

Certain readers would no doubt deplore the absence of any facts relating to experimental embryology but there is much to be said in favour of the author's attitude to confine the work to the morphological side because, as rightly indicated by him, students of elementary embryology are not well enough prepared to understand experimental data until they have acquired a sound knowledge of the morphological side of development. The absence of references to important original sources (except in the case of borrowed illustrations) which could be pursued by the serious student will also be regretted by many readers. But these cannot be put down as defects in the case of a treatise primarily intended for the classroom where it is sure to become a popular and essential aid for learning vertebrate embryology.

N. K. PANIKKAR.

**A Catalogue of Insecticides and Fungicides, Volume I. Chemical Insecticides.** Compiled by Donald E. H. Frear, Ph.D. Published by Waltham, Mass, U.S.A. The Chronica Botanica Co., Calcutta, Bombay and Madras; Macmillan & Co., Ltd., 1947. Pp. 203. Price \$ 6.50.

An attempt has been made by Dr. Frear in this Catalogue to list and classify upto January,

1944, all known chemical compounds (about 10,000), which may possess insecticidal or fungicidal properties. A new classification based on a 'Code number' system has been devised by the compiler. Organic Compounds possessing a similarity of chemical build are listed under the same constituent group. There are sixteen such constituent organic groups, which are arranged in the order of decreasing complexity. The inorganic compounds are divided under the main heads of cations and anions, and the listing under each head is done in an alphabetical order.

Under the referred code number, the name and the empirical formula of the compound is given and side by side its degree of toxicity to particular insects has also been mentioned.

This catalogue is the outcome of painstaking and arduous work and should be regarded as an indispensable reference book for such as are engaged in toxicological or fungicidal work.

This great work of compilation does not include references to many other recently discovered organic chemical compounds. Since the World War II, tremendous advancement has been made in the chemistry and toxicology of organic insecticides and in order to make this Catalogue complete, their inclusion is absolutely necessary in a supplementary list. It is trusted this will be done by the author before long.

A. S. SRIVASTAVA.

## SCIENCE NOTES AND NEWS

### The Indian Association for the Cultivation of Science (1876-1948).

The report on the working of the Indian Association for the Cultivation of Science is made in three parts.

Part I traces the history of the Association from its inception in 1876 at No. 210, Bowbazaar Street, Calcutta, due to the zeal and endeavour of Dr. Mahendra Lal Sarcar to its present dimensions. The large share played by public munificence and Government patronage is acknowledged.

Part II describes how the activities of the Association of the early days, confined mainly to the dissemination of scientific knowledge through popular lectures changed gradually to the spearhead of research so as to take a momentous turn in 1907 when Sir (then Mr.) C. V. Raman joined it as a member and began his investigations as a regular part-time honorary research worker.

The research activities of the Association between 1907 and 1933 under the dynamic leadership of Professor Raman are described in great detail, with a picture of the first spectrogram obtained by him in 1928 of the now famous Raman Effect. This is followed by an account of the great progress made under Sir (then Mr.) K. S. Krishnan as Mahendra Lal Sarcar Professor between 1934-42,

The section concludes with an account of the research work under Professor K. Banerjee as Mahendra Lal Sarcar Professor between 1943-48.

Part III is in the nature of an appeal to the public for funds, to enable the Association to carry out its schemes of development.

The report is profusely illustrated with photos of the founder, royal patrons and distinguished members and Professors.

### Department of Scientific Research

The Government of India have set up with effect from June 1, 1948, a Department of Scientific Research. The Department will work under the Prime Minister. It will take over the Council of Scientific and Industrial Research, the Board of Atomic Research and such other functions of the Director, Scientific and Industrial Research which the Government might decide to transfer to it.

It will also co-ordinate the scientific activities of the other Ministries. In its co-ordination work, the Department will be assisted by a Co-ordination Committee consisting of prominent scientists.

### National Metallurgical Laboratory

Dr. George Sachs, Director, Research Laboratory for Mechanical Metallurgy and Professor



of Physical Metallurgy, Case Institute of Technology, Cleveland, Ohio, has been appointed Director, National Metallurgical Laboratory, Jamshedpur. He will assume his new duties on October 1, 1948, although he is now in the part-time service of the Council of Scientific and Industrial Research helping Dr. G. P. Contractor securing equipment and visiting important centres of Research in Europe before his return to India.

