

## CENTENARIES

## Ivory, James (1765-1842)

SIR JAMES IVORY, a Scottish mathematician, was born in Dundee in 1765. His father was a watchmaker. After matriculating at the St. Andrews University, he went to Edinburgh to study theology. But his mathematical bias made him come back to Dundee in 1786 as a teacher. In this capacity he introduced the study of algebra in the school course. Three years later he entered flax-spinning business and remained in it till 1804. Even in this interval he kept up his interest in mathematics and contributed four papers to the *Transactions* of the Royal Society at Edinburgh.

In 1804, he became a professor of mathematics in the Royal Military College. To facilitate his teaching work, he prepared a simpler edition of Euclid. His first paper to the Royal Society was read in 1809. It was on the classical theorem bearing his name on the *Attraction of ellipsoids*. His new method of determining a comet's orbit won for him the Copley medal (1814). The approbation of Laplace and the Royal Medals were won by his papers on *Refractions* (1826 and 1839). On the whole Ivory contributed fifteen papers to the *Philosophical transactions*.

Ivory was knighted in 1831 and was elected honorary member of several national societies. In 1829 he offered his scientific library to the Corporation of Dundee; though it was not then accepted for want of a suitable building, it was ultimately taken over in 1866 after the Public Library was established in the Albert Institute.

Ivory died unmarried at Hampstead, 21 September 1842.

## Coues, Elliott (1842-1899)

ELLIOT COUES, an American ornithologist, was born in Portsmouth, New Haven, 9 September 1842. He had his education at Washington where his father was employed at the Patent office. Though he held office as assistant surgeon in the army his interest in birds which manifested itself in his boyhood was developed considerably by contact with the Smithsonian Institution. He wrote many elegant papers on the birds of North America and discovered many new species. The bibliography on ornithology which he appended to that fine collection of bird biographies entitled *Birds of the Colorado valley* exhaustively covers 1612 to 1877. He was one of the founders, and later a vice-president and president, of the American Ornithologists' Union. He collaborated in the edition of the *Check list of North American birds* (1886) and in the construction of the code of nomenclature by which it was governed. From 1884 to 1891 he contributed to the *Century dictionary* covering many aspects of biology and is said to have been responsible for upwards of 40,000 definitions.

While he was on an arduous journey through New Mexico and Arizona to collect data for a book of his, his health gave way and he died 25 December 1890.

S. R. RANGANATHAN.

University Library,  
Madras.

## SCIENCE NOTES AND NEWS

**Pyrethrum in Mosquito Control.**—Russel, Knipe and Ramachandra Rao record (*The Indian Medical Gazette*, 77, No. 8, August 1942) the successful use of water as a diluent for kerosene extracts of Pyrethrum for spray-killing mosquitoes. The "stock extract" was emulsified with water to two dilutions, viz., 1 to 7 and 1 to 3; sodium lauryl sulphate ("Gardinol") was the emulsifier. The spray particles of the emulsion, under comparable conditions, are, naturally, heavier than of the pure kerosene extract, but in spite of this the emulsion spray is almost as effective as the pure extract of the flowers. The costs of the emulsion, as also the *per capita* expenses of field trials, are set out indicating a definite saving when water emulsions are used.

In this connection, it may be recalled that although pyrethrins have been proved to be lethal to mosquitoes and although the quality of any sample of pyrethrum flowers is assayed on its pyrethrin content, it is by no means certain that the insecticidal value of pyrethrum is solely traceable to its pyrethrins; thus

Chopra and co-workers find that an aqueous extract of pyrethrum has insecticidal properties (*J. Malaria Inst. of India*, 1940, 3, No. 4) but it is well known that the pyrethrins are insoluble in water; the same workers record that the solid residue *after* the removal of pyrethrin I and II has both insecticidal and larvicidal properties. Further the practice of using pyrethrum residues, stalks, etc., in "joss sticks", "mosquito sticks", etc., is well known. Such sticks are *burnt* to produce the smoke and any pyrethrins present are probably completely destroyed during combustion. At the same time, it is established that smokes from burning pyrethrum and derris (rotenone also is almost completely destroyed by heat) are lethal to certain insects. A survey of the recent literature on these remarkable facts is made by Brightwell in an article on "Fumigation by smokes with special reference to Derris and Pyrethrum" (*Bulletin of the Imperial Institute*, 40, No. 1, March 1942). All this research is calling for a revision of the existing concepts on the active principles of the

well-known vegetative insecticides, their assay, preparation and mode of action.

