in animals. His views were received with scorn in Europe but by 1880 his intensive microscopical investigations and his inducement of the disease in healthy pears by inoculation confirmed his announcement as beyond all scorn and doubt. His prediction that many mysterious diseases such as mosaic blight would prove to be bacterial had been later confirmed. His pathological investigations included such important crop diseases as ear rot of corn, potato scab, blackberry rust, peach yellows and bitter of apples. His last work was an attempt to cultivate the beneficial bacteria of the soil.

Burrill died April 14, 1916.

ASTRONOMICAL NOTES

A Lunar Eclipse.—On May 3, will occur a total eclipse of the moon, visible in India. The circumstances of the eclipse are as follows:

Moon enters umbra	6h	58m	p.m.
Beginning of total eclipse	8	10	,,
Middle of eclipse	8	41	,,
End of total eclipse	9	13	,,
Moon leaves umbra	10	25	,,

The times are given in Indian Standard Time. The magnitude of the eclipse is 1·182, taking the moon's diameter as unit.

Planets during May 1939.—Both Mercury and Venus will continue to be visible as morning stars; the former reaches greatest western elongation (26° 55′) on May 1. Venus is slowly getting closer to the sun and becoming fainter. On May 17, the planet will be in conjunction with Saturn. Mars which will be on the meridian about an hour and a half before sunrise, is favourably situated for observation during the late hours of the night. It is getting brighter, the stellar magnitude increasing from −0·2 to −1·1 in the course of the month.

The major planets Jupiter and Saturn will also be visible as morning stars. The ring eclipse of Saturn is gradually widening the angular dimensions of the major and minor axes being 36″·7 and 9″·0 respectively. Uranus will be in conjunction with the Sun on May 9.

Comets.—Information has been received (U.A.I. Circular 752) of the discovery of a periodic comet by Vaisala on March 14, in the constellation Leo. The object was diffuse without central condensation or nucleus, and very faint, of magnitude 15. The period is stated to be approximately ten years.

It is announced that Jeffers at the Lick Observatory, has re-discovered comet Pons-Winnecke on March 17, very near the computed position. At the time, it was a faint object, moving in a north-easterly direction in the constellation Bootes. The ephemeris indicates that the comet will increase considerably in brightness in April and May. At the last apparition it was bright enough to be visible with the naked eye for a number of days.

Comet Kozik-Peltier (1939 a) has been well observed. It has now moved far south and become very faint.

T. P. B.

SCIENCE NOTES AND NEWS

Prof. Max Born, Professor of Natural Philosophy, University of Edinburgh, has been elected this year a Fellow of the Royal Society.

Prof. Born is distinguished for his researches in many branches of Mathematical Physics and his recent researches on the New Field Theory have attracted considerable attention. He was associated with the Indian Institute of Science, Bangalore, during the period September 1935–March 1936 as Visiting Professor and during this period he helped to establish a flourishing school of Mathematical Physics at Bangalore.

* * *

Archaeological Finds of considerable importance have been unearthed at the ancient mound of Surkhanvali Ahli near Devanpura in Punjab, as a result of excavations carried out under the leadership of Dr. C. L. Fabri, Field-Director of the Punjab Exploration Fund. Earlier excavations had revealed the remains of an old city belonging to the times of the Moghul Emperors. Further digging resulted in unearthing the remains of a second stratum, some 100–200 years older than the upper level and herein were discovered the remains of a second city, belonging in all probability to the period of Shah Jehan and his predecessors. A large number of antiquities, including household pottery, glass bangles, iron tools, coins, pieces of leather and cloth, etc., have been collected for study.

Further excavations have shown a third stratum, about 9 feet below the second, and here too were found the remains of walls, fireplaces and numerous objects of interest belonging to the earliest period of Muslim rule in the Punjab.

In a letter dated March 30th, received here, Field-Director C. L. Fabri announces that a lower and earlier strata has since been reached. "Yesterday's finds include a potsherd inscribed in early script, certainly much before the arrival of Islamic peoples and it came from the neighbourhood where a terra-cotta head, probably of Buddha, had been found a few days earlier The site thus fulfils my hopes in being a magnificent collection of successive habitations, such as was badly needed for a proper establishment of **Indian Archaeological Chronology**".

