SCIENCE NOTES.

Indian Physical Society.—The Third Annual Meeting of the Indian Physical Society was held at Hyderabad (Deccan) on the 6th January, with Prof. M. N. Saha (President) in the Chair.

The President delivered an address on "Mission of Physicists in India" which was followed by a talk on Cosmic rays.

The following were duly elected office-bearers and members of the Council for 1937:—

President: Prof. M. N. Saha; *Vice-Presidents:* Dr. S. K. Banerjee, Prof. D. M. Bose, Prof. G. R. Paranjpe and Prof. H. P. Waran; *Secretary:* Prof. S. K. Mitra; *Treasurer:* Prof. P. N. Ghosh; *Members of the Council:* Prof. A. C. Banerjee, Prof. S. N. Bose, Dr. B. N. Chuckervatty, Prof. P. K. Datta, Prof. K. Prasad, Dr. K. R. Rao, Prof. B. B. Ray, Prof. N. C. Ray, Principal B. M. Sen, Prof. N. R. Sen, Prof. J. B. Seth and Prof. M. R. Siddiqui.

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Calcutta Mathematical Society.—At the Annual Meeting, held on the 31st January, the following were elected office-bearers and members of the Council for the year 1937:—

President: Professor Syamadas Mukherjee; *Vice-Presidents:* Principal B. M. Sen, The Hon'ble Sir S. M. Sulaiman, Professor C. V. Hanumantha Rao, Dr. N. N. Sen and Professor F. W. Levi; *Treasurer:* Mr. Satis Chandra Ghosh, *Secretary:* Mr. S. K. Chakravarty; *Other Members of the Council:* Professor N. C. Roy, Dr. S. M. Ganguly, Mr. Ramaprosad Mukherjee, Professor N. R. Sen, Professor A. C. Banerjee, Dr. P. L. Srivastava, Dr. M. R. Siddique, Professor N. M. Basu, Dr. C. N. Srinivasiengar, Dr. J. Ghosh, Dr. R. N. Sen and Dr. S. C. Dhar.

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Indian Chemical Society.—At the Thirteenth Annual General Meeting of the Society held on Wednesday, the 6th January, the following were elected office-bearers:—*President*: Prof. J. C. Ghosh; *Hon. Secretary*: Prof. B. C. Guha; *Hon. Treasurer*: Prof. P. Neogi; *Hon. Editors*: Dr. S. S. Joshi, Dr. A. C. Sircar; *Hon. Auditors*: Mr. P. C. Nandi and Mr. T. K. Roy Choudhuri.

The following resolutions of the Fine Chemicals Committee were passed:—"Resolved that a circular be issued by the Hon. Secretary of the Indian Chemical Society to Universities, Colleges and Research Institutes requesting them to send copies of their indents for organic and inorganic chemicals for the last three years with quantities and price."

"Resolved further that a Sub-Committee consisting of the following, with power to co-opt, be appointed to consider the replies received:—Prof. P. C. Mitter (*Convener*), Drs. M. S. Patel, B. C. Guha, H. K. Sen and K. H. Hassan."

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Society of Biological Chemists (India).—The Sixth Annual General Meeting of the Society was held on Wednesday, 6th January 1937, at Hyderabad. Lt.-Col. S. L. Bhatia presided.

The Revised Rules were accepted with certain modifications.

The following office-bearers were elected for the year 1937:—

President: Dewan Bahadur Dr. Sir U. N. Brahmachari; *Vice-President:* Dr. Gilbert J. Fowler; *Hon. Secretaries:* Dr. C. N. Acharya, Mr. B. H. Iyer; *Hon. Treasurer:* Dr. V. Subrahmanyan; *Hon. Auditor:* Mr. M. Srinivasan; *Members of the Executive Committee:* Dr. V. N. Patwardhan, Dr. B. C. Guha, Dr. M. Damodaran, Dr. B. N. Iyengar, Mr. N. V. Joshi, Dr. P. E. Lander, Dr. N. R. Dhar, Dr. S. Kasinatha Ayyar, Mr. Y. D. Wad, Dr. H. K. Sen and Dr. T. N. Seth.