**Identification of Timbers.**—With the increase of demand for wood, cheap timbers of poor quality are often put on the market under the name of better class timbers of established reputation. The Forest Research Institute, Dehra Dun, have recently published a pamphlet for the use of non-scientific men ("How to Identify Timbers, Pt. I—Hints on Identification of Indian Timbers", *Indian Forest Leaflet*, No. 21, 1942, price As. 4 or 6d.). This pamphlet deals with the characteristic and structural features of timbers in general which are of diagnostic value in a non-technical and lucid style. The text is illustrated with telling illustrations. The keys for the identification of timbers of commercial importance which are to be published in subsequent parts will be received with much interest.

B. G. L. S.

**Sugarcane Wax.**—Manufacture of sugarcane wax as a byproduct of the sugar industry has again attracted attention of the Governments of South Africa and the United States. R. T. Balch in America (*Industrial Reference Series, Part I, Chemicals and Allied Products* No. 76, October 1941—United States Department of Commerce) and about the same time Narasing Rao and Vidyarthi (*Indian Sugar*, 10, 23) report that the dried press mud-cake contains from 5 to 17 per cent. of wax. Since direct collection would not be economically possible, the American worker has used organic solvents for the extraction of the wax and for the separation of fat from the extracted wax. Toluene has been found to be a convenient solvent for the extraction of the wax from the pressed mud. The removal of the fat is done by cold diffusion using a selective solvent for which acetone is indicated. This method of fat removal has the advantage of the absence of the bad smell, which probably occurs in the putrefactive fermentation method.

On the basis of these results, the Sugar Plant Field Station, Houma, Louisiana, intend to set up a pilot plant.

It is interesting to note the observation of the Indian workers, that the cane-wax corresponds to flax wax and bees wax and contains sterols.

V. S. G.

**A Simple Ultracentrifuge with Plastic Rotor.**—K. G. Stern, School of Medicine, Yale University, has developed (*Science*, 1942, 95, 561) a simple ultracentrifuge with a rotor of a low density plastic material. This has resulted in a considerable simplification of centrifuge design and obviated the necessity of employing expensive steel and aluminium alloys which are now difficult to procure on account of the war. The first trials were made in Madison with 0.5-inch thick discs of polystyrene and

of polyacrylic transparent resins of 1.5 and 2 inches respectively. These discs were transformed into simple air turbines. A two-inch Lucite turbine could be accelerated to 57,000 r.p.m. with the aid of 80 lb. air pressure per square inch as measured by the Kahler-Hunt photoelectric speed measuring circuit. After the mechanical features of the centrifuge had been improved in various respects, the construction of 6-inch plastic turbine was undertaken and the top speed thus far attained with this model, has been 17,400 r.p.m. at 48 lb. per square inch air pressure and an estimated free air flow of 40 to 60 cubic feet per minute, yielding a force of 20,200 times gravity at the centre of the analytical fluid cell which is situated at a distance of 6 cm. from the centre of rotation. This speed is sufficient to cover practically the entire size range of plant and animal viruses as given by Stanley, and in general, to bring about molecular sedimentation, at appreciable rate, of protein particles from about  $10^6$  molecular weight upwards. As examples of such materials, the sedimentation of earthworm hemoglobin and of Stanley's crystalline tobacco mosaic virus protein, with sedimentation contents of  $S_{20} = 60 \times 10^{-13}$  and  $175 \times 10^{-13}$  and molecular weights of  $3 \times 10^6$  and  $40 \times 10^6$ , respectively, has been photographically recorded, employing the 6-inch Lucite rotor.