* * *

Mayan Culture.—The unearthing of a colossal sculptured head of stone and several inscribed monuments, some of the Mayan culture, in a region of Mexico more than a hundred miles outside the previously known "Mayan area" has been announced from the Washington, D.C., headquarters of the National

Geographic Society. The discoveries were made near the village of Tres Zapotes in the State of Vera Cruz by an expedition conducted jointly by the Society and the Smithsonian Institution.

"Significance of the discovery to archæologists", says the announcement, "lies in the fact that science has never before had conclusive evidence that the Mayan civilization extended farther west than a north-south line crossing the western portion of the State of Tabasco at the southern end of the Gulf of Mexico. East and south of this line, in the States of Tabasco, Chiapas, Campeche and Yucatán, Mexico, and in parts of Guatemala, Honduras and British Honduras, are scores of ruined cities and thousands of elaborately carved monuments left by the Maya. These people who have been called 'The Greeks of America,' developed the highest civilization reached in the New World before the arrival of Europeans.

"The only previous indication that Mayan civilization reached farther westward along the Gulf coast was the finding in 1902 of the Tuxtla Statuette, near the city of San Andres Tuxtla, Vera Cruz. This small carved object, now in the National Museum in Washington, bears date in Mayan numerals that has been interpreted as corresponding to 98 B.C. It is thus the oldest dated Mayan object known to exist; but because it is light enough to be easily transported, some archæologists have not been willing to accept the implication that Mayan culture once flourished near San Andres Tuxtla.

"The monuments now being uncovered by the Geographic-Smithsonian Expedition are near and even slightly farther west than San Andres Tuxtla. They are massive and are obviously in the situations in which they were erected. Their discovery not only extends to a considerable distance the known western limits of Mayan cultural influence, but also confirms the significance of the Tuxtla Statuette.

"One of the newly discovered monuments at Tres Zapotes bears a date in the same system of Mayan numerals as those appearing on the Tuxtla Statuette. Although the complete correlation of this date with the corresponding year of the Christian calendar has not been worked out, sufficient progress has been made to determine that the monument was erected during early rather than late Mayan times. So important is the interpretation of this date considered that a number of American and Mexican archæologists have been invited to Tres Zapotes to confer with Matthew W. Stirling of the archæological staff of the Smithsonian Institution, who is in charge of the field work.

"Thirty Mexican labourers are at work daily excavating the plaza, surrounded by mounds, where the colossal head was discovered. Several carved monuments, or stelæ, have been found protruding from the mounds. During the excavations the workmen have uncovered hundreds of pottery figurines of men and animals, and many pieces of broken pottery.

"The colossal head, which was the first object to be unearthed, was found to be nearly six feet high from the base of the neck to the top of the head-dress, and nearly 18 feet in circumference. The largest of the monuments so far discovered is more than 17 feet long and nearly a foot and a half wide. Approximately 30 mounds scattered over a distance of about two miles, have so far been mapped in the Tres Zapotes group."

* * *

The Warkalai Formation in Cochin.—In the course of a communication addressed to us, Mr. T. Sudhakara Menon, Maharaja's College, Ernakulam, reports the occurrence of certain beds in Cochin which bear a close lithological resemblance to the well-known Warkalai formation of Travancore. The laterites with white clay deposits below them similar to those found at Warkalai and Kundara in Travancore, are also seen in Mulanthuruthi, Pulloot, Krishnankotta, Chendamangalam, Karupadanna and other places in Cochin State. Further, several small and isolated lignite beds have also been observed in the "Kole" paddy fields near Kunnamkulam, Enamakkal, Irinjalakuda and other places. These facts show that the Warkalai formation extends into Cochin State also.

This observation is important in view of the fact that Mr. K. K. Sen Gupta in his report on the geology of Cochin definitely asserted that the Warkalai formation does not occur in Cochin State.

