

SCIENCE NOTES.

Arctic Exploration.—Results of great scientific importance are expected from the data collected by the daring Soviet Arctic Explorers, M. Papanin and his three comrades, who, in their drifting ice flow successfully covered twelve hundred miles in a period of 258 days. This expedition will go down to history as one of the most striking in recent years both for organisation and achievement. For exploring the inner polar regions, the Soviet authorities followed Nansen's idea of taking advantage of the drift of ice—not to move or try to move against the ice but with it. The members of the expedition had few things to perform beyond their scientific observations. The rate of movement of the flow will give the rate of the current and the rate of overflow of Arctic water to the Atlantic. Meteorological and magnetic data at high latitudes have been collected. Regular soundings of the Ocean have also been taken. Besides these, important observations have been made on the winter phases of the plankton and on the physics of the ocean water below the ice, such as the charting of the intermediate warm layer of Atlantic water and its relation to ice formation and wastage. It is expected that the results of the expedition will soon become available to science.

High Soviet Titles were conferred on the four Polar Scientists, Papanin, Krenkel, Shirshot and Federov who were each awarded a money prize of 30,000 roubles.

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The Rangala Meteorite.—At the Ordinary Monthly Meeting of the Royal Asiatic Society of Bengal held on 4th April, Dr. Cyril S. Fox of the Geological Survey of India, exhibited 2 meteoric pieces which fell at about 10 A.M. on the 29th December 1937, near Rangala about 32 miles north-northwest of Marwar Bhinmal Railway Station in Jodhpur State, Rajaputana. The meteor is reported to have fallen as one piece which broke in fragments on impact with the ground and made a crater, 1½ feet in diameter and over a foot deep. Only two moderately large and several small fragments have so far been secured by the Chief Minister, Government of Jodhpur. He has very kindly forwarded these to the Geological Survey of India, and is endeavouring to procure more from the village people who had collected specimens after the fall.

“The noise of the meteorite appears to have been heard at Bhinmal from the direction of Bagora, which is on the way to Rangala, and this may refer to the actual impact. The same evidence was forthcoming when enquiries were made at Bagora where it was stated that a noise was heard of the arrival of a celestial body which came to earth with terrific force near Rangala. The villagers of Rangala were frightened by the meteorite which they thought to be a bomb from an aeroplane. They stated that it arrived with great speed and crashed and broke into hundreds of pieces and made a hole four feet deep.

“The two larger pieces exhibited weigh 1,670·32 grams. The material is being studied by Dr. J. A.

Dunn, and is a stone meteorite which he tentatively classifies as a ‘white chondrite’, containing olivine, enstatite, nickel-iron and the iron sulphide troilite. A few patches of thin fused crust have been preserved on the broken specimens received. It is interesting to note that there is a decided concentration of metallic minerals in this crust. Thin veins of similar mineral matter penetrate the meteorite.”

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Kayakalpa or Rejuvenation.—Remarkable success has been achieved by Tapsi Bishundas Udasi, a follower of Guru Nanak (who has practised *Kayakalpa* on himself and whose present age is about 172 years) who recently rejuvenated Pandit Madan Mohan Malaviya, the Founder-Vice-Chancellor of the Benares Hindu University, by his remarkable *Kayakalpa* treatment. The Pandit who is 76 years old, has completely recovered from the effects of old age—weakness, loss of memory, etc. The improvement in his general health is reported to be remarkable. The treatment which lasted for 45 days, was strictly in accordance with the rules laid down in Chapter 39, 7th *Ashtanga Hridaya*. The Pandit was placed in a closed dark chamber on a strictly controlled diet. The medicine, administered, was prepared by a long process in a forest and required four herbs, which were dried, powdered and used as a coating for a certain quantity of “aonla” placed inside the hollowed trunk of a palas—*Ficus religiosa* tree, and ashed after piling several maunds of cow-dung cakes.

Rajguru, Pandit Hardutt Shastri (62 years old) of Tehri (Garhwal) State also underwent the same treatment with remarkable benefit.

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Imperial Veterinary Research Institute, Muktesar.—The *Annual Report* for the year ending March 31, 1937, which has just been issued, shows that important investigations with equine and fowl diseases have been carried out at the Institute. The National Home Breeding Association donated a sum of Rs. 3,000 to the Institute for the furtherance of investigations into equine diseases, and a like sum was also given to the Military Veterinary Laboratories for a similar purpose. These amounts were pooled together for carrying out systematic researches on the causes of sterility in mares. Work is also being continued on diseases of the horses known as *encephalomyelitis*.

