

SCIENCE NOTES.

Central Laboratory to Evolve Standards for Drugs.—A definite step towards the standardization of drugs in India with possibilities of the tightening of control over the manufacture of spurious drugs is being taken in the establishment of a Biochemical Standardization Laboratory, for which orders have already been issued by the Government of India. (Press Note issued from the Director of Public Information, New Delhi, 6th Nov.)

The Laboratory will consist of a Bio-assay sub-section and a Pharmaceutical sub-section, and among its functions will be the preparation and maintenance of suitable standards of strength, purity and quality for drugs, and standardization of methods of analysis and test with regard to climatic and other conditions prevailing in different parts of India. The Laboratory will also act as expert referee in respect of disputed analysis of samples sent by local Governments, guide, co-ordinate and correlate the work of provincial laboratories, assay and test chemicals and drugs, and biological products such as serum and vaccines, and organo-metallic compounds at the request of Central or local Governments, and periodically issue bulletins about its progress in various branches of its activities, and supply information to manufacturers and Provincial laboratories as the need may be.

The Laboratory will, to commence with, be located at the All-India Institute of Hygiene and Public Health, Calcutta, and Bt. Colonel R. N. Chopra, C.I.E., I.M.S., Director, School of Tropical Medicine, Calcutta, will be responsible for its organization and direction in the early stages.

The staff of the Laboratory will consist, besides a number of assistants, in its Bio-assay sub-section of one Pharmacologist, two experimental Assistants, and in its Pharmaceutical sub-section of one Pharmaceutical Chemist, one Bio-chemist and two Assistant Chemists, and steps have already been taken for their recruitment.

It may be recalled that in March 1927, a resolution was adopted by the Council of State recommending that local Governments should be urged to take steps to control the indiscriminate use of medicinal drugs and for the standardization of the preparation and for the sale of such drugs. Accordingly, in consultation with the local Governments, a Committee was appointed, presided over by Bt. Colonel Chopra, to explore and define the problem of drug control and to make recommendations. The recommendations of this Committee were considered in consultation with the Local Governments, and action is now being taken to implement them.

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Central Board of Irrigation, 7th Annual Meeting.—His Excellency the Viceroy opened the proceedings of the annual meeting of the Board, on the 31st October. In the course of his speech, His Excellency dealt with the importance of irrigation research in relation to the agricultural prosperity of the country. "We are all of us proud to think that India should possess an irrigation system which is the most important in the world to-day and I would like to take this opportunity to pay my tribute to the long line of distinguished engineers to whose

labours that system is due, and who can claim to have contributed in the most material degree to laying the foundations of India's prosperity." The total amount so far expended on irrigation works approximate to Rs. 150 crores. That sum has been spent over a period of 80 years, and the system now serves an area which raises crops valued at more than 100 crores of rupees, annually.

Of the problems of vital importance to India to-day, not the least important is that of the food for her rapidly increasing population. According to a recent report of the Public Health Commission with the Government of India, the population of India is increasing at the rate of about 4 millions every year, and it is expected that by 1941 the population of India will be 400 millions! Only three-fourths of an acre per head of population in British India is under cultivation for food purposes, and while the Agricultural departments are investigating the means of increasing the productivity of the land, it will become apparent to every one that to keep pace with the increase in population large tracts of land must be brought under fruitful cultivation, and this can be effectively done by extending facilities for irrigation.

A recent development in the country and one of great importance is that of hydro-electric generating schemes on irrigation canals by the utilisation of power available at canal falls. Extraction of water from the sub-soil for the irrigation by means of electrically operated tube-wells is being undertaken on a large scale. The Ganges Canal Hydro-Electric Scheme in the United Provinces commands an area of 13,000 square miles and is capable of supplying electric power at cheap rates, primarily for irrigation and agricultural purposes.

One of the questions that came up for discussion at the meeting is that of the establishment of a Central Research Station for Irrigation. The work of the past ten years on problems of irrigation and river control with the use of models has shown the need for research of an all-India character. The establishment of such an Institute will be a matter of great importance to the progress of irrigation in India.

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Meteorology in India.—Details of rapid strides made during the last twelve months and even more important developments pending are given in the Administration Report of the Meteorological Department of the Government of India for 1935-36.

