

## SCIENCE NOTES.

**Edward Bausch.** The *Journal of Applied Physics* for May 1937 contains a biography of Edward Bausch of the well-known Optical Firm, Messrs. Bausch and Lomb of America. We there learn that Bausch was born at Rochester, N.Y., on September 26, 1854, and was introduced to the optical industry in his very childhood by his father who himself had been trained in the famous optical shops of Germany. Bausch showed his aptitude by constructing a microscope when he was fourteen. At first their business, started in 1853, had to be confined to the manufacture of spectacle lenses and its first success came with the introduction of vulcanised rubber frames. Bausch entered the Cornell University in 1871; in 1874 he returned to the firm and began the manufacture of microscopes. Experience gained at the Philadelphia Centennial Exposition of 1876 led him to introduce power-driven machinery into the business. When in 1878 the American Microscopical Society was founded, Bausch became a charter member. Improvements introduced by him into microscope design were the incandescent lamp in place of the mirror, a prism for the microscope tube for binocular work and the invertible microscope. He was also the inventor of an improved microtome and of the iris diaphragm shutter of the between-the-lens type. Visiting the well-known optical manufactories of Europe in 1888, Bausch brought back Dr. Hermann Kellner with him and started a scientific bureau under his direction. Devising machinery for the mass production of microscopes, Bausch brought the instrument within the reach of students of moderate means. The Company began the manufacture of chemicals in 1893 but with the development of the business it was handed over to the Will Corporation of Rochester. The firm of Bausch and Lomb rendered signal service to the U.S. Government by the manufacture of search light mirrors for the Navy, and by supplying optical glass during the Great War. The ever-increasing demand for optical glass was met cheerfully and without murmur and no obstacles were allowed to stand in the way of serving the country to the utmost limit. The Bausch and Lomb families are also associated with the founding and running of the Mechanics Institute of Rochester and of the Physics Building of the University of Rochester. We have pleasure in joining our contemporary in felicitating a man whose services have benefited not only his country but the cause of Science throughout the world.

\* \* \*

**A Clue to Early Man.** To fill the need for a research centre that would provide opportunity for bringing together all that is known of early man and stimulate work in this field, the Academy of Natural Sciences of Philadelphia, has established a separate department, and provided the necessary laboratories. Dr. Hellmut De Terra who recently visited India, and made important discoveries of evidence of pre-historic life in the regions of North West India is associated with Dr. Howard in organising the work. The organisation of the Academy's fossil collec-

tions which number some 200,000 will be supervised by Dr. Howell, Associate Professor of Geology and Palaeontology at Princeton.

A symposium on Early Man was held at the Academy in March, last, in which scientists from China, South Africa and Europe took part. The symposium which synchronised with the celebration of the 125th Anniversary of the Founding of the Academy, provided a unique opportunity for scientists to meet and discuss problems of the ancestry of the human race.

\* \* \*

**Poisonous Gases in Industry.** The Department of Scientific and Industrial Research has recently issued the first of a series of leaflets describing standard methods for the detection of toxic gases in industry. The present leaflet (H. M. Stationery Office, 3sh. 6d.) deals with hydrogen sulphide (sulphuretted hydrogen). It is perhaps not generally realised that this gas is very poisonous in high concentrations. For example, in concentrations of one part in one thousand by volume of air it is nearly as poisonous as prussic acid and can kill almost as quickly. In concentrations of one part in 10,000 it gives symptoms of irritation in the eye and throat after one hour's exposure. The gas has a very widespread occurrence in industry. "In addition to its formation during the decomposition of all organic matter containing sulphur, it is encountered in many important industries, among which may be mentioned: artificial silk works, chemical works, dye making and dyeing works, coke oven and by-product plants, gas works, grease refining works, petroleum refining works, tar distillation works and sewage works. It is also encountered in the cleaning of sewers and crosspools connected with various other works."