Researches on goat pneumonia, goat and sheep pox, etc., are being carried out.

A new product of the Institute—the anti-Anthrax Spore Vaccine—has been prepared for issue in the field. The seed material was obtained from the Director of Veterinary Services, Burma, and the vaccine prepared following the method which is in vogue in South Africa. Tests with this vaccine have been eminently satisfactory.

It is hoped that in the near future the Institute will be able to issue another product, a *Tetanus antitoxin* the work on the manufacture of which is in progress.

The Institute has interested itself in investigations on the nutrition of cattle and other animals

by means of feeding experiments deficient in minerals and vitamins. The object of the experiments is to determine, if possible, to what extent certain diseases can be prevented or ameliorated by feeding of balanced rations to the animals.

The causal organism of swine plague *Pasteurella suis* has been isolated. The Protozoology Section of the Institute has interested itself with the study of the *trypanosomiasis*, *coccidiosis*, *Piroplasmosis*, etc., and in connection with the last named, it is of interest to note that a parasite, *Babesia bovis*, appears to have been identified for the first time in this country. It is becoming increasingly evident that this branch of veterinary science is of the utmost importance and the co-operation of entomologists and protozoologists should eventually lead to results of far-reaching importance.

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National Academy of Sciences, India.—With a view to placing definite proposals regarding power supply before the Government of the United Provinces, which if given effect to, would ensure cheap and abundant supply of electric power, thus assisting in the development of industries, the following resolutions moved by Prof. M. N. Saha, F.R.S., were unanimously adopted at a meeting of the National Academy of Sciences held at Allahabad, on 29th March.

1. That the Government is requested to appoint a Committee consisting of eminent lawyers, scientific experts and representatives of industry to study the present Electricity Act and to recommend necessary legislation required to nationalise the generation and distribution of electricity with a view to making the supply of electrical power in these Provinces cheap and abundant.

2. That the Government is requested to elect a body of graduates in physics and electrical and chemical engineering to study the methods of construction of Power Station and the organisation of generation and distribution of electrical energy in foreign countries like England, Russia and Switzerland. It is desirable that the body should consist of an expert and experienced electrical engineer who will be in charge of a batch of students to study different aspects of the question, *i.e.*, two for studying constructional details, one for studying the methods of distribution of electricity, one for studying the economics of production and distribution, and others to study industries which are absolutely dependent on cheap supply of electricity.

3. That the Government is requested to appoint a permanent body called the "Power Survey and Research Institute" to study the natural sources of power existing within or in the neighbourhood of the Province. The person in charge of the above body should be a competent electrical engineer with experience and knowledge of the different branches of science, *viz.*, Physics, Fuel Engineering and Hydro-electric engineering which are required for such kind of survey work.

4. That the National Academy of Sciences, India, will be prepared to furnish details with reference to the resolutions mentioned above.

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Catalogue of Mathematic Publications.—The Central Library of the University of Calcutta has undertaken the compilation of a catalogue of all mathematical publications, books and periodicals, available in the major libraries of Calcutta, for the benefit of the research students of mathematics. For this purpose the Imperial Library, the Library of the Geographical Survey of India and the Library of the Royal Asiatic Society of Bengal have agreed to co-operate with the University Library. The work of compilation has already been started. After the completion of this catalogue, the Central Library proposes to take up similar compilations, dealing with other scientific subjects.

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Indian Academy of Sciences.—The Third Annual Meeting of the Academy was held on the 24th March at the Indian Institute of Science, Bangalore, with Sir C. V. Raman, Kt., F.R.S., N.L., in the chair.

The following distinguished scientists were elected Honorary Fellows:—

(1) Prof. Peter Debye, Berlin; (2) Prof. F. G. Donnan, London; (3) Prof. R. T. Leiper, London; (4) Prof. Tullio Levi-Civita, Rome, and (5) Prof. N. I. Vavilov, Leningrad.

Dr. R. Ananthakrishnan, Dr. F. R. Bharucha, Mr. C. B. Mohendra and Mr. T. C. Sahni were elected Fellows.

Sir C. V. Raman was re-elected President and Professors B. S. Madhava Rao and C. R. Narayan Rao, Hon. Secretaries.

The President delivered a lecture on the "Physics of the Solid State".