* * *

A New Technique for the Measurement of Adsorption of Gases and Vapours on Solids.—Chambers and King (*J. Chem. Soc.*, 1939, p. 139) have described a new technique capable of detecting very small changes of adsorption by a direct reading, floating balance method. The measuring apparatus consists essentially of a Nicholson hydrometer floating in mercury and carrying the adsorbent in the pan. The hydrometer sinks or rises during adsorption or desorption and the level of a reference mark is read with a cathetometer. The great advantage of this apparatus lies in the fact that it combines high sensitiveness and high capacity, so that it is capable of detecting a change of weight of about 1 part in 100,000. The technique seems to be of particular value in the verification of the discontinuities in adsorption isotherm such as have been reported by Allmand and coworkers.

K. S. G. D.

* * *

Fishes of the Genus *Andamia*.—A very valuable contribution to the biology of *Andamia* has been made by H. S. Rao and S. L. Hora in a recent paper by them (*Rec. Ind. Mus.*, 1938, 40, Pt. IV, p. 377). Dr. Hora discusses the systematics of the two species of this genus, *Andamia heteroptera* and *A. raoi*, of which the latter is new. Dr. Rao has studied the ecology and bionomics of the two species. *Andamia* is a little Blennid fish occurring along the Andaman coast and the two species differ in the character of the dorsal spines and anal fins. Each of these further exhibits sexual dimorphism. The fishes occur in their natural habitat clinging to the coastal rocks and move very much like the mud skippers crawling on rock surfaces exposed to wave action. Provided with wide pectoral fins and ventral sucker they are able to maintain their hold on the slippery surfaces. They feed on algæ scraping them off

by their fine teeth. They appear to be capable of a certain amount of aerial respiration.

* * *

Prostomial Glands of the Indian Leech.—The function of the prostomial glands of Gnathobdellid leeches was for a long time obscure and M. L. Bhatia (*Journ. Morph.*, 1939, **64**, 37) has conclusively demonstrated that they serve a very important function in the Indian leech, *Hirudinaria granulosa*. The prostomial glands of this leech are unicellular, deeply lying glands. During development, they are seen to arise from the ectoderm though they sink into the deeper layers, later. They are quite distinct from either the salivary or the clitellar glands. The cocoon of this leech is formed by the clitellar glands and is provided with two solid plugs at the two ends. It is the view of the author that the plugs of the cocoon are the products of formation of the prostomial glands. He cites a number of experiments he has conducted by which he has arrived at this conclusion. Leeches from which the prostomium has been severed secrete cocoons which have no plugs and leeches which are disturbed during the act of cocoon formation often withdraw themselves from the cocoon, without forming plugs.

* * *

Microscopic Examination of Cement Clinkers.—The identification of free MgO in cement clinkers is of importance in view of the fact that evidence is accumulating to show that excessive expansion in concrete has been caused by the hydration of crystalline MgO present in it. A satisfactory method for the identification of MgO based on the microscopic examination of polished specimens by reflected light, has just been described (*Instrument Bulletin*, Bausch & Lomb, March 1, 1939). Free MgO observed by this method is found to occur in small angular grains with a reflectivity greater than that of other constituents except C_4AF. Failure, heretofore, to identify free MgO in polished sections was found to be caused by difficulty in proper polishing. Unless polished with extreme care, the edges of the MgO grains are fragmented and secondary scratches beginning from these fragmented areas cover the surface of the specimens. The method for preparing the sections for examination is described in full detail in the Bulletin. MgO can be determined quantitatively in the polished specimens by the use of the integrating stage. Those who are interested in a complete discussion of the microscopical examination of cement are referred to the following publications available from the Superintendent of Documents, Washington, D.C. (U.S.A.):—H. Insley, *J. Res., National Bureau of Standards*, 1936, pp. 917; Insley & McMurdie, Research Paper, *1938, RP 1074.*

* * *

Indian Central Cotton Committee.—The problems connected with the present position of cotton and the measures for dealing with them formed the principal subjects of discussion at the meeting of the Indian Central Cotton Committee held on the 31st March 1939, under the Chairmanship of Sir Bryce Burt, Vice-Chairman of the Imperial Council of Agricultural Research and President of the Indian Central Cotton Committee. The Special Sub-Committee which was appointed to examine the matter from all aspects met on March 27th and 28th under the Chairmanship of Sir Chunilal Mehta, Vice-President of the Committee, and its report and recommendations served as the basis of discussion at the main Committee.

