, gives an account of the work on some of the drugs carried out by Director S. Siddiqui and his colleagues. *Ayurvedic* and *Unani* systems of medicine possess many valuable and efficient drugs still unknown to Western science, and this Research Institute has the commendable object of bringing them to the knowledge of the scientific world and placing the use of these drugs on a modern scientific basis, by investigating the nature of the active principles whose potency is responsible for the curative property of the drug. This is a long and arduous task, requiring patience, skill and technique of a high order. Director Siddiqui "has tackled these difficult problems energetically and has achieved results of great value to medical science."

It is noteworthy that many of his colleagues have obtained their doctorates from other Universities on the strength of their work at this Research Institute, which is just becoming a centre for work on drugs. We hope that this Institute will obtain greater and a more practical recognition. We wish to congratulate the Director on the excellent work carried out at the Institute.

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Indian Forest College, Dehra Dun.—The first annual report of the College (1938-39) just issued, emphasises the importance of training future forest officers in India, and invites attention to the special facilities existing for such training at Dehra Dun. Sixteen students representing different parts of India are undergoing training at the College. Central Provinces, Mysore, Travancore and other States are not represented at the College. The practice of forestry differs in different parts of the world, and a comparative study of these methods would be extremely valuable. Some of the best authorities on Forestry in England have had their rich and extensive experience in India and Burma. It would be to mutual advantage if a system of exchanges between the forest services in various parts of the Empire could be introduced.

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The Imperial Council of Agricultural Research has recently issued a valuable Bulletin on Chalcids (*Misc. Bull.*, No. 30), summarising all available information on the natural habitats of these parasites and the variety of hosts attacked by them. Nearly 200 parasites are dealt with and all information available about their distribution and life-histories is included. A host-parasite index is also given.

The Bulletin does not deal with all the parasites which actually occur in the country, as a large number of them, accumulated in the Laboratory of the Imperial Entomologist at the *Imperial Agricultural Research Institute*, New Delhi, have not yet been identified. A supplement to the Bulletin will be issued as the mass of unnamed parasites in the Imperial Pusa Collection is worked out.

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An Inventions Board for Canada.—An Inventions Board has been established by the Government of Canada to deal with the growing volume of inventions and suggestions intended to further Canada's war effort which are being received by the various departments of Government.

The establishment of the Inventions Board provides a means whereby ideas and inventions submitted by citizens of Canada and abroad can be carefully examined, and promising proposals cleared to the proper authorities.

Dean C. J. Mackenzie, Acting President of the *National Research Council*, is the Chairman of the Board and Mr. S. J. Cook, Officer-in-Charge, Research Plans and Publications Section, *National Research Council*, the Secretary. The other members are, Lt.-Col. K. S. Maclachlan, Col. H. Des Rcsiers and Mr. W. R. Campbell.

All proposals received will be considered in the first instance by the Examining Committee. Those which offer promise will be reviewed by members of the Consulting Panel, and the proposals which meet with the approval of these two groups will then be considered by the Board.

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The next outburst of sunspots should occur early in 1944 and the next maximum of sunspots should come in the summer of 1948. Communicating this forecast in a letter to the

Editor of the *Physical Review*, of June 5, 1939, J. R. Stewart and F. C. Eggleton (Princeton Observatory) stated that since 1749 A.D. sixteen sunspot cycles have been completed. The seventeenth is not yet complete. The next one may be expected to commence roughly two-thirds of a year after the sunspot number has fallen to one-tenth its maximum value. This places the date early in 1944. The new forecast is made by fitting curves to the graphs made in plotting the number of sunspots monthly.— (*Bull. Amer. Met. Soc.*, 1940, 21, 117.)

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Weather Reports from America.—Two 2,000-ton Coast Guard cutters, with meteorologists of the *United States Weather Bureau* on board, have been ordered to permanent stations in the Atlantic, one one-third and one two-thirds of the way from Bermuda to the Azores. The equipment provided includes balloons carrying instruments for measuring pressure, temperature, and humidity, and the ships will report weather conditions direct to Washington. This step has become necessary in view of the scarcity of radio reports from ships at sea due to the present political situation in Europe. Because of the war, both belligerent and neutral vessels have silenced their radios, thus cutting down greatly the number of meteorological reports and rendering difficult the preparation of the usual weather maps of the north Pacific coast.