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Indian Chemical Society.—At the Ordinary Meeting of the Society held on 22nd March, at the University College of Science, Calcutta, with Rev. Father J. Van Neste, S.J., in the chair, the following were admitted as Fellows:—

(1) S. S. Cowlagi, B.Sc. (Bombay); (2) A. C. Rothenheim, Esq. (Bombay); and (3) Prof. Md. Qudrat-i-khuda, D.Sc. (Calcutta).

Dr. Umaprasanna Basu, D.Sc., delivered a lecture on "Mineral Elements in Nutrition".

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Botanical Society of Bengal.—The Second Annual General Meeting of the Society was held on Wednesday, the 23rd February, at 5 P.M., at the Botanical Laboratory, Calcutta University. Prof. S. C. Mahalanobis, President of the Society, took the chair.

The Secretary presented the Annual Report. The Society is now considering the steps to be taken to start a Journal.

An excursion to the Royal Botanic Gardens, Sibpur, was organised by the Society, during the year.

On the occasion of the Silver Jubilee Session of the Indian Science Congress, the Society organised an exhibition and conversazione and a lunch at the Grand Hotel to meet the Foreign Delegates and Indian Botanists from outside Bengal.

The Society is organising a branch of the Society at Dacca.

Prof. S. C. Mahalanobis was re-elected President and Dr. J. Sen Gupta and Mr. A. K. Ghosh, Honorary Secretaries.

The Biological Control of Insect Pests.—

In a somewhat popular account of the interesting subject of the Biological Control of Insect Pests (*Agriculture and Live-stock in India*, 7, No. VI). P. V. Isaac draws attention to several successful instances where serious insect pests have been kept down by the introduction of beneficial insect parasites such as of the Lady-bird beetle, *Rodolia cardinalis* Muls., first from Australia into California to keep down the Cottony Cushion scale insect on citrus trees, and later into South Africa, Portugal, Italy and other countries for the same purpose; (2) of the predatory bug *Cyrtorhynchus mundulus* Bredd, from Australia into Hawaii to keep down the sugarcane leaf-hopper *Parnisiella saccharicida* Kirk; (3) of the parasite *Ponspaltella berlesi* How., from the U.S.A. into Italy to control the mulberry scale insect *Diaspis pentagona* Targ; (4) of the Tachinid fly, *Ptychomyia remota* Ald., from the Federated Malay States into Fiji for the control of the cocoon leaf-eating pest, the caterpillar of the moth *Levuana iridescens* Beth-Backer and (5) to the large scale artificial rearing for multiplication and release of the *Trichogramma minutum* Riley, against the sugarcane borer pest. The view regarding the limited scope for biological control that it cannot succeed in continental areas but only in island countries and again that it can succeed only with introduced pests and parasites and not with indigenous ones is controverted and the instance of the successful use of the sugarcane borer parasites in Mysore is quoted in support. The transference of native beneficial insects from one section to another of continental areas is indicated as promising. The importance and the effect of new methods and the human agency generally in overcoming the limits which nature may be deemed to have set is emphasised and attention drawn to the successful use of artificial breeding methods, cold storage and so on which help to release the beneficial insects just when they may be wanted.

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University of Bombay : Royal Institute of Science.—Dr. T. S. Wheeler has been re-elected to the Council of the Indian Academy of Sciences as Vice-President. He also represents the Academy as Vice-President on the Council of the National Institute of Sciences.

Prof. G. R. Paranjpe, I.E.S., has been nominated by the Government of Bombay to be a Member of the Court of Visitors of the Indian Institute of Science, Bangalore. Prof. Paranjpe has also been re-elected Vice-President of the Indian Physical Society.

Dr. F. R. Bharucha has been elected a Fellow of the Indian Academy of Sciences.

Dr. Y. G. Naik has obtained the degree of Ph.D. in Physics of the Bombay University.

"The aim of Science is to find out the one great principle which has caused the world phenomena. It seeks to demonstrate the underlying unity amidst the diverse and conflicting facts of Nature. In this, I think, Religion and Science do not contradict each other, but actually coalesce." This is the gist of an inspiring message by the Hon'ble Mr. B. G. Kher, Premier of Bombay, in the latest number of the *Royal Institute of Science Magazine*.

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University of Mysore—I. Personnel: (a) Mr. J. C. Rollo, M.A., J.P., Principal, Maharaja's College, Mysore, has been granted combined leave of absence in continuation of the summer vacation for two months and 29 days from 24th June 1938 and Mr. A. R. Wadia, B.A., Bar-at-Law, Professor of Philosophy, Maharaja's College, Mysore, appointed to act as Principal during the period.