In connection with the need for securing better balanced production of different cottons, it was suggested that efforts should be made to obtain fresh breeding material showing variability and combining resistance to drought and disease with good ginning percentage, lint length, etc., from all possible sources including foreign countries, for trial in various tracts.

In order to raise the efficiency of cotton cultivation, the starting in major cotton growing tracts of cotton cultivation projects on complete holdings, or preferably in villages, managed and cultivated by the cultivators themselves, according to the best system advised by the local agricultural department, and where the results of research work could be concentrated in practice and demonstrated to growers under cultivators' conditions with the improved type or types of cotton best suited to each tract was recommended. The curtailment of acreage in India as a means of raising the price of cotton was considered to be of doubtful advantage.

The Committee approved of the recommendation of the Technological Research Sub-Committee for the purchase of a pilot plant for determining the cost of production of chemical cotton from linters, waste and cheap cotton. Sanction was also provisionally accorded to a scheme for carrying out investigations at the Technological Laboratory for improving the ginning of Indian cottons involving an estimated non-recurring expenditure of Rs. 24,500 and a recurring charge of Rs. 4,600 per annum.

A new cotton breeding scheme for the production of long staple cotton for cultivation in Sind at a total cost of Rs. 2,28,700 over a period of 5 years was also provisionally sanctioned.

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Botanical Society of Bengal.—The third annual meeting of the Society was held on February 25 at the Botanical Laboratory, Calcutta. Prof. S. C. Mahalanobis, President of the Society, took the Chair.

A Botanical Exhibition and Conversazionne had been organised.

The following were elected Office-bearers for the coming year:—*President*: Prof. S. C. Mahalanobis; *Vice-Presidents*: Prof. S. P. Agharkar, Prof. S. C. Banerji, Dr. K. P. Biswas, Prof. S. R. Bose; *Hon. Treasurer*: Dr. S. R. Sen Gupta; *Hon. Auditors*: Mr. P. K. Bose, Dr. A. N. Mitra; *Hon. Secretaries*: Dr. J. C. Sen Gupta and Mr. S. N. Banerji.

A resolution requesting the Government of Bengal to reprint Prain's *Bengal Plants* was adopted.

Lt.-Col. Chopra, I.M.S., delivered an address on the "Role of Botany in Pharmaceutical Medicine".

* * *

The All-India Institute of Hygiene and Public Health.—The Annual Report of the above Institution for the year 1937 which we

received a few weeks ago, is an interesting and valuable document, portraying its activities in the several fields of public health and research covered by the Institution. During the four years of its existence, the Institute has produced four batches of diplomats in public health, most of whom have found ready employment in State service.

Research of a fundamental character on cholera vibrios has been carried out by Dr. Linton and his colleagues; fresh light has been thrown on the ætiology of epidemic dropsy. Black water fever therapy is being successfully developed; this should "inspire confidence amongst those who are destined to extend the bounds of human civilisation into tropical jungles".

Investigation of about 900 maternal deaths in Calcutta revealed that maternity need not be attended with any risk, if the expectant mother is carefully looked after and trained midwives are in attendance. Most of the Public Health problems are connected with the economic prosperity of the community and the effective adoption of the results of research persued at the Institute, will entail the expenditure of large sums of money, which the government should be prepared to provide if the community should ever reap the benefits of these researches.

* * *

Statistical Testing of Business-Cycle Theories.—Volume I. A Method and its Application to Investment Activity, by J. Tinbergen. The Economic Intelligence Service of the League of Nations has just published a Volume entitled "Statistical Testing of Business-Cycle Theories —A Method and its Application to Investment Activity," by J. Tinbergen.[1] According to a recent note issued from the Information Section of the League of Nations, this is the first instalment of a short series of publications to follow up Professor Gottfried von Haberler's scholarly work, "Prosperity and Depression," which was published by the Economic Intelligence Service in 1937. In that book Professor von Haberler, who is now at Harvard University, examined the different existing theories concerning the nature of what is currently termed the trade cycle, with a view to ascertaining what they had in common, the points at which differences arose, and in so far as possible the causes of those differences. Its publication constituted the completion of the first stage of an enquiry into the nature and causes of the trade cycle that had been begun some years earlier. The second stage was to consist of an attempt to confront those theories with the historical facts, to subject them, in so far as those facts can be quantitatively expressed, to statistical analysis, or, in so far as they cannot be so expressed, to compare them with the recounted records of the past.