"It is sometimes suggested" the leaflet continues "that the presence of dangerous concentrations of hydrogen sulphide may be detected by smell. It cannot be too strongly emphasised that reliance cannot be placed on the sense of smell as a guide to safety, because persons differ greatly in their ability to detect smells and furthermore the sense of smell readily becomes 'tired' and is of little value thereafter in noting even much increased concentrations. Again, the smell of hydrogen sulphide may be masked by other odours."

The method of test adopted depends on drawing a known volume of the atmosphere under test through a piece of test paper treated with lead acetate specially fitted to a hand pump. The test paper becomes stained a brownish colour and concentrations of hydrogen sulphide from 1 part in 150,000 upwards can be gauged by comparing the colour of the stain with a carefully printed colour chart attached to the leaflet. Full instructions for carrying out the test under standard conditions are given.

\* \* \*

**Atmospheric Pollution.** The purity of the atmosphere is a matter of concern to everyone especially those living in industrial districts and crowded city areas. The available facts on the extent, character and variation of atmospheric pollution are contained in the Annual

Reports on observations made by local authorities and other bodies co-operating with the Department of Scientific and Industrial Research in the study of the subject. The 22nd Report just issued (H. M. Stationery Office) records and discusses the results obtained in the year ending 31st March 1936. It also discusses the trend of observations over periods of from ten to twenty years in several districts for which sufficient "long period" results are available.

\* \* \*

**Mineral Wealth of Gangapur.**—Details of the mineral resources and mining possibilities of one of India's rich mineral areas is given in a report just published from the Geological Survey of India. Special interest was attached to the area as a result of the discovery by Dr. E. Spencer of Messrs. Bird & Co., Calcutta, of a dome-shaped structure exposing manganiferous rocks of the gondite type and crystalline marble. The greater part of the area is situated in the Gangapur State in the Eastern States Agency. The mapped area covers 2,500 square miles and is structurally a highly compressed anticlinorium and exposed rocks mainly belonging to the Archæan group. The memoir also gives a description of the economic mineral deposits of the Gangapur State which is likely to be of use to those interested in the mineral industry of this part of India. The most important deposits are of manganese ore and limestone and dolomite. The reserves of limestone and dolomite in the State run into several hundred million tons. There are also coal deposits which are of inferior grade; the other less important minerals include lead-ore, red-ochre, barytes, kaolin, quartz-sand, various types of clay, and building and road stones.

\* \* \*

**Activities of the Industrial Research Bureau.**—The *Report* of the Bureau for the year 1936-37 (published by the Manager of Publications, Delhi, 1937) has just been published. The *Report* which is dealt with in five chapters comprises an account of the activities of the organisation which was brought into operation on the 1st April 1935 to develop Indian Industrial Research. The first chapter gives an account of the activities of the Industrial Research Council which is an advisory body consisting of representatives and non-official nominees of the Central, Provincial and leading State governments, in which is vested the duty of co-ordinating and developing Industrial Research. This body which meets once a year at various centres held its second session at Calcutta on the 2nd and 3rd July 1936. The second chapter deals with the work of the Bureau, and also the research work conducted at the Government Test House. The investigations dealt with during the year, cover a very large range and include among others investigations on paints, dry cells, vegetable oils for internal combustion, engines and electric lamps. The work conducted by the Research Bureau on glass has been dealt with in a separate chapter, and refers to the physical and chemical analysis of the raw materials, examination of the possibilities of preparing low-melting-temperature glasses and preparation of liquid gold and of China glass for use in bangle manufacture. The last chapter of the report deals with the work on oils and soaps. A Committee was appointed in the year for survey-

ing the research already conducted and in progress on fatty oils, soaps and essential oils and to advise on the co-ordination of research generally and in particular on the allocation of future research to suitable centres. The Committee suggested that the work should be allocated to various Provincial and State laboratories and recommended to the Imperial Council of Agricultural Research to consider the possibility of encouraging the cultivation of certain essential-oil bearing plants. The Committee also suggested that the Bureau should collate and publish a digest of all available information on Indian vegetable oils. An important Bulletin on vegetable oils, prepared by Mr. N. Brodie, has since been published.