Dealing with the Empire Air Mail Scheme, which is expected to come into operation during the next two years (according to a press note issued by the Director of Public Information). The Report states:—"At important stations along the route it will probably be necessary to maintain a service throughout the twenty four hours, and at all intermediate stations for fifteen hours or more.

"The development will involve sending up illuminated balloons for the measurement of upper winds at night, search lights for determination of cloud heights, special arrangements for measurements of visibility at night, and provision of extra staff for night attendance.

"Night flying involves more or less blind flying, in which airmen need all the help they can get to navigate their machines safely, and in countries where night flying has developed to a considerable extent, such as Germany and the United States of America, there are meteorological stations on the routes 50 or 60 miles apart; in India, however, financial considerations will permit stations only at intervals of about 300 miles."

It is pointed out that air traffic has become regular between India, Siam, Malaya and Indo-China, and that the exchange of meteorological data with these and other countries has, therefore, become a problem of considerable importance. A regular broadcast of weather data from a powerful wireless station is necessary. It is noted that short-wave stations are being established at Rangoon and Calcutta, and that these will solve that problem.

In connection with the aviation weather service the Report states:—"The existing meteorological organisation in India for aviation is still far below the standard defined in the International Convention."

Progress was made in the study of the detailed distribution of rainfall in South India associated with storms. A new forecasting formula for winter rains, which promises to be an improvement, has been worked out by utilising the upper wind data of Agra.

The comparatively new section of Agricultural Meteorology is to be continued for a further period of two years for the present. Valuable investigations have been made in this section on the movement of moisture and heat through the air and soil, of solar and terrestrial radiation and other problems. Special attention was directed to problems relating to frost and cold wave warnings.

Another small but important activity is the co-operation with the Locust Research Entomologist which involves the supply of meteorological data required and the arrangement of frequent discussions about weather conditions.

It is interesting to note that besides the multifarious routine activities, the Department has had time to tackle a large number of research problems. A long list of such problems which received attention during the year is given—most of these are of considerable importance to the science of meteorology. Some of these researches are of immediate value to the utilitarian activities of the department.

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Indigenous Tool Handles.—The annual consumption of Tool Handles by the Indian Railways and Government departments alone is estimated by the Imperial Forest Economist at some 2,000,000 handles. The bulk of this huge demand is met by import (mostly ash and hickory). The possibility of meeting at least part of this demand with indigenous woods is, therefore, of importance. Mr. M. N. Gallant, I.F.S., Forest Economist, Burma, gives an interesting account in *The Indian Forester* (October 1936) of the successful efforts made to introduce to the market Tool Handles of *Anogeissus acuminata*.

Preliminary experiments at Dehra Dun in 1925 indicated that *Anogeissus acuminata* was possibly superior to imported ash and hickory. During 1926-30, Tool Handles from kiln-dried

Anogeissus acuminata were supplied, for test under work conditions, to the Great Western Railway, the Federation of British Industries and others in England. Much headway against conservatism and prejudice had to be made and it was not until 1933 that the South Indian Railway placed an order for a modest 3,000 handles of the wood. The same year the E. I. R. purchased 37,700 handles and since then the popularity and the demand for these Tool Handles have slowly but steadily developed. The Railway Board, Delhi, impressed by the very favourable reports from the consumers, are now investigating the possibility of erecting a large plant near Calcutta for supplying the requirements of several Indian Railways for these Tool Handles.

These pioneer efforts may be said to mark a new chapter in the utilisation of indigenous woods for Tool Handles in India.

EMMENNAR.

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London Shellac Research Bureau.—We have recently received a copy of the *Annual Report* for the year 1935-36. The report commences with a frontispiece of the attractive window display at India House of the several articles arising out of lac. The fluctuations in the lac market are shown to be within narrow limits by the figures in the table of monthly imports and prices. Reference is made to the increased consumption of lac in Russia and Japan.

From the brief description of the work of the Special Officer, Lac Inquiry, it is quite evident that strenuous efforts have been made to further the cause of lac by propaganda in person and through the technical press. Great emphasis is laid on the marketing of genuine lac, conforming to a standard specification and the distribution of knowledge on the uses of lac. The rather alarming state of lac in the gramophone record industry is disclosed and it is linked to the fact that the gramophone is being rapidly replaced by the radio or radiogram. Figures are given to indicate the increased output of synthetic resins but they seem not to have spelt real danger to lac as yet, because the majority of synthetic resins are used in the positive moulds and for thermosetting moulding materials where shellac has not been found suitable.