The Volume which has just been published has been prepared by Professor J. Tinbergen, who was seconded for this purpose from the Central Statistical Bureau of the Netherlands. It forms an introduction to the work which has since been begun and which is concerned with the statistical testing of the assumptions and propositions that are essential to the main business-cycle theories. The primary object of the Volume is to explain the method which, subject to any suggestions that may be received, it is proposed to employ for the statistical testing of trade cycle theories. The description of the method known as multiple correlation analysis is followed by three examples of its application to economic phenomena. These examples relate to fluctuations in total investment, residential building and net investment in railway rolling stock. The results obtained in the elaboration of these three examples, as the Director of the Economic Intelligence Service of the League of Nations remarks in a preface, must prove of interest to students of the trade cycle. They are, however, only incidental to the primary objects of M. Tinbergen's work, which are to explain the system of statistical analysis employed and to arouse discussion concerning it that may prove of value in the execution of the work.

* * *

League of Nations: Health Organisation.—Dr. L. W. Rajchman, Director of the Health Section since its inception in 1921, resigned his office on January 31st. Dr. R. Gautier has been placed temporarily in charge of the section.

On the recommendation of the Bogotá Pan-American Sanitary Conference, the Bacteriological Institute of Buenos Aires, has been recognised as the centre for the distribution of international biological standards on behalf of the Health Organisation, to the central laboratories of South American Countries. Uptil now this was being done by the National Institute for Medical Research, London, and the State Serum Institute, Copenhagen.

* * *

Medicinal Plants in Himalayas.—Samples of valuable commercial medicinal plants from Kashmir Hills have recently been acquired for exhibition in the Industrial Section of the Indian Museum (Botanical Survey of India). These include, *Atropa Belladona*, which grows in the Himalayan ranges at altitudes of 6,000–12,000 feet; Indian Rhubarb, *Rheum emodi* growing wild in various parts of Nepal and Sikkim at altitudes of 4,000–12,000 feet; *Podophyllum emodi* or 'Papra', a small herbaceous plant growing wild from Sikkim Himalayas to N.W. Frontier; *Artemisia maritima*, the source of the valuable drug Santonin, found growing in Kurrum valley and in Kashmir; *Hyoscyamus niger* reported as growing wild in Kashmir Hills and recently brought under cultivation, contains the required percentage of alkaloid; *Valeriana Wallichii* grows wild in the mountain ranges extending from Kashmir to Bhutan at altitudes ranging from 4,000 to 12,000 feet; *Digitalis purpurea*, commonly known as foxglove, extensively cultivated in Darjeeling and Kashmir Hills; *Juniperus communis* and *J. macropoda*, the oil from the berries of which, is of importance in pharmaceutical trade, found in plenty in the western Himalayas; *Plantago ovata* or 'Isabghul' which grows in lower hills as well as in Punjab and Sind plains; *Colchi-*

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[1] League of Nations, Ser. L.o.N.P., 1938, II, A. 23, 164 pages. Price : 3/6 *d.*; $0·90.

cum luteum extensively found in the Western temperate Himalayas, forming a good substitute for the official drug, the corms of *Colchicum autumnale* not reported as yet from any part of India; and *Aconitum chasmanthum*, which grows abundantly in Kashmir, regarded as a good substitute for the imported drug obtained from *Aconitum napellus*.

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Recent Advances in Insect Embryology.—At the ordinary monthly meeting of the *Royal Asiatic Society of Bengal*, Calcutta, held on Monday, April 3, Dr. M. L. Roonwal presented a paper on insect embryology. The first part of the paper is devoted to a brief historical sketch of the development of insect embryology from early times. "This is followed by an account of some of the recent advances on the subject, the more important items dealt with being: the theory of multi-phased gastrulation; the 7-segmental nature of the insect head; the function of the pleuropodia; the mechanism of blastokinesis; the classification of insectan genital cells; and finally, the origin of some of the body sclerites, *viz.*, the labium and the pleuron. Some embryological problems whose study is likely to give fruitful results are described. A complete and classified bibliography of insect embryology is appended."