The plastic rotors may be adopted to use in centrifuge microscopes as well as in analytical ultracentrifuges. Further developments and applications of this centrifuge will be followed with keen interest.

**'Pectin' from Tamarind Seeds.**—Pectin is an everyday article of food, and makes its appearance in jams, cold jellies, candies and confectionary. Most of it is prepared from the waste products of fruit juice industries such as apple pomace, lemon and orange pulp, etc. Pectin finds extensive application in other industries also. As a filler in soap it not only increases the yield but adds to its detergent properties. It is used in thickening rubber latex, as an emulsifier in cosmetics, and the metal salts find application as bactericides and as water repellents. The hitherto common sources of pectin are all easily perishable and the pectin industry had to be coupled on to the primary industries of fruit juice expression, etc. A recent examination of various seeds (*Indian Forest Leaflet*, No. 23, 1942, by T. R. Ghosh and S. Krishna) has led to the discovery of a rich source of pectin in the tamarind seeds available in India in considerable quantities as waste product. The seed kernels contain 60 per cent. pectin (alcohol precipitation) and a process for its isolation is detailed.

**Photo-Electric Membrane Manometer.**—The optical projection method of recording the pressure changes in the cardiovascular systems

of animals by using a membrane manometer, besides requiring a large space is not sensitive enough to record changes of low magnitudes such as auricular pressures in the turtle. The method herein (*Science*, 1942, 95, 513) described overcomes this difficulty by utilising the amplifying properties of electronic device and is found to be superior in every way. The light from a 75-watt exciter lamp of the type used in sound-on-film motion picture projectors is focussed on a small mirror attached on the diaphragm of the manometer and on reflection a small cone of it falls on a photoelectric cell. The arrangement is such that with zero pressure a small part of the light falls on the photo-cell, and as the pressure on the diaphragm is increased, the mirror is deflected and more light enters the photo-cell. The electrical changes brought about thus by the photo-cell are amplified by a push-pull direct coupled amplifier and the output can be utilized for deflection of cathode-ray oscillograph spot or for direct recording. The sensitivity can be easily varied by varying the gain of the amplifier.

The output of this device is linear over a wide range as determined by accurate calibration against a mercury column, connection to which is provided by a three-way valve joining the diaphragm chamber to a side arm or the needle as desired.

The device may be used to record 160 mm. Hg pressure change in the dog ventricle or 1 mm. Hg change in the turtle auricle. The frequency response is good and entirely depends upon the mechanical constants of the vibrating diaphragm. N. B. B.

**Kraft Paper from Bamboo.**—Kraft paper is now being manufactured in India on a large scale. Indian paper mills have undertaken this manufacture as a result of experiments at the Forest Research Institute, Dehra Dun, which established the suitability of bamboo as raw material for its production.

The average consumption of Kraft paper during the five years preceding the war was approximately 10,000 tons per annum. The use of kraft paper as wrapping and packing material has considerably increased in recent years.

Investigations were started at the Institute in 1937 to explore the possibilities of manufacturing kraft paper from indigenous raw materials. Bamboo, which is available in large quantities at a cheap price, was selected for the experiments and has proved suitable, according to an interim report published by the Institute.

**Manufacture of Jute Shoes and Other Extended Uses of Jute.**—According to the August issue of the Indian Central Jute Committee *Bulletin*, plaited jute is used for making soles of slippers known as "alpargatas". The manufacture of these slippers originated in Spain and later on it found its way into the Argentine Republic. The Civil War in Spain crippled the industry; and the manufacture of "alpargata" became a regular industry in the Argentine. This kind of footwear is very popular among the poorer classes of the Republic and its con-

sumption is considerable. It is sold at a price which is equivalent to about Rs. 1-3-0 per pair.

In 1937, 254 establishments were exclusively or partially engaged in the industry in which about 7,000 workers and 300 officials were employed. In that year Argentine manufactured about 43,000,000 pairs of "alpargatas".