The lac research programme in the United Kingdom is briefly outlined and reference has been made to the progress achieved in the various lines. It is pointed out that the co-ordination of the work of the London Shellac Research Bureau with the Indian Lac Research Institute and the New York Shellac Research Bureau could be enhanced by periodical meetings of the executives, instead of by mere correspondence.

It is gratifying to find from the report that the year under review has been a period of great activity and good deal of work has been carried out to stabilise the position of lac in the world market.

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Rothamsted Experimental Station.—It is a pleasure to have the opportunity of recording another year of useful and intensive research in the several branches of agricultural science, carried on at the Rothamsted Experimental Station, Harpenden, England. The comprehensiveness of the subjects taken up for scientific

study at this centre, the oldest of its kind in the world, is evident from their *Report for 1935*, just received, which states that "the range of investigations includes the growth and composition of crops, the properties of soils, of fertilizers and manures, the conditions in which each can be used to the best advantage, soil management, plant diseases, insect pests, bees and other subjects." Though the Station first came prominently into public notice through its advocacy of the value of artificial fertilizers and its famous permanent manurial experiments on wheat, roots and barley, its activities have, since their inception in 1843, shown an ever widening horizon and at the present time much work of a purely scientific character is carried on in the several laboratories attached to the Station. In fact, the scientific reputation of the institution is so high that it has been attracting, year by year, leading agricultural workers and scientists from all parts of the world, who have found in Rothamsted a quiet haven best suited for intensive scientific studies.

It would appear from the *Report* that the results of 50 years' experimental work completed at Woburn from 1877 till 1928 are under publication, and the work of the Microbiology Department at Rothamsted has recently been published in a monograph entitled "Problems in Soil Microbiology" by Mr. Cutler and Miss Crump. Dr. Brenchley contributes to the present *Report* a useful summary of the last 30 years' work in the Botanical Department. One anticipates that the occasion of the centenary celebration of the Experimental Station in 1943 will be availed of by the authorities to place before the public comprehensive accounts of the work carried on by the Institution, since its inception, in the several branches of agricultural research in which the Station has been interesting itself.

The general arrangement of matter and get-up of the *Report* follows the lines of the previous volumes. One would however be surprised to note that the introductory part makes no reference to the recent purchase by the Station of the Rothamsted Estate and Manor House at a cost of £35,000 raised by public subscriptions. Recent visitors to Rothamsted will also miss in the engraving of the Laboratory given in the *Report* the Sun Dial which was prominently fixed in front of the main building last year.

C. N. A.

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The recent issue of the *Quarterly Journal of the Mining, Geological and Metallurgical Society of India* (Vol. VIII, No. 2) contains two articles on the heavy minerals of the Barakar and Raniganji sandstones of the Jharia coal fields. K. L. Bhola in the first article has described the heavy minerals, and has tried to correlate them with the granites, pegmatites and the garnet schists of the area. In the second article S. K. Roy and N. L. Sharma have published the results of the heavy mineral analysis of a number of samples. They have been tabulated and a geological map at the end shows the localities of the samples collected.

The council of the Mining and Geological Institute of India appointed in the year 1929 a Committee to go into the causes of subsidences and underground fires in coal fields. During the years 1929 to 1936 the Committee has collected a

large amount of information from various collieries and mines in India. Very valuable geological data about dykes and faults affecting coal seams have also been reported. There are numerous sketches, sections and figures appended to the report which must be very helpful for all mining engineers and colliery managers.

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The *Journal of the Indian Medical Association*.—With the publication of the September Number, the *Journal of the Indian Medical Association* completes the fifth volume. As its name indicates, it is the official organ of the Association and is issued monthly from Calcutta under the Editorship of Sir Nilratan Sircar, Kt., M.A., M.D., LL.D., D.C.L. The Association has a number of branches in the important centres of India, Burma and Ceylon, and a number of professional societies are affiliated to it. The *Journal* has a wide circulation consistent with its reputation. The number under notice contains an article by Drs. J. C. Gupta and S. K. Sen on the behaviour of Free HCl Curve in a Series of 100 consecutive cases of Gastric Content Analysis, with the idea of obtaining a clue for diagnosis. Dr. S. P. Gupta has contributed an article on the Hodgkin's Disease which manifest itself as a progressive glandular enlargement and as the diagnosis of this condition mostly rests on histological and biological examinations and as the facilities for these tests are not usually within the reach of general practitioners, the extent of this malady has not been gauged. There are other interesting articles including the one on Birth Control in India by Dr. A. P. Pillay, the Editor of *Marriage Hygiene*. Other features include, Case Notes, Notes from Current Medical Literature, Medical Notes and News, Association Notes and Book Reviews. We have no doubt that the Association with its useful activities has an assured future.