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The Health Organisation of the League of Nations.—At a meeting of the *Emergency Sub-Committee* held from March 4th to 10th, several medico-social questions arising out of the movements of civil populations were considered and a report dealing with (1) measures to be applied before transfer, (2) the action to be taken during the move and (3) the working of the welfare and medico-social assistance services in the reception areas, was adopted.

Among other questions considered at the meeting was one relating to the increase of cases of *cerebro-spinal meningitis* in several European countries. In recent years, the curve of incidence of *cerebro-spinal meningitis* in Europe and in the United States of America has displayed annual variations which themselves fluctuate in cycles of from 8 to 12 years. The last peak was reached in 1928–29. During the first two months of 1940, the seasonal increase in England, Switzerland, Germany, Austria, Hungary, Bulgaria and Yugoslavia, was greatly in excess of that normally recorded in those countries. It is characterised by the very wide dispersion of sporadic cases, the absence of epidemic foci and a decline of the fatality rate.

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Entomological Society of India (Bengal Branch).—Mr. D. D. Mukerji has been re-elected President of the Society for the year 1940–41 and Dr. D. P. Raichoudhuri, Secretary.

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University of Mysore.—The annual meeting of the Senate was held on the 1st March 1940. Among the propositions that were passed mention may be made of the following: (1) The adoption of Budget Estimates of the University for 1940–41. (2) Transitory Ordinance relating to the admission of passed S.S.L.C. candidates

with an optional group selected from Group C or D to the Intermediate course in Arts. (3) Grant of exemption to students belonging to the depressed classes from payment of tuition fees and examination fees for a further period of 5 years, i.e., up to the end of academic year 1944–45. (4) Levy of fees for tuition on Mysorean women students in the Arts and Science Colleges at half the prescribed rates and of full fees for examinations. (5) Courses of studies and schemes of examination in Geography for the Intermediate and the B.A. and B.Sc. Degree Examinations. (6) Courses of study and scheme of examination in Hindi as an optional subject for the B.A. Degree Examination. (7) Addition of 'Urdu' to the list of major subjects which may be offered for the B.A. Honours Degree Examinations. (8) Amendment of Ordinance relating to the Master's Degree Examination permitting a thesis to be offered in lieu of all the four papers. (9) Division of the second examination in Engineering into two examinations. (10) Reduction of the minimum to be obtained for a pass in English at the Intermediate Examination from 40 per cent. to 35 per cent.

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The Syndicate of the Calcutta University has recommended that Prof. Bidhubhushan Roy, D.Sc., may be reappointed *Khaira Professor of Physics* and that he may be permitted to serve in that capacity till he completes his sixtieth year.

MAGNETIC NOTES

April 1940.—Magnetic activity during the month of April 1940 was much less than that during the previous month. There were 13 quiet days, 13 days of *small* disturbance and 4 of *moderate* disturbance as against 4 quiet days, 21 days of small disturbance, 3 of moderate disturbance and 2 of great disturbance during the month of April 1939.

The day of largest disturbance during the month was the 3rd and that of least disturbance the 10th. The magnetic character during individual days is given in the table below.

Quiet days	Disturbed days	
	Slight	Moderate
6–10, 16–19, 23, 27, 29, 30	2, 4, 5, 11, 12, 14, 15, 20–22, 24, 26, 28	1, 3, 13, 25

There was only one storm of moderate intensity during the month as against 4 storms (2 of moderate and 2 of great intensity) during April of last year.

The mean character figure for the month is 0.70 as against 1.03 for the same period of last year.

M. R. RANGASWAMI.

SEISMOLOGICAL NOTES

During the month of April 1940, two slight and three moderate earthquake shocks were recorded by the Colaba Seismographs as against

Date	Intensity of the shock	Time of origin I.S.T.	Epicentral distance from Bombay	Co-ordinates of the epicentre (tentative)	Depth of focus	Remarks
1940		h. m.	miles		miles	
April 1	Moderate	16 49	4700	Near 2° S., 139° E., in the vicinity of New Guinea		
„ 6	Slight	19 13	2130	Near 27° N., 105° E., in South China		
„ 13	Slight	12 01	2230	Anatolia ?		
„ 16	Moderate	11 38	5630	Near 55° N., 178° E., in the Bering Sea		
„ 16	Moderate	12 13	5590	Probably the same as above		

three slight, one moderate and two great shocks recorded during the same month in 1939. Details for April 1940 are given in the above table.

dark clouds are objects comparatively near our system at distances ranging from three hundred to two thousand light years. T. P. B.