Two sample "alpargata" shoes have been received by the Indian Central Jute Committee from its Argentine Correspondent. The Director of the Technological Research Laboratories of the Committee is of opinion that similar shoes could presumably be made in India and a cheap article with jute canvas, or cheap cotton uppers might meet with a wide demand.

Burlap and jute supplies are so scarce in the U.S.A. that efforts to secure substitutes are being made in every direction. The jute industry in the country, it is stated, was during the past thirty years, "mortally" afraid of this very situation that had recently developed. The linoleum manufacturers in the U.S.A. are using cotton fabric instead of burlap as a backing. The cotton yarn spinners are reported to have made much progress in developing substitutes for burlap for baling skeins and warps. A Philadelphia firm is stated to have distributed samples of two substitutes made of twisted kraft paper—one of onion bag type of mesh and the other a closer weave. Burlap traders of the U.S.A. express great apprehension not only over these developments but with regard to the entire burlap and jute situation.

The *Bulletin* contains an almost exhaustive list of possible new and extended uses for jute.

**The Quality of Cotton in Hyderabad.**—The Director, Information Bureau, Hyderabad (Dn.), writes in a Press Note:—

"With a view to improving the quality of cotton in the Warangal Suba, H.E.H. the Nizam's Government have sanctioned a five-year scheme submitted by the Agricultural Department. The scheme envisages, *inter alia*, a thorough study of the local varieties, selection of desirable plants from cultivators' fields, production and trial of improved strains against local varieties and investigation into the possibilities of growing remunerative cotton crops in *chalka* soils.

The survey of the cotton crop in the Dominions has shown that the crop grown in the districts of the Warangal Suba is a mixture of several types and much of it is of the various inferior short-staple varieties. The result is that it neither meets the requirements of the Textile Mill in Warangal, nor does it bring an adequate price to the cultivator. The Warangal Mills, which cannot obtain their supplies of the required variety of cotton locally, have to import large quantities of it from other places, incurring considerable expenditure on railway freight. Realising the benefit that will accrue to it from the implementation of the proposed scheme, the management of the mill has offered to co-operate with Government in pushing on the work of cotton improvement in Warangal, by meeting the entire non-recurring expenditure of Rs. 11,000 on setting up a laboratory and half of the recurring expenditure amounting to Rs. 5,562 per annum.

The Cotton Research Laboratory is expected to be put up shortly, while work has already

been started at the Government Farm, Warangal.

**Indian Central Cotton Committee.**—At the monsoon meeting of the Indian Central Cotton Committee, held from 13th to 18th July 1942, with Mr. P. M. Kharegat, Vice-Chairman of the Imperial Council of Agricultural Research, presiding, the financial position of the Committee, with reference to schemes in progress and other lines of work which it may be necessary to undertake in future, received close attention. Much of the useful work done by the Committee is of permanent value. For instance, the introduction of Jarila cotton, which was largely financed by the Committee, had returned in two years nearly a crore and a half of rupees, i.e., a sum almost equal to the total amount of cotton cess collected by the Committee since its inception. This was no mean achievement, and the Committee is entitled to be proud of it as being a definite indication of the way in which the funds of the Committee had been utilised to the best advantage of the cotton grower.

The present position regarding supply of hoops for baling cotton, fuel and other requirements of cotton ginning and pressing factories was discussed at length and necessary recommendations for immediate attention made to the Government of India.

The following schemes already in operation were extended for periods of about two years in each case:—Surat Seed Distribution Scheme, Scheme for Control of Selection 1 A in Surat Area, Scheme for Cotton Jassid Investigation in the Punjab, and Scheme for Improvement of Punjab-American 289 F/K. 25 cotton. The Scheme for breeding of wilt-resistant cottons in Surat Area was extended for a period of 5½ years. New schemes for studying the economics of clean picking on a large scale in the Bombay Presidency and for a crop-estimating survey on cotton in the Central Provinces and Berar were also sanctioned.