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'Marriage Hygiene.'—This International Quarterly Journal of Sexology, issued under the Editorship of Dr. A. P. Pillay, has during the past two years of its existence published in its pages articles of international character, and has proved a real addition to the literature on Sexology. Its objects are (1) To secure for conjugal hygiene a proper place in preventive medicine by setting forth its significance and interactions on personal, domestic and social life and its importance for racial and national welfare. (2) To publish scientific contributions treating marriage as a social and biological institution, considering especially the factors and forces influencing its welfare. The problem will be discussed from the view-point of physiology rather than pathology and the emphasis will be on the normal rather than abnormal functions. The sociological, economic and legal aspects will not be neglected. (3) To promote, co-ordinate and unite the interests of contraceptive clinics and marriage hygiene consultation centres in various parts of the globe.

We understand that at the instance of Dr. Havelock Ellis, the editors have decided to enhance the scope of the *Journal*, by publishing in it special articles bearing on Sexology. The annual subscription of the *Journal* is Rs. 10, and we hope that this useful *Journal* will receive all the support from the scientists, it so richly deserves.

Royal Asiatic Society of Bengal.—At the ordinary meeting held on 7th December, the following papers were read: (1) A. Banerji, *A Buddha Image from Kurkihr*; (2) A. H. Harley, *Abu Nukhailah, A post-classical Arab Poet*; (3) S. N. Chakravarti, *A Sculptural Lintel of Gupta Date from Sarnath*; and (4) G. E. Gates and M. Hla Kyaw, *The Clitellum and Sexual Maturity in the Megascolecinoe*. The following exhibits were shown and commented upon: (1) *Little-known Works of Two Celebrated Tantric Writers*, and (2) *A Valuable Manuscript of an Urdu Romantic Poem (Mathnawi)* composed by Sharaf-un-Nisa a lady of Murshidabad (Bengal).

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The Nobel Prize in Physics for this year has been divided between Prof. V. Hess and Dr. C. Anderson. Prof. Hess discovered that the ionisation of air at an altitude of 5,000 meters was more than twice that found at sea-level, showing thereby that this ionisation was of interstellar or cosmic origin. Dr. Anderson is the celebrated discoverer of the positron, the antithesis of the electron.

The Nobel Prize in Chemistry has been awarded to Prof. Peter Debye, the well-known Mathematical Physicist, for his researches bearing on the structure of molecules.

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Mr. T. E. Parkinson, I.E.S., Director of Public Instruction, Punjab, has been appointed Educational Commissioner to the Government of India.

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Official intimation has been received that the Senate of the London University at their meeting of 18th November 1936, conferred the degree of Doctor of Science on Dr. H. Chaudhuri, Head of the Department of University Teaching in Botany, and Director, Kashyap Research Laboratory, Punjab University.

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New Research on Optical Glass at Mellon Institute.—A broad program of fundamental investigations on the chemistry and physics of glass surfaces to aid in the development of scientific apparatus and ophthalmic instruments has been started at Mellon Institute of Industrial Research by the Bausch & Lomb Optical Company, of Rochester, N.Y. The first studies will be concerned with the effects of environmental factors on the durability of the various types of glass used in optical instruments.

The Bausch & Lomb Optical Company, whose research in optical glass dates from the initial work of William Bausch in 1912, has maintained a fellowship at Mellon Institute since 1931 for research on various plant and production problems in optical technology. New developments in the past have included improved greases for optical instruments, cements for ultra-violet transmitting optics, improved methods for making and testing mirrors and reflectors, and standardization of the sizes of fine abrasives used in grinding lenses.

Dr. Frank L. Jones, the fellow since 1931, will be in charge of the new investigations of the Bausch & Lomb Optical Company at Mellon Institute. An enlarged staff will continue the work on plant problems at the new research laboratory of the company in Rochester.

