

SCIENCE NOTES.

The Goggle-eyed Fish or Mud-Skipper.—At the Ordinary Monthly Meeting of the Royal Asiatic Society of Bengal held at Calcutta, on Monday the 4th July, Dr. Bains Prasad exhibited the habitat group of the goggle-eyed fish or mud-skipper *Periophthalmodon schlosseri* (Pallas).

“Gobies of the general *Periophthalmodon* and *Periophthalmus* represent in their habits, two of the most terrestrial types among fishes. They frequent the sea-shores and estuarine mud-flats of the Indo-Pacific Region, and are sometimes found considerably above the water-level, on aerial roots of plants and other objects that may be present in their habitat.

“The mud-skipper breathe atmospheric air direct, and their skin is especially modified for conserving moisture. Their eyes are well adapted for a sharp aerial vision, and they use their highly muscular pectoral fins for locomotion on land. They feed on small animals that are left stranded on the mud-flats by the receding tides.

“The exhibit shows a portion of the foreshore of Matlah at Port Canning. The dwarf Sundari shrubs (*Avicennia officinalis* L.) with their aerial roots form a characteristic feature of the habitat. The other noteworthy inhabitants of the mud-flats or of the associated saline pools are the Crabs, *Varuna litterata* (Fabricius) and *Gelasimus annulipes* Laterille and molluscs of the family Cerithiidae”.

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The Statistical Year-Book for the Year Fasli 1344 (1935 A.D.) of H.E.H. the Nizam's Government, Hyderabad.—By Mazhar Husain, Director of Statistics.—1937, pp. 800. Price Rs. 5.—H.E.H. the Nizam's Government deserve to be congratulated on the publication of this *Year-Book* which brings together in one compendious volume the statistics which heretofore were being published as parts of the reports of the different departments of Governments. The convenience of such a handy volume is obvious and we should heartily commend this idea for adoption by other Governments in India. The *Year-Book* comprises both abstract and detailed statistics of the area and population, revenue and expenditure under land revenue, forests, customs, excise, mines, mints, post offices, public works and railways, administrative statistical informations relating to the military, police, education, vital statistics, medical and other departments, agricultural statistics including meteorology, crop forecasts and live-stock and statistics of trade and industry including Banking and Co-operative Societies. Statistics are given for four years ending 1935, a feature which enables one to obtain an idea of the progress made from year to year. Special efforts are stated to have been made to make the statistics complete but in spite of such efforts the statistics are said to be incomplete. This and the fact that the present latest statistics themselves are quite three years old somewhat detract from the value of the publication. A useful feature of the agricultural statistics, we are glad to note, is the districtwar total yield of the different crops which are given side by side with the acreages. The book is a mine of

statistical information relating to the Hyderabad State brought together in a single volume.

A. K. Y.

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Solar Observatory, Kodaikanal.—Considerable increase in all forms of solar activity is recorded in the *Report* for 1937 of the Government of India Solar Observatory at Kodaikanal.

Compared with 1936 the mean daily numbers of sunspots showed an increase of 41 per cent. The number of new groups observed was 34 per cent. more than in 1936. There were no days on which the sun was found to be free from these spots.

Weather conditions were slightly more favourable for solar observations than during the previous year.

A further study of high dispersion spectrograms of the chromosphere and prominences without an eclipse has revealed the presence of oxygen in prominences.

Photometric work on the intensities and contours of selected Fraunhofer lines in the red has been continued with the grating spectrograph. Work on a systematic study of the line contours in different points of the sun's disc has been begun using a 13-foot prism spectrograph and monochromator constructed for the purpose.

The Observatory has continued to extend its co-operation in working out the programme of the International Astronomical Union and has been keeping in touch with the work of solar observatories abroad.

The measurements of the photographs of the total eclipse of the sun on 19th June, 1936, taken by the previous Director who was deputed by the Government of India to Japan for observing the eclipse, have been completed and the results have been published.

The *Report* contains a number of interesting details of a technical nature.