The pilot plant ordered from America for conducting experiments in connection with the production of chemical cotton, will be housed in a separate building in the compound of the New Bombay University Technological Laboratories.

It was agreed that the experiments for the manufacture of cellophane and similar materials should be undertaken at the Committee's Technological Laboratory. The Committee also approved of the recommendations that experiments should be undertaken on the study of the chemical finishes applied to chosen types of yarns and fabrics made from short-staple cotton. It was decided that the results of experiments on pre-cleaning and ginning of Indian cottons should be further continued.

Rao Bahadur Sir Madhaorao Deshpande, Mr. S. T. More and Mr. Madhava Reddi were elected as representatives of cotton-growers of the Committee on the Board of Directors of the East India Cotton Association for the ensuing cotton year.

**Central Board of Irrigation.**—At the annual meeting of the Research Committee of the Central Board of Irrigation, presided over by

Rao Bahadur L. Venkatakrishna Ayyar, I.S.E., Chief Engineer, Madras, and President of the Board, just concluded at Simla, the reports of the five research stations in India, in addition to papers contributed on various subjects, were discussed.

In the Central Irrigation and Hydrodynamic Research Station, Poona, Report, mention is made of the new Approach Channel above the Sukkur Barrage, designed at this Station for the exclusion of sand from the right Bank Canals. This work was completed in early 1941 and the results obtained in the subsequent flood season have been very satisfactory. This Station also designed a siphon spillway for the Jamshedpur water supply reservoir. This Station also investigated the possibility of further supplies from rivers for irrigation purposes. The Nira and Godavari River waters were, however, found unsuitable for irrigation due to high salt content. Investigations were also continued on the reclamation of land damaged by high ground water level, and on the utilisation of town sewage as a manure for irrigated crops. At the Punjab Irrigation Research Institute, Lahore, it has been found that observation pipes in the ground do not show the true ground-water where the water level is high. At Malikpur the river model research station has been enlarged, and a number of successful model experiments have been carried out.

The Sind Research Station has carried out a number of successful model experiments in connection with canal regulators and distributary heads. These are of great importance on a large irrigation system, such as that of the Sukkur Barrage. It is essential to distribute silt in correct proportion between the various channels, and model experiments have been found to be an ideal method of designing distributary heads for this purpose. At the United Provinces Research Station, Lucknow, model experiments have been carried out in connection with percolation losses of water from channels and silting of reservoirs.

The papers presented for discussion at the annual meeting covered the subjects of:—(1) River Behaviour, Training and Control; (2) Sampling of Sand carried in Suspension and along the Bed by Rivers and Canals; (3) The Accuracy of Different Methods of Taking Discharges; (4) Soil Mechanics and (5) Rainfall Runoff. These studies have a considerable bearing on such important topics as fixing the river course, silting of reservoirs, compaction of earth in canal embankments and earthen dams, storage reservoirs, etc.

**Regulation of Experiments on Living Animals.**—Dr. P. Chalmers Mitchell, President, Universities Federation for Animal Welfare, London, writes in *Nature* (1942, 149, 699), "At the end of June a somewhat rare event will take place. The Home Office will make an appointment under the Cruelty to Animals Act, 1876, which regulates the practice of experiments on living animals.

"An inspector under the Act exercises an important function, not, indeed, as a policeman, but in advising research workers as to the interpretation of their obligations in particular

cases. In view of the number of experiments licensed under the Act, direct supervision is not practicable on any material scale, but I assume that the majority of research workers do not desire to contravene the regulations, and that the inspector's guidance will in general be effective.

"The Act lays down a compromise between the claims of science, on the one hand, and the rights of animals, on the other; the line drawn in the practical application of the compromise must inevitably be an arbitrary one. Until somebody can lay down clear-cut rules which will command general assent, the best that can be done is to make as fair a compromise as possible. This calls for exceptional impartiality, and since a man with the indispensable scientific training will necessarily have a predisposition in favour of science, it is important that he shall also have an offsetting predisposition in favour of the other party in the compromise. This could be ensured by requiring candidates for the post to prove that they have in the past seen effectively associated with some effort to better man's treatment of animals, wild or domestic. Preferably they should also have veterinary knowledge."