A joint meeting of the Physiological Society of India and the Society of Biological Chemists (India) was also held at the same time and place, to consider the desirability of starting an *All-India Journal of Physiology and Biochemistry*. The following resolutions, moved from the Chair, were unanimously accepted:—(1) This joint meeting considers that it is desirable to have a common journal for the Physiological Society of India, the Society of Biological Chemists (India) and the Biochemical Society of Calcutta. (2) A Committee consisting of the following gentlemen be authorised to go fully into all matters connected with the starting and running of such a Journal and to report their conclusions at the next Annual General Meeting of the Societies concerned to be held at Calcutta in January 1938:—Col. Bhatia (*Convener*), Dr. Burridge, Rao Bahadur B. Viswa Nath, Dr. V. Subrahmanyan, Dr. B. C. Guha, Dr. B. Narayana, Mr. Y. D. Wad, Dr. A. S. Paranjpe, Dr. Rahman, Dr. N. M. Basu, Dr. Basheer Ahmed and Dr. C. N. Acharya.

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Association of Economic Biologists.—The Seventh Annual Meeting of the Association of Economic Biologists, Coimbatore, was held on 1st February 1937. The following office-bearers were elected:—

President: Mr. K. Krishnamurthi Rao; *Vice-President:* Dr. J. S. Patel; *Secretary:* Mr. M. C. Cherian.

The retiring President, Mr. V. Ramanatha Ayyar, delivered an address on "Herbaceum Cottons of India".

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Indian Botanical Society.—At the Annual Meeting of the Indian Botanical Society held on Wednesday, the 6th January at Hyderabad, the following office-bearers were elected for 1937–1938:—

President: Dr. B. Sahni; *Vice-Presidents:* Dr. S. R. Bose and Mr. H. G. Champion; *Members of the Council:* Dr. S. P. Agharkar, Dr. Y. Bharadwaja, Mr. K. Biswas, Dr. H. Chaudhuri, Prof. R. H. Dastur, Dr. T. Ekambaram, Dr. S. L. Ghose, Dr. K. C. Mehta, Prof. J. H. Mitter and Prof. P. Parija.

A Sub-Committee consisting of the following botanists was formed to consider the suggestion by the International Commission on Agricultural Meteorology, for a scheme for recording phenological observation in India:—

Dr. S. P. Agharkar, Mr. H. G. Champion, Prof. A. C. Joshi, Prof. M. Sayeeduddin, Dr.

M. O. P. Iyengar, Prof. P. Parija, Dr. R. R. Stewart, Dr. K. Biswas, Dr. E. K. Janaki Ammal. Dr. C. D. Darlington, Cytologist, John Innes Horticultural Institution, Merton, England, was unanimously elected an Honorary Member of the Indian Botanical Society.

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Index to Geological Literature Available in Bangalore.—*The Central College Geological Society* has just started the publication of a monthly Index to the geological literature available in Bangalore, the need for which has been increasingly felt within recent years by the increasing number of those engaged here in geological research. Between the Central College, Mysore Geological Department, and the Indian Institute of Science, nearly 30 journals and periodicals relating to Geology are received, and the proposed Index is a compilation wherein all the papers appearing in these journals will be properly classified in a form suitable for readers' reference. The number for January 1937 which has just been issued, speaks for itself about the value and usefulness of such a compilation.

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Measurement of the Non-skid Properties of Road Surfaces.—(His Majesty's Stationery Office. Price *9d.*) The provision and maintenance of non-skid road surfaces is a matter of vital concern to road users and has received great attention in the past few years from road makers. A means of measuring the slipperiness of a road surface is provided by the motor-cycle and sidecar apparatus, which has been in regular use for a number of years. The apparatus and its method of operation are described in Road Research Bulletin No. 1.

* * *

Studies in Road Friction—1. Road Surface Resistance to Skidding.—(His Majesty's Stationery Office. Price 1*s.* 6*d.*)—The results and conclusions drawn from the large number of tests made with the above apparatus are given in Road Research Technical Paper No. 1.

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The National Academy of Sciences (U.P.).—We have pleasure in congratulating Prof. B. Sahni, D.Sc., Sc.D., F.A.S.B., F.G.S., F.R.S., Head of the Department of Botany, University of Lucknow, on his recent election as President of the National Academy of Sciences. Prof. Sahni's eminence in the scientific world is a source of pride to all who know him and his achievements have raised the prestige of this country as a competitor in producing new knowledge. We have no doubt that under his inspiring guidance, the National Academy of Sciences, which already occupies an important position and fulfils a great purpose, will add fresh lustre to its distinguished record.

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Dr. K. S. Krishnan, Mahendralal Sircar Professor of Physics at the Indian Association for the Cultivation of Science, is proceeding to England shortly. He has been invited to deliver a course of lectures on the physics of crystals at Cambridge and other Universities in England and on the Continent.