ASTRONOMICAL NOTES

Planets during June 1940.—Both Mercury and Venus will be visible as evening stars during the month; the former reaches greatest eastern elongation (25° 18') on the 24th, when it sets about an hour and a half after the Sun. Venus which is rapidly approaching the Sun will be at a stationary point of its orbit on June 4. It then begins to move in a retrograde direction and after reaching inferior conjunction with the Sun on the 26th, becomes a morning star at the end of the month. Mars is gradually getting fainter and is an inconspicuous object in the evening twilight.

Jupiter will be visible as a morning star rising about three hours before the Sun. Not far from it is Saturn which rises about a quarter of an hour later. The rings will be seen considerably widened since the time the planet was last observed in the evening sky. Uranus is slowly moving in the western border of the constellation Taurus, about six degrees to the south of the well-known cluster, Pleiades. There will be a close conjunction of the Moon with Saturn on the night of June 30.

The Milky Way.—Many of the interesting parts of the Milky Way can be conveniently observed in the early part of the night during the month. The regions in the constellations Cygnus and Aquila as well as the star clouds in Sagittarius are amazingly rich in faint stars, and will well repay a careful study. Between Cygnus and Scorpio the Milky Way divides itself into two narrow streams running parallel to each other. The obscure patches, the dark rifts and lanes that are found in the constellation Ophiuchus and other places also deserve special attention. These are regions apparently devoid of stars where occur large patches of obscuring clouds cutting off the light of the more distant stars in the background. These

ANNOUNCEMENTS

Changes in Nomenclature.—*Indian Farming* (March 1940) makes the important announcement that the improved varieties so far evolved at Pusa and others that may in future be bred at New Delhi will henceforth be known as Imperial Pusa varieties. This change has been made to keep up the earlier association of the Imperial Agricultural Research Institute with the word Pusa and at the same time to distinguish the strains bred by the Imperial Department of Agriculture from those which may be bred by the Bihar Agricultural Department at their station at Pusa. This nomenclature will also be adopted for the milch herd of the Institute as well as for herbarium specimens and specimens of insects, fungi, etc. A list of the old and new names of the varieties of improved varieties of crops under distribution is given, of which the following will serve as examples:—Of wheats, the old names Pusa 4, 12, 52, etc., are now changed to I.P. 4, 12, 52 respectively; of paddy, the old names Pusa Type 9, 18, 24, etc., are changed to I.P. 9, 18, 24 respectively; of linseed the old names Pusa Type 12, 121, 124, etc., are changed to I.P. 12, 121, 124 respectively and so on with the other crops.

The establishment of an International Collection of Cereal Varieties for the study of the physiological races of rusts, has been suggested by Riehm (*Rev. App. Myc.*, 1940, 19, 136). It has been pointed out that plant breeders require to know the reaction of cereal varieties to rusts (*Puccinia* spp.) not only in their own countries but also in neighbouring ones, where different physiologic races of the rusts may exist. Such information may safely be obtained only by field experiments in the countries concerned. The author has put forward proposals for international collaboration in such a project.

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- "Journal of Agricultural Research," Vol. 59, Nos. 10 and 11.
 "Agricultural Gazette of New South Wales," Vol. 51, Pt. 4.
 "Journal of Royal Society of Arts," Vol. 88, Nos. 4557 and 4558.
 "Monthly Bulletin of Agricultural Science and Practice," Vol. 31, No. 3.
 "Biochemical Journal," Vol. 34, No. 3.
 "Journal of the Institute of Brewing," Vol. 46, No. 4.
 "The Journal of Chemical Physics," Vol. 8, No. 3.
 "Journal of the Indian Chemical Society," Vol. 17, Nos. 2 and 3.
 "Comptes Rendus" (Doklady), Vol. 26, No. 5.
 "Indian Forester," Vol. 46, No. 5.
 "Transactions of the Faraday Society," Vol. 36, No. 228.
 "Indian Farming," Vol. 1, Nos. 3 and 4.
 "Genetics," Vol. 25, No. 2.
 "Geological, Mining and Metallurgical Society of India," Vol. 10, Nos. 3 and 4.
 "University of Illinois Bulletin," Vol. 37, Nos. 11, 12, 13 and 20.
 "Journal of Nutrition," Vol. 19, No. 3.

