Government of India Publications :—Department of Industries and Commerce, Bombay: "Annual Report for 1934-35."

— Do. —Lac Research Institute: "Annual Report for 1934-35."

"Quarterly Bulletin of the Health Organization," League of Nations, Geneva, Vol. IV, No. 4, December 1935.

"Scripta Mathematica," Vol. III, No. 4, October 1935.

"Journal of the Indian Mathematical Society," Vol. I, No. 8.

"Medico-Surgical Suggestions," Vol. 4, Nos. 11 and 12.

"Journal of the Annamalai University," Vol. V, No. 1, November, 1935.

"Mathematics Student," Vol. III, No. 3, September 1935.

"Science Forum," Vol. I, Nos. 4 and 5.

"School of Agriculture Memoirs," (University of Cambridge), No. 7.

"Research and Progress," Vol. II. No. 1. January 1936.

"The Micro," No. 3, January 1936 (Post Office Journal of Ceylon).

"Review of Applied Mycology," Vol. 14, No.12; Vol. 15, No. 1.

"Journal of the American Museum of Natural History," Vol. 36, No. 5, December 1935.

"Nature," Vol. 136, Nos. 3451-3452; Vol. 137, Nos. 3453-3154 and *Index to Vol. 136.*

"Journal of Nutrition," Vol. 10, No. 6.

"Ceylon Journal of Science," Section D, Vol. III, Part 4.

"Science Progress," Vol. 30, No. 119, Jan. 1936.

"Scientific American," Vol. 154, Nos. 1-2.

"Indian Journal of Venereal Diseases," Vol. I, No. 4, December 1935.

"Indian Journal of Veterinary Science and Animal Husbandry," Vol. V, No. 4, Dec. 1935.

Catalogues.

Verlag von Gustav Fischer in Jena: "Mitteilungen uber Neuerscheinungen und Fortsetzungen (1936)," No. 1, January 1936.

Wheldon and Westley Ltd.: "Monthly List of Books," January 1936.

Academies and Societies.

Indian Academy of Sciences.

January 1936. SECTION A.—C. V. RAMAN: *First Annual Meeting of the Indian Academy of Sciences.—Presidential Address.* MAX BORN: *Unitary Theory of Field and Matter. I. Classical Treatment. Charged Particle with Magnetic Rest-Moment.* C. S. VENKATESWARAN: *The Raman Spectra of Ortho-Phosphoric Acid and Some Phosphates.*—The step-wise ionisation of H_3PO_4 could be followed from Raman spectra. The structure of PO_4 ion is indicated as tetrahedral. B. SANJIVA RAO AND K. S. SUBRAMANIAM: *The Occurrence of Furan Derivatives in Volatile Oils—III. β-Clausenan and γ-Clausenan.*—γ-clausenan is isomeric with α-clausenan. The methods of isolating the clausenans and their physical properties are described. D. S. NARAYANAMURTHI AND T. R. SESHADRI: *Brucine Sulphate as an Internal Indicator in Titrations with Standard Dichromate Solutions.*—The Brucine sulphate indicator is in certain respects superior to diphenylamine, the colour change from green to bright red being very pronounced. M. RAMANADHAM: *Optic Moments of Organic Molecules in Relation to Crystalline and Magnetic Birefringence.*—The magnetic birefringences have been measured for solutions in carbon tetrachloride of naphthalene, diphenyl and dibenzyl. I. CHOWLA: *Vinogradow's Solution of Waring's Problem* (II). R. ANANTHAKRISHNAN: *The Raman Spectra of Some Organic Liquids under High Dispersion and Resolving Power.*—Benzene, Toluene, Phenol, Chlorobenzene, Pyridine and Cyclohexane have been studied. The structure of the 992 cm^{-1} line of benzene has been discussed in detail. C. V. RAMAN AND N. S. NAGENDRA NATH: *The Diffraction of Light by High Frequency Sound Waves. Part III. Doppler Effect and Coherence Phenomena.*

January 1936. SECTION B.—PRAKASH CHANDRA JOSHI: *Contribution to the Life-History of* Stellaria media *L.*—The megasporogenesis of the plant and the development of the pollen grain have been studied. ALBERTO CARLOS GERMANO DA SILVA CORREIA: *The Mussalmans of Goa.*—The Goanese Mussalmans are a mixed ethnic group, issued of the race crossing between Arabs mostly and the Hindus inhabiting Malabar, Deccan and Konkan. MAKUND BEHARI LAL: *A Review of the Genus* Paramonostomum, *Luhe; with Descriptions of two New Species and Remarks on the Genera of the Sub-Family Notocotylinæ.* C. R. HARIHARA IYER, R. RAJAGOPALAN AND V. SUBRAHMANYAN: *Estimation of Nitrogen by Fumeless Digestion. Part II.—Products of Oxidative Digestion of Organic Nitrogen and the Procedure for their Inclusion in the Estimate of Total Nitrogen.*—The conditions relating to oxidative digestion have been standardised and successfully applied to the estimation of total nitrogen in soils. A. C. JOSHI AND V. RAMA RAO: *The Embryology of* Gisekia Pharnaceoides *Linn.*—A comparison of the embryological features of Phytolaccaceæ, Aizoaceæ and *Gisekia* reveals that the genus *Gisekia* should be placed in Molluginaceæ, a sub-family of Aizoaceæ. S. C. DIXIT: *The Myxophyceæ of the Bombay Presidency, India.—I.*