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The Indian Association for the Cultivation of Science.—The *Annual Report* of the Association for the year 1937, just issued, shows that during the year a number of investigations bearing on the magnetic studies on organic crystals, graphite and paramagnetic crystals, X-ray analysis of crystal structure, magnetic properties of mixed Tutton salts and the directional properties in the fluorescence of aromatic molecules, were carried out under the auspices of the Association by Prof. K. S. Krishnan, Mahendralal Sircar Professor of Physics, and his associates.

43 Papers were published in the *Indian Journal of Physics and Proceedings of the Indian Association for the Cultivation of Science*, during the year.

The Government of India renewed their annual grant of Rs. 18,000 for the year 1937-38, and have generously restored the 10 per cent. cut for the year 1938-39. During the year, Sir James H. Jeans, D.Sc., F.R.S., Dr. F. W. Aston, D.Sc., F.R.S., Sir Arthur Hill, D.Sc., F.R.S., Sir Lewis L. Fermor, D.Sc., F.R.S., and Prof. J. E. Lennard Jones, D.Sc., F.R.S., addressed the Association. Mr. Santilal Banerjee, M.Sc., a research scholar of this Association, has been awarded the

Dr. Sircar Research Medal and also the Jatindra Chandra Prize. The Nikunja Garabini Prize has been awarded to Mr. Asutosh Mookerjee, M.Sc., a research worker of the Association.

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The Industrial and News Edition of the *Journal of the Indian Chemical Society*, Vol. I, Nos. 1 and 2 published under the joint auspices of the Indian Chemical Society and the Institution of Chemists (India), has just reached our hands. The number before us covers 82 pages and contains original contributions bearing on lac, textiles, coal and food industries. The finding that the kernel fats and oils from the seeds of the *Lauracea* family contain 70-96 per cent. of lauric acid, has rendered possible the use of these oils as raw materials in the manufacture of sodium lauryl sulphate, which finds extensive application as a detergent. A valuable contribution bearing on this subject has been contributed by Dr. S. V. Puntambekar. From the results of the chemical examination of 8 samples of Indian coal, Roy, De and Guha suggest that the coals from the series classified as Desherghur group, Poniat group, Kajore-Jambad group and Saltore seam are fairly suitable for low temperature carbonisation, as the yields of tar obtained per ton of coal, are considerable. The other contributions include "Bleaching of Lac," by N. N. Murthy, "Mineral Elements in Nutrition," by U. P. Basu, "Estimation of Dye Absorption of Indian Cottons" by Nazir Ahmad and D. L. Sen, "Indian Coal for the Manufacture of White Portland Cement" by M. R. Mandlekar, "Oxycellulose and Hydrocellulose" by R. B. Forster, S. M. Kaji and K. Venkataraman and a "Note on the Products from Citrus Fruits" by J. L. Sarin. Other features of the *Journal* include, Technical and Research Notes, Notes and News, Reviews and Indian Patent Literature. The get-up of the *Journal* is good, and if the present standard is maintained, its future is assured.

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A review of the development and progress in the plastics industry with brief descriptions of natural and synthetic binders, moulding equipment and the production and uses of plastics has recently been published. ("Plastics," by S. Ranganathan and H. K. Sen, Reprinted for the *Proceedings of the Institution of Chemists, India*). There are a number of plates illustrating the machinery and finished articles.

A perusal of this pamphlet will help even a layman to get an idea of the present-day plastics.

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The Morgan Rotary Retort.—The report of the test by the Director of Fuel Research, on the Morgan Rotary Retort installed at Rodridge Hall, near Wingate (County Durham), has just been issued (H. M. Stationery Office, London, pp. iv + 22, price 10 sh. net, post free). "The Department of Scientific and Industrial Research has been empowered by the Government to test low-temperature carbonisation plants at the Public expense, subject to certain conditions. The object of these tests is to place in the hands of those interested, accurate technical data on the quality and quantity of the yields, the throughput of the plant, the working temperatures, etc.,

and the general ease of working. No attempt is made to pronounce on the commercial possibilities of the plant, for these can only be judged after working a plant under a steady load for a long period and in the light of complete knowledge of local conditions of prices, markets and labour costs.