(b) The Vice-Chancellor of the University has kindly consented to be the representative of this University on the Inter-University Board for the next period of three years from 1st April 1938.

(c) Dr. B. Sanjiva Rao, M.A., Ph.D., Professor of Chemistry, Central College, Bangalore, has been deputed to the Tenth International Chemical Congress to be held at Rome in May 1938 and granted privilege leave from the 24th June 1938 to the 11th July 1938 in continuation of the summer vacation.

II. Meeting of the Senate: The Annual Meeting of the Senate was held on the 26th March 1938. Among the propositions that were passed besides the budget for 1938-39, mention may be made of the following:—(a) Adoption of the Report of the Post-Secondary Diploma Courses Committee and the course of studies and scheme of examinations for the several subjects. (b) Recommendations to Government for the amendment of the University Act so as to give power to the University to affiliate institutions within the State. (c) Revised detailed courses of study for the B.T. Degree Examination. (d) Revised courses of study in History for the B.A. Honours Degree Examination. (e) Revised courses of study in Economics for the B.A. Honours Degree Examination.

III. General: The Geographical Association, Madras, has been invited to hold the Summer School in Geography at Bangalore in April 1938 to which certain teachers of the University and of the Department of Public Instruction are deputed.

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Lucknow University.—At a meeting of the Executive Council of the University of Lucknow, Mr. Sheikh Mahomed Habibullah, M.L.A., was unanimously elected Vice-Chancellor, in place of Dr. R. P. Paranjpe, who will be retiring in September 1938.

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University for Peshawar.—The Central Assembly passed without a division on April 1, the resolution moved by Mr. Abdul Qaiyum, recommending to H.E.H. the Governor-General in Council, that a University subsidised by the Federal Government be at once set up at Peshawar for the settled districts and tribal areas of the North-West Frontier Province.

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Universities in U.P.—The Government of the United Provinces have decided upon setting up a Committee to make a comprehensive enquiry into the working of the Universities of the U.P. The need for the co-ordination of activities of the Universities and the necessity for avoiding duplication is emphasised. The Committee will *inter alia* inquire into the merits of the unitary and residential type of universities and the extent to which these two

types have succeeded in spreading knowledge, encouraging research and influencing the character of the students. The Committee will also investigate the need for a Provincial Board to regulate grants, powers of the University authorities and the amenability of universities to popular control.

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Prof. Meghanath Saha, F.R.S., Professor of Physics, Allahabad University, has accepted the chair of Palit Professor of Physics in the University of Calcutta.

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Prof. N. R. Dhar of the Allahabad University has been appointed Deputy Director of Public Instruction, United Provinces.

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(Miss) **Kamala Bhagvat, M.Sc.**, a member of the Indian Federation of University Women, has been chosen as a member of the delegation representing the International Federation of University Women at the "Conversazione" of the International Institute of Intellectual Co-operation at Luxemburg, which will take place between 22nd and 25th May.

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The Diploma of Honour and the Scientific Medal of Merit have been conferred on **Prof. Bhola Nath Singh, D.Sc.**, Kapurthala Professor of Plant Physiology and Agricultural Botany, Benares Hindu University, by the Congregation of the Academia de Ciencias e Artes, Rio de Janeiro, Brazilian Republic.

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Cenco-Schilling Wave Properties Apparatus.—A new and large-scale apparatus has recently been devised by means of which, using short sound waves, the phenomena of reflection, interference and diffraction, etc., of sound waves can be demonstrated. The central component of the apparatus is the "acoustic radiator" consisting of a whistle of variable pitch (6,000 to 12,500 cps.) which serves as the point source of 'monochromatic' sound waves. This is mounted at one end of a long open-ended chamber, the walls of which are lined with sound-absorbing materials so that the sound issuing from the open end is uncontaminated by reflections. A special microphone and a special associated amplifier which is connected to a cathode ray oscillograph through a coupling unit are also provided. The microphone is mounted on an optical bench carriage, so that it can be used as a detector and the positions of maximum response determined on the scale of an optical bench. With the acoustic radiator are supplied, a variety of diaphragms with circular apertures and slits of different sizes and spacings; opaque and semi-opaque reflectors, mounted on rods to fit optical bench carriages; a diffraction grating, both transmission and reflection; and several kinds of reflection objects. With these accessories experiments can be performed which are completely analogous to those on reflection, refraction and interference of light. Further information regarding this apparatus can be obtained from Messrs. Central Scientific Company, Allahabad, who are the agents for the Central Scientific Co., in India.