The National Metallurgical Laboratory is one of five new governmental research laboratories recently established by the Indian Council for Research and Development, the others being the National Chemical Laboratory, the National Physical Laboratory, a Fuel Research Station, and a Central Glass and Ceramics Research Institutes.

The National Metallurgical Laboratory will cover all aspects of metallurgical research, both fundamental and applied, and will also carry out research work on ores, minerals and refractories. Close co-operation with the modern research laboratory of the nearby Tata Iron and Steel Company will be established. Special consideration will also be given to research on non-ferrous metals such as copper, aluminium, manganese, zinc, titanium and beryllium, of which India has abundant ores, and for the production of which large power resources are available. In the initial stages of the work of the laboratory, the special and urgent needs of India will require particular attention. The N.M.L. therefore includes a well-equipped Technological Section which will permit establishing and operating pilot plants. On long-term research of a fundamental nature, the various National Research Laboratories will work in close co-operation.

It is planned at present to provide 85,200 square feet of laboratories. Ample space is also available for future extension. The main building will have a front of 480 feet. Detailed information may be secured from a pamphlet "Revised Scheme for the Establishment of the National Metallurgical Laboratory, published by the Council of Scientific and Industrial Research, Delhi, 1946.

### Atomic Energy Commission

It has just been officially announced that the Government of India has decided to set up an "Atomic Energy Commission" under the distinguished chairmanship of Dr. H. J. Bhabha, Director, Tata Institute of Fundamental Research, Bombay. The commission will be entrusted with the task of surveying the atomic mineral resources of the Dominion and with the responsibility of promoting research in Institutes and Universities. Special steps are expected to be taken to encourage advanced teaching and research in Nuclear Physics in the Universities.

### Radio-Cobalt as Cancer Cure

Radio-active cobalt may in a few years replace radium in the treatment of cancer, according to Sir John Cockcroft, Director of Britain's Atomic Energy Research Establishment at Harwell.

Apart from the obvious advantages of cheapness and relatively unlimited availability, radio-cobalt—as it is called—may prove less potentially dangerous than radium when applied to the human body. Its period of intense radio-activity is limited and measurable. But at least another year will pass before there is enough radio-cobalt for anything except research.

When Harwell's new uranium pile, on which preliminary tests began a few weeks ago, is in full operation, it is expected to produce all the radio-active material required in Britain.

### Refrigeration of Foods

Over 60 new cold storage plants for the preservation of seed-potatoes and perishable foodstuffs like fruits, vegetables, milk products, eggs, meat and fish and a number of ice manufacturing plants are likely to be installed in India before the next hot season sets in. Located at about 40 different centres in various parts of the country, these plants will have a capacity varying from 3,000 maunds to 30,000 maunds for a single unit, with a total capacity of over a million and a quarter maunds. It will then be possible to preserve enormous quantities of perishable and to spread out their supply over the whole year, if necessary. At present the country has only about a dozen such plants for civilian use.

### Popularising Refrigeration

Every year the country suffers heavy losses on account of deterioration in the quality of perishable foodstuffs before marketing or on account of these having to be sold at uneconomical prices in glut markets. "Refrigerated warehouses," as the cold storage plants are known in Western countries, are believed to be the best means known to science for converting these heavy losses into profits. It is estimated that these losses at present in the case, for instance, of seed-potatoes are as high as 50 per cent. Cold storage plants, experts claim, can help to bring down this loss to something like five per cent.

The Central Ministry of Agriculture, which has a special branch called the Refrigeration Development Division, is taking keen interest in popularising the idea of preservation of foodstuffs through refrigeration among the growers with a view ultimately to augment the total availability of foodstuffs in the country all the year round and at the same time protecting the growers from avoidable losses.

### International Commission on Large Dams

A Delegation of eight Indian engineers under the leadership of Mr. A. N. Khosla, Chairman, Central Waterpower, Irrigation and Navigation Commission, New Delhi, is shortly leaving for Sweden to participate in the third Plenary Session of the International Commission on Large Dams. Mr. Khosla is also the Vice-President of the International Commission. The delegation will include Rai Bahadur P. C. Aggarwal, Chief Engineer, United Provinces,



Mr. S. R. Krishnamurthi of Madras, Professor M. S. Thacker, Head of the Power Engineering Branch of the Indian Institute of Science, Bangalore, and officers of other administrations. Mr. N. D. Gulhati, Secretary, Central Board of Irrigation, Simla, will be the Secretary to the delegation. This is the first meeting of the International Commission on Large Dams after the last war, and apart from participating in the discussions at the Plenary Session all the delegates to the meeting will be taken round hydro-electric and industrial works in Sweden.