Much of Professor Krishnan's earlier work was carried out at the Indian Association for the Cultivation of Science in collaboration with Prof. Sir C. V. Raman, F.R.S., N.L. During the last few years Prof. Krishnan has carried out valuable researches on the magnetic properties of crystals, and has contributed a series of memoirs on this subject which have been published in the *Transactions of the Royal Society*. He was invited to attend the International Conference on Photoluminiscence held at Warsaw a few months ago.

Professor Krishnan's recent work relates to the study of properties of crystals in the neighbourhood of absolute zero temperature.

* * *

Professor Bailey Willis in Bangalore.—Professor Bailey Willis, Emeritus Professor of Geology, Stanford University, California, U.S.A., who is on a world tour paid a short visit to Bangalore during the latter half of January. *The Central College Geological Society* took advantage of his brief stay here and invited him for a social evening and to address the members. Professor Willis is a great traveller, a geologist of international reputation, and author of numerous papers on tectonics and general geology.

After a group photograph and tea, an assembly was held. The distinguished guest was introduced by Prof. L. Rama Rao. Professor Willis then addressed the meeting on "The Crust of the Earth". The Lecturer said that it was no longer possible to believe that the crust was a thin hard layer which was formed by the cooling of a molten globe. Recent evidences show that the earth is solid and rigid practically to the core. The key to this problem was to be found in radioactivity. Radioactive elements were not distributed uniformly but sporadically in the interior of the earth, and by their disintegration enough heat was produced in certain localities to cause melting of the rocks. Differentiation took place in these rock magmas which were extruded at various periods in the history of the earth and gave rise to the crust. After the lecture, several members asked him questions to which he gave suitable replies, drawing mostly from his wide experience of different lands, acquired during his travels.

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Dewan Bahdur Dr. L. K. Ananthakrishna Iyer, B.A., M.D. Hon. (Bres.), one of the foremost anthropologists in India, whose work has brought him quite a large number of honours, has recently been elected an Honorary Member of the Scottish Anthropological Society, Edinburgh. We have pleasure in offering him our cordial felicitations. We wish him a long life of uninterrupted health and prosperity.

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Imperial Economic Committee: Vegetable Oils and Oilseeds.—The Imperial Economic Committee, in a statistical review of world production and trade entitled "*Vegetable Oils and Oilseeds*", points out that the consumption of fatty oils of vegetable origin has developed enormously with the increased demand for fats, although animal products, *i.e.*, butter, lard and tallow,

remain the principle individual fats of commerce. The seeds and nuts of many different plants and trees can be made to yield oil, the review deals with those of chief commercial importance.

According to a press note issued by the Director of Public Instruction, the British Empire, particularly in India and the Colonies, is an important producer of vegetable oils and oilseeds, and many parts of the Empire carry on a considerable export trade. On balance, the Empire has a substantial net export for many of the oilseeds and nuts, notably groundnuts, palm kernels and copra. There is, however, a large net import into the Empire of cottonseed, linseed and soya beans.

Cottonseed.—Cottonseed is an important source of income to the cotton farmer. Almost the entire output in the United States, which is by far the largest producer, is consumed at home and exports from India, the second largest producer, have been negligible in recent years. Egypt, the Anglo-Egyptian Sudan and Uganda are the principal exporters of cottonseed, while there are only two large importers, the United Kingdom and Japan.

Linseed.—Argentina, the largest producer of linseed accounts for over four-fifths of the world exports. India and Uruguay are next in importance. Imports into the United Kingdom come almost entirely from Argentina and India and since 1933 the latter has been the chief supplier except in 1935.

Groundnuts.—India and China are the principal producers of groundnuts, but both retain a large part of their production. Senegal, Nigeria and the Gambia, on the other hand, export the greater part of their output. France, the first European country to import groundnuts, still maintains its place as the leading importer.

Copra.—The largest exporters of copra are the Netherlands, East Indies and the Philippines, the latter also shipping large quantities of cocoanut oil. Exports from Empire countries amount to roughly one-third of the world total. British Malaya and Ceylon are the chief Empire exporters, but the trade is of the greatest importance to Fiji, accounting for about 13 per cent. of the value of all domestic exports between 1931 and 1935. Imports into the United Kingdom, which have tended to increase, are now shipped entirely from the Empire.

* * *

Survey of India.—During the year 1936, for which the report has just been published, the Survey of India completed the survey of 57,036 square miles, of which 3,987 square miles were areas previously surveyed in the more thickly populated districts and now brought up to date. Original survey was completed in 53,049 square miles on various scales, thus completing for India a total of 1,304,453 square miles of modern survey, leaving 580,187 square miles yet to be surveyed (according to a press note issued by the Director of Public Information, 2nd February 1937).