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Micromax Thermocouple Pyrometers.—A new 52-page catalog has been just issued by Leeds & Northrup describing "Micromax Thermocouple Pyrometers". The potentiometer method of measurement of the operation of the rugged, yet simple, mechanisms through which this balance method is made available to industry are well explained.

The new Silver-Anniversary Micromax, announced in the 25th year since this Company originated the recording potentiometer, is described in detail. This thoroughly modern machine keeps always visible ten inches of record, while a bold pointer enables the operator to read temperature at a glance. The instrument can be equipped also to operate signals and automatic controls, and is available for measuring not only temperature but CO₂, liquid level, valve position, speed, smoke density, chemical strength, pH, frequency, load, voltage, etc.

Set forth for ready comparison is the complete line of Micromax instruments which offers the pyrometer user appropriate models to indicate, to record, to signal, to control or to perform these functions in any desired combination.

This new catalog contains a wealth of information which everyone who uses or specifies pyrometers will want. To receive a copy, write for Catalog N-33A, Leeds & Northrup Company, 4934 Stenton Avenue, Philadelphia, Pennsylvania.

* * * Announcement:

"The Genoms of *Triticum Timopheevi* Zhuk., *Secale cereale* L. and *Haynaldia villosa* Schur.," by Dontcho Kostoff.

Our attention has been recently drawn by the author to an unfortunate error in the article which appeared in the August Number of this Journal, under the title "The Genes of *Triticum Timopheevi* Zhuk., *Secale cereale* L. and *Haynaldia villosa* Schur." Throughout the text the word *genom* which occurred in the original article has been changed to *gene*. The author points out "a very serious mistake has been made in changing the word *genom* to *gene*. *Gene* is the hereditary unit while *genom* means all the *genes* together an organism has in its haploid set of chromosomes." As this change occurs throughout the text, we hasten to draw the attention of our readers to this most regrettable mistake."

Ed.

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We acknowledge with thanks receipt of the following:—

"Actualités Scientifiques et Industrielles," Nos. 330-342, 363-366, 373-374, 399-400.

"The Agricultural Gazette of New South Wales," Vol. XLVII, No. 11, November 1936.

"Journal of Agricultural Research," Vol. 53, Nos. 5 and 6, and Index to Vol. 52.

"The Philippine Agriculturist," Vol. XXV, No. 6, November 1936.

"The Allahabad Farmer," Vol. X, No. 6, November 1936.

"Journal of the Royal Society of Arts," Vol. LXXXIV, Nos. 4379-4382.

"Biochemical Journal," Vol. 30, No. 10, October 1936.

"Journal of the Indian Botanical Society," Vol. 15, Nos. 5 and 6, October and December 1936.

"Chemical Age," Vol. 35, Nos. 904-907.

"Journal of Chemical Physics," Vol. 4, No. 11, November 1936.

"Journal of the Indian Chemical Society," Vol. 13, No. 9, September 1936.

"Berichte der Deutschen Chemischen Gesellschaft," Vol. 69, No. 11.

"Journal de Chimie Physique," Vol. 33, No. 10.

"Experimental Station Record," Vol. 75, No. 4, October 1936.

"Transactions of the Faraday Society," Vol. XXXII, Part II, November 1936.

"Indian Forester," Vol. LXII, No. 12, December 1936.

"Forschungen und Fortschritte," Vol. 12, Nos. 31-33.

Government of India Publications:—

"Monthly Statistics of Production of Certain Selected Industries of India" (Department of Commercial Intelligence and Statistics), No. 5 of 1936-37, August 1936.

"Diseases of Sugarcane and Methods for their Control," by L. S. Subramaniam, Bulletin No. 10, 1936. (Imperial Council of Agricultural Research.)

"Indian Meteorological Department Scientific Notes: A Report on the Administration of the Meteorological Department to the Government of India in 1935-36."

"Indian Trade Journal," Vol. CXXXIII, Nos. 1586-1589.

"The Calcutta Medical Journal," Vol. 31, Nos. 4 and 5, October and November 1936.

"Medico-Surgical Suggestions," Vol. 5, No. 11, November 1936.

"Review of Applied Mycology," Vol. 15, No. 10, October 1936.

"Forest Research in India," 1935-36. Part I. The Forest Research Institute.

"Annual Report of the London Shellac Research Bureau for the year 1935-36."

"Carnegie Institution of Washington Bulletin," Vol. IV, No. 8.

"Journal of the American Museum of Natural History," Vol. 38, No. 4, November 1936.