### Forest Ranger College at Dehra Dun

The Quinquennial Report of the Indian Forest Ranger College for the period 1941-46 which has just been published reveals that the College has expanded from its initial strength of 34 to one of 113 in 1945-46. It may be of interest to know that the College provides a two-year course in Sylviculture, Forest Management, Protection, Forest Mensuration, Forest Utilization, Forest Law and allied subjects such as, Forest Botany, Forest Pathology, Mycology, Forest Entomology, Geology, Soil Science and Forest Surveying, in addition to intensive practical training and educational tours. Admission is strictly limited to students who have passed out the Intermediate Examination in Science of an Indian University and deputed by Provinces and States with guarantee of employment on the successful completion of the course.

### Royal College of Veterinary Surgeons

The Royal College of Veterinary Surgeons, London, has agreed to grant certain concessions to graduates and licentiates of Indian Veterinary Schools who went to take the diploma of M.R.C.V.S. of that College.

Holders of veterinary degrees of the Universities of Agra, Bombay, Madras and Nagpur will be required to take the final examination plus one extra subject after a minimum of two years' attendance at an affiliated veterinary school, but some schools may require a little longer than two years in order to fit in with their courses of instruction. Holders of the diploma of Madras Veterinary College (G.M.V.C.), if in possession of an Inter B.Sc., will be granted exemption from the first professional examination in the diploma of M.R.C.V.S.

The Royal College is also taking steps to have its charters altered in such a way as to enable the graduates of recognised universities to take its post-graduate diplomas which at the moment are reserved exclusively to persons who are members of the College.

When the Veterinary Surgeons Bill, which is now before Parliament, becomes law, there will be increased facilities for post-graduate education at various universities in the United Kingdom, and in addition two new veterinary schools will be created at Bristol and Cam-

bridge which will help to alleviate the present difficult places at veterinary schools.

### Substitute for Linseed Oil

Owing to the continually rising price of linseed oil British chemists have been forced to look for substitutes. Besides such natural alternatives as tung and rubber seed oil, a British firm has been experimenting with mineral-based oils of similar characteristics.

These experiments have now resulted in the discovery that styrene products can be used to replace linseed oil in a wide range of products. A plant is being erected for the manufacture of styrene from coal and when this is in full operation the price of the new oil may be as low as Rs. 304-12 a ton. The latest price for linseed oil from the Argentine is Rs. 2,662 a ton.

### Geomagnetic Storms

Some details of the Geomagnetic Storms as recorded at the Alibag Magnetic Observatory are given in the following table in which  $t_0$ ,  $t$  represent the time (I.S.T.) of commencement of the disturbance and its intense phase respectively and  $T$  the duration of the intense phase expressed in hours. The ranges in the three different elements ( $D$ ,  $H$  and  $V$ ) of the earth's magnetic field have also been given,  $D$ , in minutes of arc,  $H$  and  $V$  in  $\gamma$  where  $1\gamma = 10^{-5}$  gauss. The maximum  $k$ -indices ( $K_M$ ) recorded during the disturbances have also been given.

Date	$t_0$	$t$	$T$	Range			$K_M$	Nature of commencement
				$D$	$H$	$V$		
April 6-7	h. m.	h. m.	hrs.	min.	$\gamma$	$\gamma$		
April 6-7	09 28	22 19	5	4.4	155	54	5	Sudden
April 21-22	04 36	07 06	9	7.7	167	88	5	Sudden
								(Indistinct)
May 9	12 52	12 52	4½	5.1	185	89	5	Sudden
May 15-17	04 53	04 53	13	7.4	159	84	4	Sudden

### Modern Arboretum

Dr. Frans Verdoorn, Managing Editor of *Chronica Botanica* spoke on June 17, before the southern California Botanical Society, at the Rancho Santa Anita, near Pasadena, on "The Modern Arboretum, A Center of Regional, Botanical and Horticultural Synthesis". Dr. F. W. Went, Professor of Biology at the California Institute of Technology, and Chairman of the Trustees of the Los Angeles County Arboretum Foundation, outlined the plans of this foundation which will develop a modern 114 acre arboretum, with educational, horticultural and research departments, at the site of the historical Reid and Baldwin estates at the Rancho Santo Anita.