The methods used were mainly triangulation or traverse frame work, with the details filled in by plane table, or in some cases surveys from air photographs.

Various large-scale city and cantonment surveys were also carried out, the most notable amongst which was the combined air and ground survey of Nagpur in the Central Provinces.

Though the primary duties of the Survey of India are geodetic, topographical and geographical, the Department is also developing cooperation with local survey agencies with a view to mutual economy and is now doing a considerable amount of miscellaneous outside work on payment, besides advising and assisting the Provincial Governments with local and settlement surveys as required.

A special party, it may be mentioned, was formed in October 1935, to assist the Sino-Burmese Boundary Commission.

The work of the Department during 1936 has not been without adventure. A party penetrated the "Inner Sanctuary" of Nanda Devi, of which they made a photographic survey under very arduous conditions. A surveyor and his party were almost overwhelmed by a severe snow-storm in the upper reaches of the Gangotri Glacier in Tehri-Garhwal, and narrowly escaped with their lives. Surveyors accompanied the Visser Expedition to the Karokoram in 1935 which returned to India shortly after the opening of the present survey year, with satisfactory results, and a surveyor is still with Sir Aurel Stein on his archæological expedition to Iran. And it goes without saying that in portions of the area under regular survey, elephants, tigers and panthers were numerous and gave the alarmed surveyors some uneasy moments.

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The Pasteur Institute, Coonoor.—The annual report of the Institute for the year ending 31st December 1935 shows that during the year covered by the report there were no deaths from hydrophobia among those treated at the Institute. This is the third time in the history of the Institute that no death has been reported. 433 patients underwent full treatment and 102, incomplete treatment during the year. The Paris Fixed Virus was in use throughout the year for the preparation of the vaccine and was in its 958th passage at the close of the year. 14,084 courses of antirabic vaccine were issued to the out-centres and the several centres returned 12,282 case cards as completely treated and 2,248 cards as incompletely treated. The total number of deaths from hydrophobia was 20, giving a mortality rate of 0.16 per cent. A total of 12,05,320 c.c. of the antirabic vaccine was prepared during the year. 10 research papers dealing mainly with the studies pertaining to the nutrition of Indian foodstuffs, were published during the year under review.

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The Institute of Brewing.—To celebrate the Silver Jubilee of the foundation of the *Laboratory Club*, which developed into the *Institute of Brewing*, the Council of the Institute decided to issue in November 1936, a Special Number of the Journal of the Institute of Brewing "Containing memoirs by eminent and experienced men, on the progress made in the malting and brewing during the last five decades". As far back as 1876, a group of enthusiasts, among whom may be mentioned

Cornelius O'Sullivan, Adrian Brown and others, inaugurated an informal dining club, the "Bacterium Club" to meet to discuss new discoveries in bacteriology and chemistry relevant to brewing. As the importance of chemical and biological aspects of malting came to be increasingly realised, and the need for the control and analysis of materials and products became compelling, chemists who had a knowledge of brewing started classes in their laboratories to provide instruction on the principles of brewing. Dr. E. R. Moritz, a prominent chemist of the time, realising the importance of discussions and exchange of information and experience between those having aims in common founded in 1886 the *Laboratory Club*. The papers read at the meeting of the Club were recorded in the *Transactions of the Laboratory Club*, the forerunner of the *Journal of the Institute of Brewing*, which is a systematic and continuous record of the labours of numerous investigators interested in the science and practice of brewing. Dr. A. R. Ling was the first editor of the journal.

The Special Number contains nine memoirs covering 54 pages, includes such subjects as, 'Advances made during the last 50 years in malting,' by H. M. Lancaster; 'Advances in the knowledge of malt conversion during the last 50 years,' by Prof. Arthur R. Ling; 'Development of our knowledge of the chemistry of alcoholic fermentation during the last 50 years,' by Sir Arthur Harden; 'Progress in brewery Fermentation during the last 50 years,' by Lloyd Hind; 'Advances made in Brewing, the dietetic value of beer and the by-products of brewing during the last 50 years,' by R. H. Hopkins. The Jubilee Number will be warmly welcomed by all those interested in the progress of fermentation research.