**Committee on Indigenous Systems of Medicine.**—With a view to encourage the indigenous systems of medicine on a large scale and for improving the status of the Vaidyas and Hakims employed by the local bodies, etc., and to examine the allied matters noted below, the Government of Mysore are pleased to appoint a committee consisting of the following gentlemen with Rajasevaprakashta Mr. A. Subramania Iyer and Mr. T. K. Rama Sastry as the Chairman and the Secretary of the Committee, respectively:—Bishagratna Mr. M. Suryanarayana Pandit, Mr. N. S. Krishna Iyengar, Mr. K. C. Subbanna, The Principal of the Government Ayurvedic and Unani College, Mysore, Bishagratna Mr. B. V. Pandit, Mr. Hakim Md. Abdul Salam Aslam, Mr. Hakim Murtuza Khan, Shafikh-ul-mulk Khan Bahadur Mr. Mahomed Abbas Khan, Ayurvedopadhyaya Vaidyavallabha Mr. Singra Iyengar, Rajavaidya Pandit Mr. P. H. Chandrabhan Singh. The points which the Committee are to examine and report are:—

- (1) Suggestions for improving the usefulness of the Ayurvedic and Unani College at Mysore.
- (2) Formation of a Research Section for investigating the efficacy of herbs and drugs.
- (3) Preparation and supply of standard Indian medicines to the various institutions by a central agency.
- (4) Undertaking of legislation to regulate the qualifications of Vaidyas and Hakims and to provide for the registration of practitioners of the Indian system of medicine with a view to encourage the study and spread of such systems.
- (5) Nature of encouragement to be given to hereditary Vaidyas and Hakims who have not passed the required examinations.
- (6) The nature of control to be exercised over the work of Vaidyas and Hakims and the agency therefor.
- (7) Grant of leave, pension, provident fund,

etc., to Vaidyas and Hakims employed in public institutions or receiving grants-in-aid from Government or local bodies.

The Committee will hold its sittings in the Government Ayurvedic and Unani College, Mysore.

The Principal of the Ayurvedic and Unani College, Mysore, is requested to provide the necessary clerical and other assistance to the Committee.

The Committee is requested to meet early and forward its recommendations to Government before 10th October 1942.

The Deputy Commissioners of Districts, the Presidents of District Boards, the President, City Municipal Council, Mysore, and the Municipal Commissioner, Bangalore City, are requested to furnish promptly any information that may be required by the Committee in regard to the matters referred to it.

**The Geological, Mining and Metallurgical Society of India, Calcutta.**—The latest number of the *Quarterly Journal* of the above Society (Vol. XIV, No. 1) begins with a paper by Mr. N. N. Chatterjee on "Free Sulphur in Some Weathered Tertiary Coal Specimens of India", in which a brief descriptive account is given of 12 samples of coal which have undergone prolonged oxidation under laboratory atmospheric conditions. This description, together with the probable nature of the chemical reactions enumerated in the paper, will perhaps serve to explain the formation of free sulphur and sulphates in the specimens described. The next paper is a "Note on the Tertiary Sequence in Tripura State, Bengal" by Mr. E. T. Vachell of the Burmah Oil Co., Digboi, in which the correlations between the sub-divisions adopted by Mr. K. L. Das in his recent paper on the Tripura Rocks and the Standard Assam Succession as described by P. Evans are given. Then follow two papers, one by Mr. C. L. Malhotra on "The Working and Dressing of Marble in Makrana Marble Quarries, Jodhpur State", and the other by Mr. G. D. Banerjee on "The Effects of German Silver Addition to the Gray Cast Iron" which were recently awarded the "Student Associate Silver Medals", the former for the best paper on Mining, and the latter, for Metallurgy.