* * *

The Detection of Toxic Gases in Industry: Nitrous Fumes.—The detection of nitrous fumes is the subject of a further leaflet issued by the Department of Scientific and Industrial Research in the series dealing with the detection of poisonous gases produced in industrial processes ("Methods for the Detection of Toxic Gases in Industry, Leaflet No. 5, Nitrous Fumes" published H.M. Stationery Office, 3*d.* net).

The situations in which nitrous fumes may be encountered in dangerous concentrations include ammonium nitrate works, celluloid works, dyestuffs works, explosives works, nitric acid works, nitro-cellulose paint, lacquer and leather cloth works, photographic film works, sulphuric acid works (chamber process).

They are also encountered in electro-plating, engraving, metal cleaning and photogravure processes, and are formed during oxy-acetylene welding, particularly when an oxy-acetylene flame plays on cold steel in a confined space. They have caused fatalities during the heat treatment of metals in molten nitrates.

Nitrous fumes, the leaflet states, are extremely dangerous on account of their insidious character. There may be, and generally are, no immediate effects and, therefore, it is impossible to foretell the serious consequences that may result from the inhalation of these fumes. A workman, unaware that he has inhaled the fumes, continues at work, often remaining well until after he has returned home. Some hours later he becomes restless with a dry cough and shortness of breath. These symptoms increase, accompanied by a frothy sputum tinged with blood. If appropriate treatment is not applied, death follows from œdema (waterlogging) of the lungs.

Concentrations stronger than 1 in 10,000 are frequently fatal if breathed for more than a few minutes. It is, therefore, most important to note that a concentration which is dangerous to inhale for even a short time may be hardly noticeable, because no disagreeable symptoms may be produced. For this reason any atmosphere in which nitrous fumes are noticeable either by smell, irritation, or colour, should be regarded as dangerous.

The chemical test described in the leaflet is sufficiently sensitive to be readily capable of detecting a concentration of 1 part in 100,000.

The standard method of test which has been developed depends on the Griess-Ilosvay reaction. It is carried out by drawing the atmosphere under test by means of a hand pump through a tube containing the reagent (a mixed solution of α-naphthylamine and sulphanilic acid in acetic acid) until a rose-pink colour of standard depth is reached. From the number of strokes of the pump required to produce the standard colour, the concentration of nitrous fumes present can be obtained by reference to the table given in the leaflet. The leaflet contains detailed instructions for carrying out the test and for the preparation of the standard coloured solution required.

* * *

A Summary of the World Literature and a Critical Survey of the Mechanical Tests employed in testing Bituminous Road Materials is presented in a report recently issued by H.M. Stationery Office (the Mechanical Testing of Bituminous Road Materials, Special Report No. 1). As the intensive application of scientific methods to road research is a relatively recent development, engineers and surveyors will find this volume of great interest as a guide to the manner in which the mechanical testing of bituminous materials has been developed up to the present time.

It includes a bibliography of 137 references.

* * *

Prof. K. S. Krishnan, Mahendralal Sircar Professor of Physics, Indian Association for the Cultivation of Science, Calcutta, has been invited to present a paper on 'the application of magnetism to the study of crystallised media and molecular symmetry' at the Study Meeting on "Magnetism" organised by the *Institute of International Co-operation* in collaboration with the *Service Central de la recherche scientifique de France*. The meeting will be held at Strasbourg during May 21–25; the subjects will be discussed under the following heads: (1) Paramagnetism; (2) Ferromagnetism; and (3) Magneto-optics. *The International Institute of Intellectual Co-operation* has so far arranged four study meetings. The last meeting on "Fundamental Principles and Methods of the Mathematical Sciences", was held at Zurich in December 1938.

Professor Krishnan has also received an invitation to take part in the meeting of the Deutschen Bunsen-Gesellschaft to be convened at Danzig from 18–20 May to discuss problems in "Magnetochemie".