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Announcements.

The Council of the **National Institute of Sciences of India** has decided, to hold in Bombay on September 26th and 27th next, a Symposium on recent work on "the Synthesis of Naturally Occurring Substances". It is hoped that all organic chemists who have worked on the subject will send their papers early in August to Dr. T. S. Wheeler or Dr. Mata Prasad at the Royal Institute of Science, Bombay. Papers should be submitted by or through a Fellow.

The Third International Cancer Congress.—Under the auspices of the International Union against Cancer, the Congress will be held in the United States of America from September 11 to 16, 1939, at the Haddon Hall Hotel, Atlantic City, N.J. The President of the Congress is Professor Francis Carter Wood, Director of the Institute of Cancer Research, Columbia University, New York City; Dr. Donald S. Childs, of Syracuse, N.Y., is the Secretary-Treasurer, and Dr. A. L. Loomis Bell, of Long Island College Hospital, Brooklyn, N.Y., is in charge of transportation and exhibits. The proposed sections are as follows: General Research; Biophysics; Genetics; General Pathology of Cancer; Surgery of Cancer; Radiological Diagnosis of Cancer; Radiotherapy of Cancer; Statistics; Education. Further details concerning sectional chairmen, committees and other data will be announced later. The membership fee will be \$15. All inquiries should be addressed to the Institute of Cancer Research, 1145, Amsterdam Avenue, New York, N.Y. (*Science*, 1938, **87**, 186).

A Research Fellowship in either biological or geological or meteorological science is offered by the **Women's College of the University of Sydney, Australia**, for two years. The value of the Fellowship is £200 per annum with free residence in the College and a grant towards passage money of not more than £50 each for the outward and return voyage. Further particulars can be obtained from the Honorary Secretary of the Indian Federation of University Women, 31, Pedder Road, Cumballa Hill, Bombay.

Ophthalmological Society of the United Kingdom.—The Ophthalmological Society of the United Kingdom has instituted a Treacher Collins Prize of £100, which will be awarded every three years for the best essay submitted on a subject selected by the Council of the Society. It will be open to medical practitioners of any nationality, but the essay must be written in English. The first subject selected is *Cerebro-spinal disease and its relation to the optic nerve*. Essays should be submitted to the Honorary Secretary of the Society at 5, Racquet Court, Fleet Street, London, E.C. 4., before December 31, 1938.

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We acknowledge with thanks, receipt of the following:—

"Agricultural Gazette of New South Wales," Vol. 49, No. 3.

"Journal of Agricultural Research," Vol. 55, Nos. 11 and 12.

- "Agricultural College Magazine, Nagpur," Vol. 12, No. 3.
 "Indian Journal of Agricultural Science," Vol. 8, No. 1.
 "Monthly Bulletin of Agricultural Science and Practice," Vol. 29, No. 2.
 "Agriculture and Live-Stock in India," Vol. 8, Part 2.
 "The Philippine Agriculturist," Vol. 26, No. 10.
 "Allahabad Farmer," Vol. 12, No. 2.
 "Biochemical Journal," Vol. 32, No. 2.
 "Berichte Der Deutschen Chemischen Gesellschaft," Vol. 71, No. 3.
 "Chemical Age," Vol. 38, Nos. 973-77.
 "Calcutta Medical Journal," Vol. 33, Nos. 3-4.
 "Current Titles from Engineering Journals," Vol. 2, No. 2.
 "Experiment Station Record," Vol. 78, No. 2.
 "Transactions of the Faraday Society," Vol. 34, No. 203.
 "Indian Forester," Vol. 64, Nos. 3-4.
 "Forschungen und Fortschritte," Vol. 14, Nos. 6-9.
 "Genetics," Vol. 23, No. 1.

- "Journal of the Royal Society of Arts," Vol. 86, Nos. 4448-52.
 "Journal of Chemical Physics," Vol. 6, No. 3.
 "Journal of the Indian Chemical Society," Vol. 15, No. 1.
 "Journal de Chemie Physique," Vol. 35, No. 1.
 "American Museum of Natural History," Vol. 41, No. 3.
 "Nature," Vol. 141, Nos. 3564-3568.
 "Journal of Nutrition," Vol. 15, No. 3.
 "Canadian Journal of Research," Vol. 16, No. 2.
 "Journal of Research, National Bureau of Standards," Vol. 19, No. 6.
 "Sky," Vol. II, No. 5.
 "Indian Trade Journal," Vol. 128, Nos 1655-59.