\* \* \*

**Daylight Illumination Necessary for Clerical Work.**—The standard of daylight illumination, below which clerical workers seek the assistance of artificial light, has been determined by a mechanical method for the first time. The method and the way to use the results obtained are described in Technical Paper No. 19 of the Illumination Research Committee (H. M. Stationery Office, Price 6d). The results are of importance to architects and others concerned with the design of clerical offices, particularly as they indicate that some of the minimum standards suggested in the past are much too low.

\* \* \*

**Royal Asiatic Society of Bengal.**—At the Ordinary Monthly Meeting held on the 5th July, Mr. S. K. Banerji read a paper on "The Quwwat-ul-Islam, the oldest Mosque in Delhi". The mosque representing the architecture of the 12th century is a landmark in Indian History representing the ushering in of a new era in Indian culture and politics.

The following exhibits were shown and commented upon:—(1) SUNITI KUMAR CHATTERJI: *Three Old Brass Utensils with Incised Designs*; (2) CHINTAHARAN CHAKRAVARTI: *The Society's Collection of Manuscripts of Sanskrit Works on the Game of Chess*; (3) M. MAHFUZ-UL-HAQ: *Three Valuable Persian Manuscripts of Jami's*: (i) *Sharh-i-Rubaiyyat*, (ii) *Lawaib*, and (iii) *Lawaib*, transcribed by Sultan Ali of Mashhad in 882 A.H. (1477-78 A.D.).

\* \* \*

**Indian Science Congress Association.**—Scientists who have accepted the invitation to join the British delegation:—Dr. F. W. Aston, Cavendish Laboratory, Cambridge; Prof. C. B. Fawcett, Professor of Geography, University College, London; H. J. E. Peake, Esq., Vice-President, Royal Anthropological Institute.

\* \* \*

**The University of Bombay: Royal Institute of Science, Bombay.**—The members of the Industrial Research Council of India visited the Institute on the 6th July 1937.

Mr. N. R. Trivedi, B.A. (Cantab.), M.A. (Bom.), has been appointed Lecturer in Mathematics.

Dr. S. H. Lele of the Zoology Department has been transferred to the Elphinstone College in the newly created Science Department as Lecturer in Biology.

\* \* \*

**University of Mysore: Personnel.**—Consequent on the retirement of Dr. E. P. Metcalfe,

the following appointments have been ordered with effect from the commencement of the current session:—(1) Mr. N. S. Subba Rao appointed as Vice-Chancellor and relieved of the charge of the Department of Public Instruction by Mr. E. G. McAlpine, Professor of English and Principal, Central College, appointed Director of Public Instruction. Mr. A. B. Mackintosh, Professor of English, to be Principal, Central College, *vice* Mr. E. G. McAlpine, on his return from leave. Mr. C. R. Narayana Rao, Professor of Zoology, Central College, to act as Principal *vice* Mr. Mackintosh on leave. (2) Dr. J. F. Robinson, B.A., M.D., F.A.C.S., F.R.C.S.E., Principal, Medical College, Mysore, has been granted leave for seven months from the 22nd June 1937 and Mr. D. S. Puttanna, B.A., F.R.C.S.E., L.M., D.T.M., District Medical Officer, Kadur District, appointed to act as Principal, Medical College, during Dr. Robinson's absence on leave. (3) Rao Bahadur Mr. B. Venkatesachar, M.A., F.Inst.P., Professor of Mathematical Physics, Central College, Bangalore, was permitted to retire from service from the 18th June 1937.

\* \* \*

**Galvanometer Catalogue.**—A complete line of galvanometers and dynamometers is listed by the Leeds and Northrup Company in their catalogue on these instruments which has just been revised. Several newly developed instruments are included in the publication. A narrow-coil galvanometer provides an extremely high voltage-sensitivity combined with a very short period. A Dual galvanometer includes all the advantages of a portable lamp and scale galvanometer, and has a sensitivity fifty times as high. Specifications and listings have been brought up to date throughout the catalogue.