The National Academy of Sciences:

January 10, 1936. N. K. SAHA: *On the Reconstruction of the Mass-Defect Curve and the Stability of the Beryllium Isotope* Be^8_4. G. R. TOSHNIWAL, B. D. PANT, R. R. BAJPAI AND B. K. VERMA: *Study of Ionosphere at Allahabad.* N. K. CHATTERJEE: *Studies in the Respiration of Mango Leaves.* SHRI RANJAN: *Studies in the Photochemical Action in Plant Respiration.* N. R. DHAR AND E. V. SESHACHARYULU: *Nitrogen Fixation and Azotobacter Count on the Application of Molasses to the Soil in the Field.*—Quantitative experiments show that there is no correlation between the bacterial numbers and nitrogen added thus indicating that agencies other than

azotobacter, such as sunlight and catalysts like iron and manganese also contribute to the addition of nitrogen. G. T. KALE: *Cytophysiological Researches on the Relative Resistance of Wheats to* Puccinia glumarum *Eriks and Henn.* SATYENDRA RAY: *On the Saha-Srivastava Derivations of Rayleigh-Jeans Law.*

February 1st. 1936.—(1) P. L. SRIVASTAVA (Allahabad): *On the Phragmen-Lindelog Principle.* (2) KRISHNA LAL GUPTA (Allahabad): *On the Convergence and the Summability of the Conjugate Series of the derived Fourier Series.*

* * *

THE HILL MEMORIAL PRIZE was awarded this year to Mr. Hrishikesha Trivedi of the Physics Department, Allahabad University. It is awarded biennially on the best research work carried out in the Allahabad University both by students and teachers (excluding the senior ones), during previous two years. The recipient of this year's prize is also the Assistant Editor of the *Proceedings of the National Academy of Sciences,* India.

Asiatic Society of Bengal:

THE 153RD ANNUAL MEETING of the Asiatic Society was held on the 3rd February, with Sir Lewis L. Fermor, KT., O.B.E., D.SC., F.R.S., President of the Society, in the chair.

In referring to the demise of H. M. King George V, Sir Lewis said, "Not only as loyal subjects we grieve at the passing of H. M. King George V, but as grateful beneficiaries of the system of government which he personified." He also referred to the death of Rudyard Kipling, *Dr. P. T. Bruhl, Lt.-Col. H. W. Acton and Dr.* A. C. Woolner.

INDIA'S COAL RESOURCES.

In the course of his Presidential address, Sir Lewis dealt with the problem of the Depletion of India's Coal Resources. From a study of the figures of average annual production and average pit's mouth value per ton of coal for the years 1898 to 1934, it will be seen that a rapid expansion in the demand for Indian coal prevailed up to 1919 when the output reached 22.6 million tons. This expansion was not to continue, for the production of 1934 was only 22.1 million tons and "as the coal fields of India opened in 1919 were able to cope with the existing requirements as well as to develop for the future, the coalfields that have been developed since this date, six in number, have caused a position of potential over-production." "The methods of work in many of the coal mines in India have for many years been such as do not commend themselves to geologists and competent mining engineers. And the tales of fire, flood and subsidence from the Jharia coalfield in particular and the evidence visible to all in the shape of pillars of cloud by day and of fire by night show that the extraction of some 600 million tons of coal between 1898 and the end of 1935 must have meant the depletion of available reserves to a vastly larger extent." Mr. Treharne Rees who was engaged by the Government of India in 1917 to report on the situation in the coalfields of Bengal and Bihar & Orissa, directed attention to four problems, *viz.*, method of extraction, generation of power at the collieries, coking, and handling and despatch of coal at the collieries, and found that considerable economy could be effected under each head. He stressed on the need to improve the methods of extraction and advocated the extensive introduction of hydraulic stowing in the Jharia and Raniganj coalfields. The Coal Committee appointed by the Government of India also referred to the wasteful method prevalent and reported in 1920 that no improvement can be expected without State control of the industry.