- "Proceedings of the Royal Irish Academy," Dublin, Vol. 45, No. 16 and Vol. 46, Nos. 1-3.
 "Bulletin of the Health Organisation of the League of Nations," Vol. 8, No. 6.
 "Chronicle of the Health Organisation," Vol. 2, No. 3.
 "Transactions of the Mining, Geological and Metallurgical Institute of India," Vol. 35, Pt. 4.
 "Review of Applied Mycology," Vol. 19, No. 3.
 "The Mathematics Student," Vol. 7, No. 4.
 "The Bulletin of the American Meteorological Society," Vol. 21, Nos. 2 and 3.
 "Scripta Mathematica," Vol. 6, No. 3.
 "Indian Medical Gazette," Vol. 75, No. 4.
 "American Museum of Natural History," Vol. 45, No. 3.
 "Nature," Vol. 145, Nos. 3673-76.
 "Indian Journal of Physics," Vol. 13, No. 6.
 "Canadian Journal of Research," Vol. 18, No. 3.
 "Journal of Research" (National Bureau of Standards), Vol. 23, Nos. 2-4.
 "Sky," Vol. 4, Nos. 5 and 6.
 "Science and Culture," Vol. 5, No. 11.
 "Indian Trade Journal," Vol. 137, Nos. 1767 and 1768.
 "Indian Journal of Veterinary Science and Animal Husbandry," Vol. 10, Pt. 1.

ACADEMIES AND SOCIETIES

Indian Academy of Sciences:

April 1940. SECTION A.—H. J. BHABHA: *Classical theory of spinning particles.*—Dealing with a point dipole with no extension, it is shown that completely relativistic equations free from singularities can be found. R. H. SIDDIQUI: *Strychnine and Brucine—Part III. Some derivatives of dinitrostrychnic acid.*—Tafel's dinitro-strychnine hydrate has been proved to be dinitro-strychnic acid. MATA PRASAD AND K. V. MODAK: *Viscosity of stannic phosphate gels during setting.*—The viscosity changes in the gel-forming mixtures have been studied with time and the effects of temperature and of addition of non-electrolytes to these mixtures have also been studied. N. V. SUBBA RAO AND T. R. SESHADRI: *Some organo-mercury compounds derived from quinine and cinchonine.*—Mercuric chloride forms combinations with the basic nitrogen atoms of the alkaloids whereas with mercuric acetate it is possible to produce compounds by addition at the ethylenic double bond. K. GANAPATHI: *Chemotherapy of bacterial infections—Part II. Synthesis of some sulphanilamide derivatives and the relation of chemical constitution to chemotherapeutic action.*—2-N¹-Sulphanilamidothiazol appears to possess a very striking effect. Substitution of the amide part of the sulphanilamide especially by a heterocyclic ring, produces compounds of increased activity. N. A.

SHASTRY: *On Angelescu's Polynomial $\pi_n(x)$.*
 H. L. DUBE AND S. PRAKASH: *Kinetics of Sol-Gel Transformation—Part III. The influence of temperature on the setting of some inorganic jellies.* H. L. DUBE: *Kinetics of Sol-Gel transformation—Part IV. The influence of purity of the sol on the setting of ferric arsenate and ferric phosphate jellies.* H. J. BHABHA: *On elementary heavy particles with any integral charge.*—The heavy elementary particles can exist in states of all integral charges, positive, negative or zero, the different states having different rest masses. P. V. KRISHNA IYER: *The analysis of asymmetrical experiments with special reference to the partition of treatment sum of squares.* F. C. AULUCK: *On some theorems of Ramanujam.*

April 1940. SECTION B.—B. N. SINGH AND M. B. LAL: *Studies in the Analysis of Fertiliser Effects—II. Photosynthetic Efficiency of Saccharum officinarum leaves as Influenced by Certain Manurial Treatments.* C. SRIKANTIA, P. R. SUBBA RAO AND T. PRASANNASIMHA ROW: *Glutathion in Ocular Diseases.* S. SINHA: *On the Characters of Choanephora cucurbitarum Thaxter on Chillies (Capsicum spp.).* S. SINHA: *A Wet Rot of Leaves of Colocasia antiquorum due to Secondary Infection by Choanephora cucurbitarum Thaxter and Choanephora trispora Thaxter sp. (= Blakeslea trispora Thaxter).*