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Research and Progress.—The first number of the Third Volume of this Journal has recently been received. Up to the present, the *Review* was being published as a quarterly. As the Editors have found it difficult to keep up a sufficiently topical commentary on German scientific progress, they have decided to issue it as a two-monthly, hereafter. The price of the single copy will be R.M. 1.50: postage extra. The annual subscription, for the six issues, is R.M. 6.

All enquiries regarding the Journal may be made to the Editorial Office, Unter den Linden 8, Berlin N.W. 7.

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In a previous number of this Journal a short account of the National Geographic Society-Smithsonian Institution **East Indies Expedition,** was published. (Jan. 1937, page 403.) It is now understood that Dr. Mann who leads the expedition, plans to collect, not only rare species of animals and reptiles from the island of Sumatra and other far-away corners of the East for the National Zoological Park in Washington, but he will take with him American animals, which, though common in zoos of that country, are little known in the Far East. It is, perhaps, the first time that an animal-collecting expedition ever started out from America with a good-sized menagerie "in its baggage",

Among Dr. Mann's animal globe-trotters will be oposums, raccoons, mountain lions, jaguars and possibly a black bear or two. Familiar to the eyes of American zoo-goers, these animals are as unusual in the Far East as tigers or aardvarks are in the United States.

Dr. Mann will present the American animals as gifts to zoos in various cities which he expects to visit on the Orient. The gifts will cause no depletion of American zoos, for there is a surplus of these animals in that country.

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Announcements.

International Congress of Psychology.—Owing to conditions in Spain, the eleventh *International Congress of Psychology* which was to have been held in Madrid will be held in Paris. So far as possible, the programme will be the same as that previously arranged for the proposed meeting in Madrid. The Paris Congress will be held on July 25–31, under the presidency of Prof. Pierre Janet, formerly Professor of Psychology in the College de France. Further information can be obtained from M. Henri Pieron, Laboratoire de Psychologie de la Sorbonne, Paris 5. (*Nature*, 1937, January 2.)

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International Congress on Testing Materials.—The next International Congress of the International Association for Testing Materials will be held in London on April 19–24, under the presidency of Sir William Bragg. More than two hundred papers are promised from authorities in twenty different countries. The Congress will be divided into the following groups: metals (behaviour of metals as dependent upon temperature, particularly in regard to high temperatures; progress of metallography; light metals and their alloys; wear and machinability); inorganic materials (concrete and reinforced concrete) erosion and corrosion of natural and artificial stone; ceramic materials); organic materials (textiles; wood cellulose; timber preservation, ageing of organic materials; colours and varnishes); subjects of general importance (relation between results of laboratory tests and behaviour in use and service; bearing of recent advances in physics and chemistry on the knowledge of materials; properties of materials for the thermal and acoustic insulation buildings).

Further information can be obtained from the Honorary Secretary of the Congress, K. Headlam-Morley, 28, Victoria Street, London, S. W.—(*Nature*, 1937, January 2.)

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It is announced that the **International Congress of Genetics** which should have been held in Moscow, U. S. S. R., during 1937, has been postponed on the request of a number of scientists who desired more time for preparation for the Congress. The only purpose of this postponement is the desire to assure the best preparation and the most extensive participation of scientists from various countries.

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We acknowledge with thanks receipt of the following:—

" Journal of Agricultural Research," Vol. 53, Nos. 7 and 8.
" Indian Journal of Agricultural Science," Vol. VI, Part VI, December 1936.
" Monthly Bulletin of Agricultural Science and Practice," Vol. 27, No. 11, November 1936.
" The Philippine Agriculturist," Vol. 25, No. 8.
" Journal of the Royal Society of Arts," Vol. LXXXIV, Nos. 4389–4391.
" Biochemical Journal," Vol. 30, No. 12, December 1936.
" Biological Reviews," Vol. 12, No. 1, January 1937.
" Communications from the Boyce Thomson Institute," Vol. 8, No. 4.
" Journal of the Institute of Brewing," Vol. XLIII, No. 1, January 1937, and Index to Vol. XLII.
" The Calcutta Review," Vol. 62, No. 1.
" Chemical Age," Vol. 35, No. 913, Vol. 36, Nos. 914–916.
" Journal of Chemical Physics," Vol. 5, No. 1, January 1937.
" Journal of the Indian Chemical Society," Vol. 13, No. 10, October 1936.
" Berichte der Deutschen Chemischen Gesellschaft," Vol. 69, No. 13; Vol. 70, No. 1.
" Russian Journal of General Chemistry," Vol. VI, Nos. 9–11.
" Journal de Chimie Physique," Vol. 33, No. 12.
" Experiment Station Record," Vol. 75, No. 6.
" Indian Forester," Vol. LXIII, No. 2.
" Forschungen und Fortschritte," Vol. 13, Nos. 1–3.