Technological Institute of North Western University, Chicago, was dedicated, according to *Science*, 1942, 95, 2473, in June this year. Built at a cost of \$6,735,000 it looks like two letter E's laid back to back and joined by a central structure. There are six wings each of which is occupied by the six departments of physics, chemistry, civil, mechanical, and electrical and chemical engineering. The Institute was established through a gift from W. P. Murphy, inventor and manufacturer of railroad supplies, and was opened in 1939. When fully under way, it will have an enrolment of 900 men, all pursuing a five-year co-operative course which calls for alternating a three-month period of study in the class-room with an equal period of work in the industry. This plan is designed to train the student in practical as well as theoretical engineering and to

assist industry in training its future executives. More than \$1,000,000 worth of equipment is already in use for teaching and research and adequate room for expansion has been allowed in all departments.

According to *Science*, 1942, 95, 2473, a National Registry of Rare Chemicals has been established by the Armour Research Foundation. Information on chemicals too rare to be listed in the catalogues of regular chemical supply houses will be filed with the Registry and indexed according to name, location and amount available. Chemicals to be found in the catalogues of supply houses are not included, but all those not available through regular channels will be listed. The file will be regarded as confidential and specific inquiries will be answered by the Registry. In transactions in which the owner of the chemical wishes to remain anonymous to prevent the disclosure of commercial secrets, the Registry will act as intermediary.

### MAGNETIC NOTES

Magnetic conditions during August 1942 were more disturbed than in the previous month. There were 10 quiet days, 20 days of slight disturbance and one of moderate disturbance as against 1 quiet day, 21 days of slight disturbance and 9 of moderate disturbance during August 1941.

The quietest day during August 1942 was the 29th while the 16th was the day of largest disturbance.

The individual days were classified as shown below.

Quiet days	Disturbed days	
	Slight	Moderate
1-5, 8, 13, 14, 28, 29.	6, 7 9-12, 15, 17-27, 30-31.	16.

No magnetic storm was recorded during August 1942 while a moderate storm was recorded during the same month of last year.

The monthly mean character figure for August 1942 was 0.71 as against 1.26 for the same period of last year.

M. R. RANGASWAMI.

### SEISMOLOGICAL NOTES

During the month of August 1942, 2 slight, 2 moderate and 2 great earthquake shocks were recorded by the Colaba seismographs as against 2 moderate and 6 slight ones recorded during the same month in 1941. Details for August 1942 are given in the following table:—

Date	Intensity of the shock	Time of origin I. S. T.		Epicentral distance from Bombay (Miles)	Co-ordinates of the epicentre (tentative)	Depth of focus	Remarks
		H.	M.				
1	Slight	18	04	8390	..	..	The earthquake shook the whole of the southern part of North Island, New Zealand. Hundreds of chimneys fell, thousands of windows were shattered in Wellington.
1	Moderate	20	13	2880	..	..	
7	Great	05	14	6340	..	..	Epicentral region probably located in the neighbourhood of the Aleutian Islands.
20	Moderate	00	00	1540	..	..	
23	Slight	12	05	5130	..	..	According to Fordham University Seismographic station the shock is believed to have originated in the vicinity of the most westerly Aleutian Islands.
25	Great	04	21	10360	Epicentral region located near Lima, Peru, South America	..	One-third of Nazca, an important city in the southern Peruvian area which was rocked by the earthquake, has been completely destroyed. The first shock lasting almost 5 minutes was followed by several others over a period of 2 hours. Several buildings were destroyed and damaged.

## ANNOUNCEMENTS

At a meeting of the Federation of University Women in India, held on August 26, 1942, the President announced the granting of a Federation scholarship of Rs. 180 for medical research to Miss J. R. Manjeri of the Cama Hospital, Bombay, and also the award of a Fellowship of the International Federation of University Women for £250 to Miss Bina Ghosh of Benares University and Oxford. Miss Ghosh has gone to Harvard University for research work in Sanskrit. This is the second Indian graduate to gain an International Fellowship, the first being Miss Kamala Bhagvat of Bombay University.

The Federation of University Women in India is open to any woman graduate of a recognised University irrespective of race, caste and creed.