The present report, the sixteenth of the series, describes a test carried out by the Staff from the Fuel Research Station on the Morgan Rotary Retort installed at Rodridge Hall, near Wingate, Co. Durham. The plant is of intermediate size, dealing with a throughput of about 4-6 tons of coal per day. Although not intended for commercial operation, it is considered to be large enough to yield data capable of being interpreted directly in terms of a commercial-scale unit dealing with about 30 tons per day. The process consists in carbonising the coal by mixing it in a rotating retort with a charge of red-hot coke.

Following a detailed account of the design and operation of the plant, the report describes the arrangements made for measuring and sampling the raw materials and products, and for conducting the test. Each product was subjected to a detailed examination, the results of which are given, and the report concludes with some general observations on the operation of the plant and of the difficulties encountered."

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The Mount Everest Expedition.—The fifth attempt to reach the Everest was abandoned owing to heavy snow on the Himalayas. The Expedition reached a height of 27,200 feet, *via* the west side of Rongbuk.

Full details of the progress of the Expedition are available from the despatches of Mr. Tilman, the leader of the Expedition, to the "*Hindu*" (July 4th). The party left Gongtok on March 4, reached Rongbuk on April 6 and occupied the base camp on April 10. After reaching Camp III on April 25, some members of the party explored the North Col Slopes. The party had to descend to Kharta (11,000 ft.) and spend a few days there as the members were suffering from coughs, colds and sore throats. Camp III was again reached on May 18, and Camp IV on May 24. Camp V was established on 6th June and on the next day the expeditionists reached the next camp (27,200 ft.). Attempts to proceed higher were frustrated due to thigh-deep powder snow on the edges. A second futile attempt was made to climb the heights on the 11th. The Expedition had, however, the distinction of reaching 27,300 feet under monsoon conditions, a record, of which the veteran mountaineers can be proud.

The suggestion that a small party of mountaineers should make an attempt every year in May has been made by Mr. Tilman, and the hope expressed, that a favourable season will occur, sooner or later, which will enable the conquest of the Everest.

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Vitamin Nomenclature.—At the Fifth Annual Meeting of the American Institute of Nutrition, held in Baltimore on March 30, 1938, the Committee on Vitamin Nomenclature reported:—

"The term Vitamin F has been used in various ways in the past but recently has come into

widespread use in promoting the sale of linseed oil and products alleged to contain the so-called 'essential fatty acids'. A group of biochemists interested in fat metabolism gave consideration to this matter during our last meeting. They forwarded to this Committee their recommendation that the term 'Vitamin F' should not be used in referring to linoleic or linolenic acids, or the so-called 'essential fatty acids'. Your committee is in accord with these views. It is recommended that the term 'Vitamin F' should not be used in referring to linoleic or linolenic acids or any fatty acids or mixtures of fatty acids".

The term **Riboflavin** was formally adopted for the compound identified as 6, 7 dimethyl-9 (d-ribityl) isoalloxazine in place of the term Vitamin B₂ or Vitamin G. The term Riboflavin was approved at the last session but final adoption was withheld until the opinion of other groups had been ascertained. No definite objections having been received for this proposal, the term Riboflavin was formally adopted.

Vitamin E.—In a communication appearing in *Nature* (June 11, 1938, p. 1057) P. Karrer and Co-workers have reported the synthesis of α -Tocopherol (Vitamin E). The reaction of phytol bromide with trimethyl-hydroquinone gives the racemic form of α -tocopherol, which can be resolved into its optically active forms by means of brom-camphor sulphonic acid. Biological tests with this synthetic product gave excellent vitamin E activity.

Professor B. S. Madhava Rao, D.Sc.—We congratulate Prof. B. S. Madhava Rao on the recent academic distinction of the D.Sc. degree being conferred upon him by the Calcutta University. Prof. Madhava Rao's contributions in the field of Pure and Applied Mathematics are well known and most of them have received the warmest acclamation of European and American scientists. The University of Mysore, to which Prof. Madhava Rao and Dr. Ramaswamy belong, must be gratified that two of their young professors have received academic recognition of their researches.