Government of India Publications :—
" Indian Trade Journal," Vol. CXXXIII, Nos. 1595–1597.
"Publications of the University of Illinois," Nos. 23, 24, 31 and 32.

Publications of the League of Nations—"Quarterly Bulletin of the Health Organization," Special Number and Vol. V, No. 4.
" Indian Journal of Medical Research," Vol. XXIV, No. 3, January 1937.
" The Calcutta Medical Journal," 32, No. 1.
" The Punjab Irrigation Research Institute —Report for the year ending April 1936."
" The Pasteur Institute of Southern India —Annual Report of the Director for the year ending 31st December 1935."
"University of Cambridge, School of Agriculture, Memoirs" No. 8, 1936.
"Scientific Reports of the Imperial Council of Agricultural Research, Pusa," 1934–35.
" Journal of the American Museum of Natural History," Vol. 38, No. 5, December 1936.
" Nature," Vol. 138, No. 3504, Vol. 139, Nos. 3505–07.
" Journal of Nutrition," Vol. 12, No. 6, December 1936.
" Indian Journal of Physics and Proceedings of the Indian Association for the Cultivation of Science," Vol. X, Part VI.
" Canadian Journal of Research," **14,** No. 12.
" Ceylon Journal of Science," Section A, Botany, Vol. XII, Part II.
" Science and Culture," Vol. II, No. 8.
" Science Progress," Vol. XXI, No. 123.
" Indian Journal of Venereal Diseases," Vol. 2, No. 4, December 1936.
" Indian Journal of Veterinary Science and Animal Husbandry," Vol. VI, Part IV.
" Arkiv fur Zoologie," Vol. 28, No. 4, 1936.

Catalogues :

" Mitteilungen uber Neuerscheinungen und Fortsetzungen," 1937, No. 1 (Verlag von Gustav Fischer, Jena).
Cambridge University Press, Spring and Summer Books.

ACADEMIES AND SOCIETIES.

Indian Academy of Sciences:

January 1937. SECTION A.—I. CHOWLA : *On Waring's Problem for Cubes.* S. BHAGAVANTAM AND A. VEERABHADRA RAO : *Raman Spectrum of Benzene Vapour.*—The Raman Spectra of benzene in the liquid and vapour states have been photographed alongside each other under identical conditions. When judged by comparing with the 992 line, there is found a very considerable fall in the absolute intensity of the wings as we pass from the vapour to the liquid. B. R. SETH : *On the Flexure of a Hollow Shaft—II.* V. V. NARLIKAR : *A Note on the Mixed Tensor* $T\mu^{\nu}$. S. L. MALURKAR AND M. P. SRIVASTAVA : *On the Differential Equation of the Instability of a Thin Layer of Fluid Heated From Below.* S. CHOWLA : *A Theorem of Erdös.* I. CHOWLA : *On the Number of Solutions of Some Congruences in Two Variables.* L. A. RAMDAS, B. N. SRIENIVASIAH AND P. K. RAMAN : *Variation in the Nocturnal Radiation from the Sky with Zenith Distance and with Time during the Night.*—The observations show that the nocturnal cooling of the radiating air layers as shown by the decrease in the equivalent black body temperature of the sky is maximum for the horizontal and minimum for altitude 90°. B. S. MADHAVA RAO : *On the Fine Structure of the Balmer Lines.*—If we lay aside the Born-Schrödinger Radius for the electron as untenable, we can conclude that the interaction of the electron and radiation field does not materially effect the energy levels. R. VAIDYANATHASWAMY : *A Remarkable Property of the Integers Mod N, and Its Bearing on Group-Theory.* R. ANANTHAKRISHNAN : *The Raman Spectra of Crystal Powders. I.—The Halides and Sulphate of Ammonium. II.—The Chlorides and Sulphates of Hydroxylamine and Hydrazine.*—A new technique has been developed using a pair of complementary filters. It is found that when the co-valency of nitrogen changes from three to four, there is a definite lowering of the N-H frequency, and therefore a weakening of the N-H bond. R. S. KRISHNAN : *Dispersion of Depolarisation of Light-Scattering in Colloids. Part I.—Gold Sols.*—In the region of the characteristic absorption the depolarisation factors show an enormous increase. By applying Gan's theory it is inferred that the particles in the gold sols behave optically like elongated ellipsoids with axial ratio equal to about 0.75.