A copy of this publication (Catalogue ED) may be obtained upon request to The Scientific Instrument Co., Ltd., 5A Albert Road, Allahabad, the Agents of the Leeds and Northrup Company, 4934, Stenton Avenue, Philadelphia, Pennsylvania.

\* \* \*

#### Announcements.

**Indian Science Congress Association.**—*Discussions.*—The following discussions have been tentatively arranged for the Jubilee Meeting of the Indian Science Congress:—

#### SECTIONAL DISCUSSIONS.

*Section of Chemistry.*—(1) Recent Advances in the structure of alkaloids; (2) Chemistry and industrial development in India.

*Section of Geology.*—(1) Pre-Cambrian sedimentation; (2) The origin of banded gneisses; (3) Plateau basalts; (4) The significance of the 'Main Boundary Faults' of the Himalayas.

*Section of Geography and Geodesy.*—(1) The teaching of geography in India.

*Section of Botany.*—(1) The origin and relations of the Himalayan flora; (2) A national

herbarium for India (in co-operation with the Indian Botanical Society); (3) Algal problems peculiar to the tropics and especially to India.

*Section of Zoology.*—(1) Animal ecology in relation to India.

*Section of Anthropology.*—(1) Blood groupings and racial classification.

*Section of Medical Research.*—(1) Immunity in protozoal infections; (2) Nutritional disease in India; (3) Black water fever; (4) Cholera.

*Section of Physiology.*—(1) Physiology of the individual in health and disease; (2) Diet and adaptation to climate; (3) Climate and its influence on the thyroid-adrenal apparatus.

*Section of Psychology.*—(1) The contributions of abnormal psychology to normal psychology.

#### JOINT SECTIONAL DISCUSSIONS.

*Sections of Mathematics and Physics and Chemistry.*—(1) Recent advances in molecular structure from the physico-chemical standpoint.

*Sections of Geology and Botany.*—(1) Discrepancies in the chronological testimony of plant and animal fossils.

*Sections of Botany and Agriculture.*—(1) The dissemination of cereal rusts in India; (2) The need for a central station for standard cultures of fungi in India.

*Sections of Zoology and Entomology.*—(1) The position of Entomology in the Indian Universities.

*Sections of Entomology and Agriculture.*—(1) Biological control of insect pests.

*Sections of Botany, Chemistry and Agriculture.*—(1) The absorption of salts by plants.

*Sections of Botany, Agriculture, Mathematics and Physics.*—(1) The importance of phenological observations in India (in co-operation with the Indian Botanical Society).

*Sections of Botany, Zoology and Agriculture.*—(1) The structure of the chromosome; (2) The species concept in the light of cytology and genetics.

*Sections of Mathematics and Physics, Geology, Geography and Geodesy and Agriculture.*—(1) River physics in India (in co-operation with the National Institute of Sciences of India).

*Sections of Chemistry, Zoology, Medical Research and Agriculture.*—(1) Colloids in Biology, Medicine and Agriculture. It is also hoped to arrange the following discussions:—

*Sections of Zoology, Medical Research, Veterinary Research, Entomology, and Agriculture.*—(1) The relation of Zoology to Medicine, Veterinary Science and Agriculture.

Members who wish to have summaries of their remarks printed in advance of the Meeting should send the summaries to the Presidents of the Sections concerned not later than the 1st of October 1937.

\* \* \*

#### Indian Chemical Society:

J. M. Das-Gupta Memorial Medal.—Applications are invited for the above Gold Medal

for 1937 from Research Chemists of any age. The award will be made on unpublished researches and/or on independent papers published in the *Journal of the Indian Chemical Society* by the candidates during the years 1936 and 1937. Applications together with four copies of each reprint or typewritten paper should reach the Hon. Secretary not later than 30th September 1937.

**Sir P. C. Ray 70th Birthday Commemoration Medal.**—Applications are invited from Research Chemists below 30 years of age for the above competition. Only independent papers, which have been published in the *Journal of the Indian Chemical Society* during 1936, will be considered.