Dr. K. L. Ramaswamy, D.Sc.—The degree of Doctor of Science, has been conferred on Mr. K. L. Ramaswamy, M.Sc., by the Madras University, in consideration of his thesis entitled "Studies in the Electrical and Optical Polarisabilities of Gases and Vapours". Dr. Ramaswamy is a student of Prof. H. E. Watson, and several papers on dielectric constants of gases either by himself or in collaboration with Prof. Watson, have appeared in the *Proceedings of the Royal Society*. We have pleasure in offering our felicitations to him on the distinction conferred on him.

Dr. L.S. Ramaswamy, D.Sc.—We have pleasure in offering our felicitations to Dr. L. S. Ramaswamy, Department of Zoology, University of Mysore, on his receiving the D.Sc. degree of the Madras University. Dr. Ramaswamy is well-known as a keen and industrious research worker and his numerous papers published both in India and abroad have won for him the warm appreciation of those competent to judge his work. The

award of the D.Sc. degree was made on his thesis "Contributions to Our Knowledge of the Cranaeal Osteology of Anura". We hope that Dr. Ramaswamy, who is still young and energetic, will further extend his researches and receive brighter honours.

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Dr. R. S. Krishnan, D.Sc., a research student attached to the Raman Physics Laboratory of the Indian Institute of Science, has been awarded the 1851 Exhibition Scholarship for prosecution of further investigations in England. Dr. R. S. Krishnan's published works have already attracted great attention, and recently he received the D.Sc. degree of the Madras University. This is the second time that the Exhibition Scholarship comes to the Physics Laboratory of the Indian Institute of Science. Mr. N. S. Nagendra Nath was the first recipient of the Scholarship. His outstanding work received wide-spread recognition very early and his researches in the University of Cambridge have earned for him the reputation of being one of the foremost Theoretical Physicists from India. While congratulating Dr. Krishnan, we express the hope that he, in conjunction with Mr. Nagendra Nath will, by their researches, justify the demand of India for more scholarships being awarded to deserving young scientists. The award of the Scholarship on two distinct occasions to the same department is certainly a unique feature in the history of the Indian Institute of Science.

The Science Scholarships Committee of the Royal Commission for the Exhibition of 1851, has, on the recommendation of the University of Madras, awarded a similar Scholarship to **Dr. N. K. Panikkar, M.A., D.Sc.**, a distinguished graduate of the Madras University for research in Zoology at the Marine Biological Laboratory at Plymouth.

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Benares Hindu University.—According to a *United Press* message, H. H. the Maharaja of Balarampur has donated Rs. 75,000 to the University.

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University of Travancore.—Diploma courses in Textile Technology and Textile Chemistry and certificate courses in (a) weaving, (b) bleaching, dyeing, printing and finishing, (c) embroidery, needlework and knitting and (d) carpet-making, coir-weaving, have been started from the commencement of the current academic year. The Diploma course in Textile Technology and Textile Chemistry extends over 3 years.

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Announcements.

Prize for Improvements in Agricultural Implements or Machines.—In order to encourage inventors to improve existing implements of cultivation and to design new implements and machines better suited to Punjab conditions and within the power of the average cultivator to purchase, the Punjab Government have decided to institute a scheme of prizes. Each year during the scheme, applications will be invited for a suitable design of a particular improved agricultural implement or machine. These prizes

will be open to all irrespective of nationality. Government servants can compete subject to the consent of the Government under whom they are employed.

During the current year a prize of Rs. 3,000 is offered for a suitable design for a bullock-drawn cultivator. The implement must be simple in design, cheap in cost, so as to be within the purchasing power of an average cultivator; capable of repairs by an average village blacksmith; efficient in stirring up fallow land quickly after rain or irrigation, in order to conserve the maximum amount of moisture in the soil, and suitable for the inter-cultivation of crops sown in lines.

The cost of manufacturing the cultivator must not exceed Rs. 15.

Competitors must submit applications setting forth the advantages claimed for their respective designs and accompanied by scale drawings and specifications, which must be sufficiently complete in all details to enable a manufacturer to make the implement.

The applications will be examined by an Expert Committee, which will select for manufacture for trial purposes designs which hold promise of sufficient merit. Applicants whose designs are so selected will be required to deliver the implement in complete working order at Lyallpur or elsewhere in the Punjab within one month of receipt of instructions. Actual pocket expenses up to a maximum of Rs. 50 will be allowed. The award of the Committee will be final.