Catalogues.

Cambridge University Press: Books for Spring 1938.

Weidon & Wesley Ltd., "Monthly List of Books, on Natural History and Science", February-March. 1938.

"Verlag von Gustav Fischer in Jena", No. 2, 1938.

ACADEMIES AND SOCIETIES.

Indian Academy of Sciences :

March 1938. SECTION A.—B. V. RAGHAVENDRA RAO: *Dispersion of Acoustic Velocity in Liquids*.—Dispersion in the hypersonic region is definitely established in the case of two liquids carbon tetrachloride and acetone, by interferometric measurements. S. CHOWLA: *On a Trigonometric Sum*. P. SURYAPRAKASA RAO, C. VENKATA RAO AND T. R. SESHADRI: *Chemical Examination of Erythrina indica*.—A fixed oil and a water-soluble alkaloid (hypaphorine) have been isolated from the seeds. The barks and leaves have also been examined to contain the same base. I. A. RAMDAS AND P. S. VAIDYANATHAN: *Studies on the spreading of certain substances on a clean surface of water. Part I*.—With a soluble substance like camphor, the phenomena of surface solution and internal solution have been studied quantitatively. R. ANANTHAKRISHNAN: *Effect of temperature on the Raman Spectrum of Liquid CCl₄*. While the ratio of the intensities of the Stokes and anti-Stokes lines tend to approach unity with increasing temperature in accordance with Placzek's theory, there is no corresponding increase in the absolute intensities of the Stokes and anti-Stokes lines as is to be expected from the theory. It is suggested that the effect of the unharmonicity of nuclear vibrations and the centrifugal stretching of the molecule due to rotation, is probably responsible for this departure from the expected increase in intensity. A. VEERABADHRA RAO: *Effect of Oblique Refraction at the Prism Surfaces on the Relative Intensities of Raman Lines*.—It is shown that if illumination from the side is adopted, the intensity of the well-polarised lines is apparently diminished in relation to the unpolarised ones, and the reverse, if illumination from the top is adopted. G. R. GOGTE: *Chemistry of β-Aryl Glutaconic Acids, Part IV.—C-Acetylation of β-Aryl Glutaconic Anhydrides: Derivatives of α-Acetyl-β-aryl-glutaconic Acids*. P. PATTABHI-

RAMAYYA: *A Study of the Raman Effect in Sodium Nitrate*.—The changes with temperature in the Raman lines obtained with a large single crystal have been studied. P. PATTABHIRAMAYYA: *The Dispersion and Optical Anisotropy of Molecular Oxygen in Relation to its Absorption Spectrum*.—A new dispersion formula for gaseous oxygen has been worked out, which is simultaneously able to explain the observed optical anisotropy of the oxygen molecule and its dispersion. S. BHAGAVANTAM: *Specific Heats of Liquids in Relation to Raman Effect Data*.—The specific heats of liquid benzene, CCl₄ and CS₂ are calculated with the help of the known fundamental frequencies in each case at different temperatures. It is concluded that in liquids, thermal movements of molecules are partly in an organised manner constituting Debye elastic waves as in a solid, and partly in a random manner as in a gas. P. G. N. NAYAR: *Raman Spectrum and Constitution of Pentaerythritol*.—The spectrum corresponds to a tetrahedral symmetry; the O—H frequency is characteristic of the presence of hydrogen bonds.

March 1938. SECTION B.—B. P. PAL AND NEK ALAM: *The Effect of Certain External Factors upon the Manifestation of Hybrid Vigour in Wheat*.—Studies relating to hybrid vigour in a cross between two varieties of *Triticum vulgare*, viz., Pusa 52 and Pusa 165, under different dates and times of sowing, different depths of sowing and different conditions of sowing. M. K. SUBRAMANIAM: *Studies on the Structure of the Golgi Apparatus*.—Confirms the previous observations that the double-rimmed Golgi batonettes originate from vesicles, thus conclusively showing that the idiosome forms only a core to the double-rimmed batonettes. There appears to be a fundamental plan in the Golgi apparatus common to all cells, vertebrate or invertebrate, and the different patterns in different