Professor Krishnan will be sailing from Bombay on April 29, and will return to India early in July.

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The Willam Prize for 1938 has been awarded by the Council of the Iron and Steel

Institute, London, to **Mr. D. V. Krishna Rao**, Iron and Steel Works, Bhadravati. This award is made to the author of a paper of a "practical character judged by the Council to be the best paper of that character presented to the Institute and accepted for publication at the Annual or Autumn meeting each year". Mr. Rao's paper which has received the award is entitled "The New Steel Plant of the Mysore Iron and Steel Works, Bhadravati, India". The paper gives a brief account of the new basic open-hearth furnace installed at Bhadravati in great detail. The principal constructional features, the leading dimensions of the furnace and the various improvements effected in the refractory lining are given. Full details of the producer-gas plant, valves, ladles and ingot moulds are also furnished. The method of teeming, rimming and killed steels is described in detail. The special procedure adopted when teeming killed steels is claimed to give very sound ingots and results in a very small percentage of rejections at the mills. A brief description of the reheating furnace and the rolling mills attached to the steel plant, together with the principal operating features and the extent of the rolling programme, completes the paper.

The value of the award is £100.

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Journal of Endocrinology.—A new journal devoted to the publication of communications which "advance knowledge concerning the internally secreting glands, the mode of their actions, and the disorders of their functions", will be published under the Editorship of Prof. E. C. Dodds, by the Oxford University Press. The Journal will be published quarterly in the first instance, in the months of January, April, July and October. The first issue is expected to appear this month.

Before deciding on the publication of this new journal, the members of the promoting committee consulted the Editorial Boards of a large number of British Journals, who, without exception, favoured the foundation of such a journal. The subscription rate for each volume will be 30*sh.* Papers intended for publication should be submitted to the Editors of the Journal, Courtauld Institute of Biochemistry, Middlesex Hospital, Mortimer Street, London, W.1.

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Andhra University.—Dr. C. R. Reddy has been re-elected Vice-Chancellor of the Andhra University for a further term of 3 years.

The Academic Council of the Andhra University has approved the proposal of the Syndicate to provide instruction in courses leading to M.Sc. degree in Applied Physics. The course will be opened in the Jeypore Vikrama Deo College of Science and Technology, from July 1939.

The Senate unanimously approved the proposal of the Syndicate that "the Honorary Degree of Doctor of Science, D.Sc., be conferred on Sonti Kamesam, M.E. (Hons.), M.I.E., in recognition of his distinguished researches in Timber Technology and Forest Produce generally and their economic utilisation".

The Medical Council of India, at its meeting held on April 3–4, decided *inter alia* to recognise the M.B.B.S. degree of the Andhra University.

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University of Mysore.—I. LECTURES: The following lectures were delivered under the scheme of Extension Lectures during the month:—(1) Mr. P. Kodanda Rao, M.A., Servants of India Society, Poona, on "A View of Civilization" in English at Bangalore. (2) Mr. V. Venkatachar, M.A., B.Com., Assistant Director (Commerce) and Secretary, Board of Industries and Commerce, Bangalore, on "The Foreign Trade of Mysore" in Kannada, at Davangere and Shimoga. (3) Mr. D. S. Mallappa, M.L.C., Merchant, ex-President, Tumkur District Board, and Director of the Bank of Mysore, Ltd., Tiptur, on "Social Legislation" in Kannada, at Bangalore and Mysore. II. INTER-UNIVERSITY BOARD: The Vice-Chancellor has been elected Chairman of the Inter-University Board for the year 1939–40.

Announcements

Sugar Technologists' Association of India.—The next convention of the Association will be held sometime either in September or October, 1939.

Those desirous of communicating papers for the convention are requested to get into touch with the Secretary, Sugar Technologists' Association, Cawnpore. Papers should reach the Secretary before the end of June.