The entry, for which the prize is awarded, will become the sole property of the Punjab Government, which also reserves the right to postpone or withhold the award of the prize if no entry of sufficient merit is received.

Applications, complete in all respects, must reach the Director of Agriculture, Punjab, Lahore, by 31st October 1938, at the latest.

The Third International Congress for the Study of Goitre will be held on September 13-14 at Washington, when the following subjects will be discussed: (1) endemic goitre, cretinism and myxœdema; (2) thyroid gland and metabolism, nutrition and endocrine glands; (3) hyperthyroidism. Further information can be obtained from Dr. Allen Graham, 2020 East 92nd Street, Cleveland, Ohio, U.S.A.

The Sixteenth International Congress of Physiology will be held at Zurich on August 14-18 under the presidency of Prof. W. R. Hess. It will consist of six sections devoted respectively to general and comparative physiology, biophysics, bio-chemistry, applied physiology (work, sport and aviation), psychophysiology and pharmacology. Further information can be obtained from Prof. E. Rottlin, Sonnenweg 6, Basel, Switzerland.

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The attention of our readers is invited to the following advertisements appearing in this issue of *Current Science*:-

1. Director, Indian Institute of Science, Bangalore. Salary: not exceeding Rs. 2,000

per mensem. Last date for application: 15th September 1938.

2. Professor of Chemical Technology, the University of Bombay. Salary: Rs. 800-50-1,000. Last date for application: 15th August 1938.

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We acknowledge with thanks, receipt of the following:-

"Forschungen und Fortschritte," Vol. 14, Nos. 17-18.

"Journal of the Mining and Geological Institute of India," Vol. 34, No. 1.

"League of Nations; Bulletin of Health Organisation," Vol. 7, No. 1.

"Bulletin of the American Meteorological Society," Vol. 19, Nos. 2, 3 and 4.

"Review of Applied Mycology," Vol. 17, No. 5.

"American Museum of Natural History," Vol. 41, No. 5; Vol. 42, No. 1.

"Nature," Vol. 141, Nos. 3573-81.

"Journal of Nutrition," Vol. 15, Nos. 5 and 6.

"Research and Progress," Vol. 4, No. 3.

"Canadian Journal of Research," Vol. 16, Nos. 4 and 5, A, B, C and D, and Index to Vols. 1-12.

"Journal of Research" (National Bureau of Standards), Vol. 20, No. 1, and Index to Vol. 18.

"Sky," Vol. 2, Nos. 7 and 8.

"The Indian Trade Journal," Vol. 129, Nos. 1668-72.

"Bulletin of the Patna Science College Philosophical Society," No. 8.

"Agricultural Gazette of New South Wales," Vol. 49, No. 6.

"Journal of Agricultural Research," Vol. 56, Nos. 5-7.

"Monthly Bulletin of Agricultural Science and Practice," Vol. 29, No. 5.

"Agriculture and Live-stock in India," Vol. 8, No. 3.

"The Philippine Agriculturist," Vol. 27, No. 1.

"Journal of the Royal Society of Arts," Vol. 86, Nos. 4462-65.

"Journal of the Indian Botanical Society," Vol. 17, Nos. 2-3.

"Chemical Age," Vol. 38, Nos. 987-990.

"Journal of Chemical Physics," Vol. 6, No. 6.

"Journal of the Indian Chemical Society," Vol. 15, No. 4.

"Berichte der Deutschen, Chemischen Gesellschaft," Vol. 71, Nos. 5-6.

"Journal de Chemie Physique," Vol. 35, Nos. 3-4.

"Experiment Station Record," Vol. 78, No. 5.

"Transactions of the Faraday Society," Vol. 34, No. 206.

"Indian Forester," Vol. 64, No. 7.

"University of Illinois Bulletin," Vol. 35, Nos. 52 and 55.

"Medico-Surgical Suggestions," Vol. 7, Nos. 4, 5 and 6.

"Calcutta Medical Journal," Vol. 33, No. 6; and Vol. 34, No. 1.

"Indian Journal of Venereal Diseases," Vol. 4, No. 2.

"Indian Journal of Veterinary Science and Animal Husbandry," Vol. 8, Pt. II.