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We acknowledge with thanks receipt of the following:—

“Journal of the Royal Society of Arts,” Vol. 90, Nos. 4613, 4615 and 4616.

“Journal of Agricultural Research,” Vol. 64, Nos. 9 and 10.

“Indian Journal of Agricultural Science,” Vol. 12, Pt. 3.

“Journal of Chemical Physics,” Vol. 10, Nos. 5 and 6.

“Chemical Products,” Vol. 5, Nos. 7-8.

“Experiment Station Record,” Vol. 86, Nos. 5 and 6.

“Indian Forester,” Vol. 68, No. 9.

“Indian Farming,” Vol. 3, No. 8.

“Quarterly Journal of the Geological, Mining and Metallurgical Society of India,” Vol. 14, No. 2.

“The Indian Central Jute Committee Bulletin,” Vol. 5, No. 5.

“Indian Information Series,” Vol. 11, No. 100.

“Review of Applied Mycology,” Vol. 21, Nos. 4 and 5.

“The Bulletin of the American Meteorological Society,” Vol. 23, No. 3.

“Indian Medical Gazette,” Vol. 77, No. 8.

“Nature,” Vol. 149, Nos. 3785, 3786, 3788, 3790 and 3791.

“Journal of the Bombay Natural History Society,” Vol. 43, No. 2.

“Journal of Nutrition,” Vol. 23, Nos. 5 and 6.

“American Museum of Natural History,” Vol. 50, No. 1.

“Indian Journal of Physics,” Vol. 16, Pt. 2.

“Canadian Journal of Research,” Vol. 20, No. 4-5.

“Science,” Vol. 95, Nos. 2471, 2472, 2474-76.

“Science & Culture,” Vol. 8, No. 3.

“Indian Trade Journal,” Vol. 145, Nos. 1877-79; Vol. 146, Nos. 1880-89.

## Books

*Short Wave Wireless Communication Including Ultra-short Waves.* By A. W. Ladner and C. R. Stoner. (Chapman & Hall, London), 1942. Pp. xiv + 573. Price 35sh.

*On Growth and Form.* By Sir D'Arcy Wentworth Thompson. (Cambridge University Press, London), 1942. Pp. 1116. Price 50sh.

*Annual Review of Physiology*, Vol. IV. Editors: James Murray Luck and Victor E. Hall. (American Physiological Society and Annual Reviews, Inc., California), 1942. Pp. 709. Price \$5.00.

*Mathematics, Its Magic and Mastery.* By Aaron Bakst. (Chapman & Hall, London), 1941. Pp. xiv + 790. Price 21sh.

*Practical Physics for Intermediate Students.* By V. Venkata Rao, D. A. A. S. Narayana Rao and T. S. Narasimhamurty. (Department of Physics, Maharajah's College, Vizianagram), 1942. Pp. 218. Price Rs. 2-4-0.

*A Text-book of Intermediate Physics*, Vol. II (in Tamil). By R. K. Visvanathan and V. N. Ramaswamy. (Annamalai University, Annamalaiagar), 1941. Pp. 689-1372.

## ERRATA

Vol. 11, No. 8, August 1942, page 334, Table I (b), under Moisture and Protein, the figures for Sode II and Golim should be as follows:—

	74.80	19.41
	75.30	19.60
and not	19.41	2.08
	19.6	2.86.

Vol. 11, No. 8, August 1942, page 330, Note entitled “Arc Lines of Copper in Flame Spectra”—

Add the following before the present opening sentence:—

In the course of an investigation which is

in progress and a preliminary report about which has already been published on the study of the flame spectra of copper salts, we have found a few interesting points regarding the excitation of certain atomic lines of copper which it is our purpose to report in this note.

In line 9, for  $3d^9 4s$  (3D) read  $3d^9 4s$  ( $^3D$ ).

Add the following after the last sentence:—

Full details regarding these and other features of the flame spectra will be published elsewhere; I also feel it a pleasure to thank Prof. Dr. R. K. Asundi for valuable discussion.