Applications together with 3 copies of reprints of each paper are to reach the Hon. Secretary not later than 30th September 1937.

Further particulars for the above competitions may be obtained from the Hon. Secretary, Indian Chemical Society, 92, Upper Circular Road, Calcutta.

\* \* \*

**The Indian Population and Family Hygiene Conference.**—It is proposed to hold the Second Indian Population Conference and the First Family Hygiene Conference at Bombay in the second week of January (about the 12th), 1938. There will be a combined public session after which the Conference will dissolve into the following sections:—

*Population.*—(1) Economics; (2) Sociology & Anthropology; (3) Nutrition; (4) Vital Statistics.

*Family Hygiene.*—(1) Maternity & Child Welfare; (2) Birth Control & Sterilization; (3) Medical Problems including Sterility, Abortion and Venereal Diseases; (4) Problems of Sex including Sex Education & Sexual Perversion; (5) Housing and Health.

The papers to be read at the Conference and the Presidential Addresses, General and Sectional, will be printed and made available to the delegates and members at the opening of the Conference. The names of the General and Sectional Presidents will be communicated in due course.

Those intending to contribute papers are requested to communicate with the Honorary Secretary, The Indian Population and Family Hygiene Conference, Kodale House, Hornby Road, Bombay 1, not later than 1st November 1937.

\* \* \*

**An Outline of Cytological Technique for Plant Breeders.**—In the review of the bulletin which appeared in this *Journal* (1937, 5, No. 11, 625), the name of the publishers was inadvertently omitted. The bulletin is issued by the Imperial Bureau of Plant Genetics, School of Agriculture, Cambridge, at the price of 1sh. 6d.

\* \* \*

We acknowledge with thanks receipt of the following:—

“The Agricultural Gazette of New South Wales,” Vol. 48, No. 6.

“Journal of Agricultural Research,” Vol. 54, Nos. 6 and 7.

“Monthly Bulletin of Agricultural Science and Practice,” No. 6, June 1937.

“Journal of Agriculture and Live-Stock in India,” Vol. 6, Part 3, May 1937.

“The Philippine Agriculturist,” Vol. 26, No. 1.

“Journal of the Royal Society of Arts,” Vol. 85, Nos. 4409–12.

“Journal of the Indian Botanical Society,” Vol. 16, No. 3.

“Communications from the Boyce Thomson Institute,” Vol. 8, No. 5.

“Journal of the Institute of Brewing,” Vol. 43, No. 6.

“The Calcutta Review,” Vol. 63, No. 3.

“Chemical Age,” Vol. 36, Nos. 934–37.

“Journal of Chemical Physics,” Vol. 5, No. 6.

“Journal of the Indian Chemical Society,” Vol. 14, Nos. 3 and 4.

“Berichte der Deutschen Chemischen Gesellschaft,” Vol. 70, No. 6.

“Journal de Chimie Physique,” Vol. 34, No. 5.

“Journal of Entomology and Zoology,” Vol. 29, No. 1.

“Experiment Station Record,” Vol. 76, No. 5.

“Transactions of the Faraday Society,” Vol. 33, Part 6.

“Indian Forrester,” Vol. 63, No. 6.

“Forschungen und Fortschritte,” Vol. 13, No. 17.

“Indian Trade Journal,” Vol. 125, No. 1619.

“Journal of the Indian Mathematical Society,” Vol. 2, No. 6.

“The Calcutta Medical Journal,” Vol. 32, No. 6.

“Medico-Surgical Suggestions,” Vol. 6, No. 6.

“Review of Applied Micrology,” Vol. 16, No. 5.

“Journal of the American Museum of Natural History,” Vol. 40, No. 1.

“Nature,” Vol. 139, Nos. 3525–28.

“Journal of Nutrition,” Vol. 13, No. 5.

“Canadian Journal of Research,” Vol. 15, No. 5.

“Journal of Research (National Bureau of Standards),” Vol. 18, Nos. 2 and 3.

“Science and Culture,” Vol. 2, No. 12.

“The Sky,” Vol. I, No. 7.