The extent of the coal reserves of India of higher grade and therefore the seriousness of the admitted losses in working *vis-a-vis* the available reserves were not known at that time, nor was the extent to which it would be possible by methods of washing to improve the lower grade coals known. "These problems and the question of the reserves of sand available for stowing were therefore entrusted to the Geological Survey of India, for examination." A detailed survey was conducted and the results are incorporated in the 5 Memoirs issued by the Geological Survey of India. Sir Lewis issued in July 1935, a Bulletin on the Indian Coal Reserves "to educate public opinion in India on the seriousness of the situation prior to the introduction by Government of measures of conservation, which, it is no secret, the Government of India has in preparation." In the note on India's coal reserves, it is pointed out that the 4,500 million tons of coal of good quality would be exhausted in 100 years. It also draws attention to the more serious fact that the 1,700 million tons of coking coal so essential to the existence of the iron and steel industry will last on the average only 33 years from 1932, at the present rate of extraction, and with a recovery of 50 per cent.; but that such coal would last 80 years, if, with sand-stowing, the extraction were improved to 80 per cent. The position is very serious and demands the adoption of practicable and suitable remedies. For various reasons it will be necessary to have a state control of the methods of work as recommended by the Coalfields Committee. The improved methods will incidentally entail the extensive introduction of some method of stowing the voids, usually referred to as hydraulic stowing or sand-stowing. There should be a change in the methods of grading coal, so that certificates are issued only for coal as actually exported. This will entail the sampling and analysis of cargoes as shipped.

"Whilst recognising that the coal industry requires a higher price for coal in the interests not only of the industry, but also of the welfare of India as a whole, my personal anxiety has been that this increased price should not be obtained by the industry except in return for the *quid pro quo* of improved methods of work."

In conclusion, Sir Lewis referred to a scheme which the Government of India are understood to have, for enforcing the conservation of coal in India. "My plea to the coal industry is that when this scheme is made public, they do not proceed to decry every part of the scheme that affects them personally, as was done in 1922, but that instead they welcome the scheme as being in the best interests of all in the long run and that they even invite the Government to take a more effective line, if they consider that Government's proposals are not far-reaching."

* * *

Office-bearers of the Society for 1936.—
President: H. E. Sir John Anderson.
Vice-Presidents: Sir David Ezra, Sir Upendra

Nath Brahmachari, Bahadur, Lt.-Col. R. Knowles, Sir B. L. Mitter.
General Secretary: Mr. Johan van Manen, F.A.S.B.
Treasurer: Dr. S. L. Hora.
Philological Secretary: Mr. S. K. Chatterjee.
Joint Philological Secretary: Shamsu'l 'Ulama Mawlawi M. Hidayat Hosain, Khan Bahadur.
Natural History Secretaries: Biology: Dr. Baini Prashad; *Physical Science:* Dr. J. N. Mukherjee.
Anthropological Secretary: Rai Bahadur Ramprasad Chanda.
Medical Secretary: Lt.-Col. R. N. Chopra.
Library Secretary: Dr. A. M. Heron.
Other Members of Council: Mr. Percy Brown, Mr. C. C. Calder, Mr. N. G. Majumdar, Lt.-Col. N. Barwell, Mr. K. C. Mahindra and Mr. M. Mahfuzul Haq.

* * *

The following awards were made.—

Elliott Prize for Scientific Research: The prize for the year was awarded to Mr. Kalipada Biswas of Royal Botanic Gardens, Sibpore, for meritorious publications on the subject of Botany. The prize for 1936 will be for work in Mathematics regarding which a detailed announcement has been published in the *Calcutta Gazette* and the *Bihar and Orissa Gazette*.

The Barclay Memorial Medal: The medal is awarded to Dr. Birbal Sahni, Professor of Botany, Lucknow University, for his long sustained and distinguished labours in the field of Botanical research. This medal is awarded biennially to any individual for conspicuously important contributions to Medical or Biological science with special reference to India.

Joy Gobind Law Memorial Medal: The Medal is awarded to Professor Lew Semenowitch Berg, Chief of the Bureau of Applied Ichthyology and Professor of Geography, State University, Leningrad, Russia. This medal is awarded every three years for conspicuously important contributions to the knowledge of Zoology in Asia.

Indian Physical Society:

THE SECOND ANNUAL MEETING of the Indian Physical Society was held on the 6th January, 1936, in the room of the Section of Mathematics and Physics, Indian Science Congress, Indore, with Prof. A. C. Banerjee, M.A., I.E.S., in the chair.