Papers dealing with original researches, new designs, calculations and new application of known processes and equipment are naturally those which will receive first consideration. But besides these, papers on subjects of technical and general interest to the industry will also be welcomed. Some of the subjects which may be specially mentioned as suitable for this purpose are cane agriculture, cane diseases and pests, fixation of sugarcane prices, sugar manufacturing processes, sugar engineering, utilization of bye-products, fuel consumption, chemical control, and fiscal and economic aspects of the industry.

Papers dealing with the engineering side of the Industry are specially requested and it is hoped that gentlemen connected with the designing, manufacture, erection and maintenance of machinery and equipment for the sugar industry will come forward with papers which will focus attention on recent developments in this important section of the Industry.

13th International Acetylene Congress.—Further details regarding the 13th International Congress of Acetylene, Oxy-Acetylene Welding and allied industries, are now available. The Congress will be held in Münich from October 2nd to 6th, 1939, under the protectorship of Prime Minister Field-Marshal-General Hermann Göring. The inaugural ceremony will be held on Monday October 2, in the banquet hall of the German Museum, Münich. Excursions have been arranged for the Münich October festivities, to the Eibsee and to the Zugspitze; a two-days' trip through the Alps to Innsbruck and Salzburg has also been organized. In connection with the Congress there will be a

Technical-Scientic exhibition covering the whole field of the Congress and subdivided into various sections.

All communications intended for being presented at the Congress must reach the Congress Office, Berlin-Friedenau, Bennigsenstrasse 25, on or before June 15th, 1939.

Imperial Mycological Conference.—The provisional programme of the Conference which will be held at the Imperial Mycological Institute, London, is now available. The Conference will be held from September 18th to 23rd.

The subjects for discussion will include: Quarantine in relation to plant diseases, biological methods of evaluating the efficiency of fungicides, virus diseases of economic plants, soil deficiency diseases, bacterial diseases of stone fruits in the Empire. Short summaries of papers offered should reach the Director, Imperial Mycological Institute, London, before the end of July.

The **Eighteenth International Congress of Anthropology and Prehistoric Archaeology** and the Eighth Session of the International Institute of Anthropology will be held at Istanbul, Turkey, from September 18–25, 1939. Communications regarding the Congress may be addressed to Prof. Muzaffer Göker, Dean of the Faculty of Languages, History and Geography, Ankara, Turkey, who is the General Secretary of the Congress.

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"The Philippine Agriculturist," Vol. 27, Nos. 9 and 10.

"Monthly Bulletin of Agricultural Science and Practice," Vol. 30, Nos. 1 and 2.

"Nagpur Agricultural College Magazine," Vol. 13, No. 3.

"Indian Journal of Agricultural Science," Vol. 9, Part I.

"L'Agricoltura Coloniale," Vol. 33, No. 1.

"Journal of the Royal Society of Arts," Vol. 87, Nos. 4496–4504.

"Biochemical Journal," Vol. 33, Nos. 1 and 2.

"Journal of the Institute of Brewing," Vol. 45, No. 3.

"Berichte der deutschen Chemischen gesellschaft," Vol. 72, No. 2.

"The Calcutta University Journal," Vol. 1, No. 2.

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"Journal of Chemical Physics," Vol. 7, Nos. 1, 2 and 3.

"Journal of the Indian Chemical Society," Vol. 15, Nos. 11, 12 and Vol. 16, No. 1.

"Journal de Chimie Physique," Vol. 35, No. 12 and Vol. 36, No. 1.

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"Transactions of the Faraday Society," Vol. 35, Nos. 214 and 215.

"Indian Forester," Vol. 65, Nos. 2, 3 and 4.

"Indian Forest Records," Vol. 1, No. 3 (Botany) and Vol. 5, No. 1 (Entomology).

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"Calcutta Medical Journal," Vol. 35, Nos. 3 and 4.

"American Museum of Natural History," Vol. 43, Nos. 2 and 3.

"Mathematics Student," Vol. 6, No. 3.

"Bulletin of the American Meteorological Society," Vol. 19, No. 10.

"Journal of Nutrition," Vol. 17, No. 2.

"Nature," Vol. 143, Nos. 3613–20.

"Indian Journal of Physics," Vol. 12, Part II.

"Canadian Journal of Research," Vol. 16, No. 12.

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"Sky", Vol. 3, Nos. 4 and 5.

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