"Nature," Vol. 138, Nos. 3495-3498.

"Journal of Nutrition," Vol. 12, No. 4, October 1936.

"Science and Culture," Vol. II, No. 5, November 1936.

"Arkiv fur Zoologie," Vol. 28, No. 3, 1936; Vol. 28 A, No. 17, 1936.

Catalogues:

"Mitteilungen über Neuerscheinungen und Fortsetzungen, 1936," No. 5 (Messrs. Verlag Von Gustav Fischer in Jena).

"Books on Astronomy and Mathematics" (Messrs. Wheldon & Wesley, Ltd., London).

ACADEMIES AND SOCIETIES.

Indian Academy of Sciences:

October 1936. SECTION A.—B. L. GULATEE: *On the Variation of Latitude at Dehra Dun.*—The diurnal and annual terms in the variation of latitude are discussed. K. C. SUBRAMANIAM: *The Diamagnetism of Some Metallic Halides.*—With zinc, cadmium and mercury halides, there is a general increase in susceptibility when the salts are dissolved in water or methyl alcohol. This is attributed to the release of deformation of the ions of the molecule by the action of the solvent to the extent of ionisation. C. S. Venkateswaran: *The Raman Spectra of Sulphur and Phosphorus. Part II.—Lattice Oscillations.*—An intense sharp line at 36 cm. for solid phosphorus and at 80 cm. for rhombic sulphur are attributed to lattice oscillations. P. NILAKANTAN: *The Magnetic Anisotropy of Rhombic Sulphur.*—The data are in general agreement with results of X-ray measurements. M. K. PARANJPE: *The Convection and Variation of Temperature near a Hot Surface. Part I.—The Dust-Free or Dark Layer in Relation to Surface Convection.*—The formation of a dark or dust-free layer in a space between a hot surface (above) and a cold surface (below), is discussed. B. S. MADHAVA RAO: *Semi-Vectors in Born's Field Theory.* RAM KUMAR BOUNTRA AND KANTILAL C. PANDYA: *The Acid Content of Some of Our Vegetable Food-stuffs. Part II.—Amchur or Mangifera Indica.*—Three organic acids, tartaric, citric, oxalic, have been found in proportion 6, 4, and 1% respectively. CH. V. JOGARAO: *An Optical Investigation of Some Indian Oils. II.—Raman Effect.* V. T. CHIPLONKAR: *The Relative Efficiencies of the Multistage and One Stage Process in the Electrolytic Preparations of Heavy Water.*—Compared

with a single stage process, there will be no loss in efficiency if fresh-water is added continuously. R. R. KHANOLKAR, P. M. BARVE AND B. N. DESAI: *Condition of Sparingly Soluble Substances in Gels. Part I.—Silver Chromate in Gelatine.*—Changes in the conductivity and colour of Silver Chromate in gelatine solution have been studied. G. F. MANKODI, P. M. BARVE AND B. N. DESAI: *Importance of Dialysis in the Study of Colloids. Part III.—Colloidal Prussian Blue.*—The changes in cataphoretic speed and viscosity under different conditions show that neither the views of Dhar nor of V. Smoluchowski can individually explain the results. HANS RAJ LUTHRA AND DR. V. I. VAIDHIANATHAN: *Uplift Pressures under Weirs with Three Sheet Piles.*—Working results have been obtained for the design of weirs with three sheet piles.

November 1936. — SECTION A. — B. N. ACHARYA, A. M. PATEL and B. N. DESAI: *Conductivity and Cataphoretic Speed Measurements of Benzopurpurin AB, Congo Red and Sky Blue F.F.*—The changes observed with concentration are explained on the basis of aggregation of the dye ions to form micelles. B. Y. OKE: *Lattice-Theory of Alkaline Earth Carbonates. Part II.—Elasticity Constants of Aragonite. Part III.—Lattice Energy of the Crystals of Calcite and Its Thermo-Chemical Applications.* B. R. SETH: *On the Flexure of a Hollow Shaft—I.* P. NILAKANTAN: *Magnetic Anisotropy of Naturally Occurring Substances. II. Molluscan Shells.*—The crystalline character of the elements as well as their regularity of arrangement have been established and the probable orientations deduced. E. GORA: *On Fermi's Theory of β -Decay.* S. PARTHASARATHY: *The Visibility of Ultrasonic*