As a result of scrutiny of the ballot papers the Council for 1936 was constituted as follows:—

President: Prof. M. N. Saha, D.Sc., F.R.S., (*Allahabad*).
Vice-Presidents: (1) Principal B. M. Sen, M.A., I.E.S. (*Calcutta*); (2) Prof. G. R. Paranjpe, M.Sc., I.E.S. (*Bombay*).
General Secretary: Prof. D. M. Bose, M.A., Ph.D. (*Calcutta*).
Treasurer: Prof. P. N. Ghose, M.A., Ph.D., Sc.D. (*Calcutta*).
Members of the Council: (1) Prof. K. Prasad, M.A., I.E.S. (*Patna*); (2) Prof. J. B. Seth, M.A., I.E.S. (*Lahore*); (3) Dr. S. K. Banerjee, D.Sc. (*Poona*); (4) Prof. B. B. Ray, D.Sc. (*Calcutta*); (5) Prof. N. R. Sen, Ph.D., D.Sc. (*Calcutta*); (6) Prof. H. P. Warad, Ph.D., D.Sc. (*Madras*).

February 8, 1936.—At a special meeting held in the Chemistry Lecture Theatre, University College of Science, Calcutta, the following papers were read:—

Prof. M. N. Saha—The Origin of Mass in Neutrons and Protons. H. K. Trivedi—The Nature of Binding in $SnCl_2$.

Indian Chemical Society:

December 1935. DINES CHANDRA SEN: *Studies in the Camphor Series. Part II.—Synthesis of* iso*nitrosothiocamphor and its Application as an Indicator in Acidimetry and Alkalimetry.* N. R. DHAR AND S. K. MUKHERJI: *Denitrification in Sunlight and its Retardation. Part II.* SUSIL KUMAR RAY: *Parachor and Ring Structure. Part II.—The Spatial Configuration of Bridged-ring Compounds.* MAHAN SINGH AND MANOHAR SINGH: *Studies on Optical Activity and Chemical Constitution. Optically active Acids and Bases—Part II.* N. R. DHAR AND R. N. MITRA: *Condition of Iodic Acid and Iodates in Aqueous Solution.* VISHWANATH SHARMA AND SIKHI BUSHAN DUTT: *Metallic Titanium in Organic Synthesis.* SUSIL KUMAR RAY: *Parachor and Chemical Constitution. Part IV.—The Structure of Aliphatic Diazo-compounds.* KUVERJI GOSAL NAIK AND BANSIDHAR VITHALDAS MEHTA: *Mercury Acetamide as a Mercurating Agent. Part II.—Mercuration of Phenols.* DATTATRAYA BALKRISHNA LIMAYE AND GOVIND RAMACHANDRA KELKAR: *Action of Acetic Anhydride on 2-Acetylresorcin. A New Method for the Synthesis of γ-Resorcylic Acid.* DUKHAHARAN CHAKRAVARTI AND BAIDYANATH GHOSH: *Synthesis of Coumarins from Phenols and β-Ketonic Esters. Part V.—Constitution of Chlororesorcin and Chlororesorcylaldehyde.* KALI PADA BASU AND SACHINDA NATH SARKAR: *A Semi-micro Method of Determining Total Nitrogen of Air-dry Soils.* S. S. BHATNAGAR, M. B. NEVGI AND MOHAN LAL KHANNA: *Ionic Susceptibility of Rubidium from its Different Salts in the Solid and in the Dissolved State.* P. G. DESAI AND A. M. PATEL: *Solubility of Benzoic and Salicylic Acids in Mixtures of Organic Solvents.* R. M. HALASYAM: *A Note on the Constitution of Formic Acid and Formates.*

Indian Botanical Society:

THE ANNUAL MEETING of the Indian Botanical Society was held at Indore (C.P.) on January 6th, 1936. The following office-bearers were elected for the new year:—

President: Dr. S. R. Bose, M.A., D.Sc., F.L.S.
Vice-Presidents: (1) Prof. P. Parija, M.A., I.E.S.; (2) Dr. K. Bagchee, D.Sc., D.I.C.
Business Manager and Treasurer: Prof. M. O. Parthasarathy Iyengar, M.A., Ph.D., F.L.S.
Councillors: (1) Dr. S. P. Agharkar, M.A., Ph.D., F.L.S.; (2) Dr. B. Sahni, M.A., D.Sc., Sc.D., F.G.S.; (3) Dr. J. H. Mitter, M.A., Ph.D., F.L.S.; (4) Prof. R. H. Dastur, M.Sc., F.L.S.; (5) Mr. K. Biswas, M.A.; (6) Dr. T. Ekambaram, M.A., Ph.D.; (7) Dr. Y. Bharadwaja, M.Sc., Ph.D., F.L.S.; (8) Dr. P. Maheswari, D.Sc.; (9) Dr. S. L. Ghose, M.Sc., Ph.D., F.L.S.; (10) Mr. H. G. Champion, I.F.S.
Member on the Editorial Board: Dr. H. Chaudhari, M.Sc., Ph.D., D.I.C.
Honorary Secretary: Dr. E. K. Janaki Ammal, M.A., D.Sc., Imperial Sugarcane Station, Lawley Road P.O. (*via*) Coimbatore, S. India.