

top acropolis site at the head of the delta, where surface finds on one hand match the pottery of various periods at Tell Sheikh Yusuf, and on the other include fragments of Mycenaean and Cypriote bronze age wares corresponding with the later levels of Tell Atchana.

Recent Acquisitions at the Natural History Museum

MRS. CONSTANCE THORBURN has presented to the Department of Zoology of the Museum seventeen water-colour drawings of British mammals executed by her husband the late Archibald Thorburn. Purchases for the Department include a collection of small mammals, mostly rodents, including some rare and little-known species from the Cameroons; and a small collection of European birds obtained on their northward migration in April and May by Mr. C. G. Bird, at Rio d'Oro, on the north-east coast of Africa. Dr. C. T. Trechmann has generously presented to the Department of Geology a large and valuable collection (including more than 200 type and figured specimens) of Mollusca collected by him from the West Indies. The Mineral Department has received as a gift from Mr. Arthur Earland sea-bottom deposits collected from the Weddell Sea in the Antarctic by the "Discovery" expedition, together with the crystals of gypsum, calcium oxalate, and the new mineral earlandite which had been picked by him from the samples collected. Among the purchases is a series of minerals from Brazil, including a beautiful, table-cut, strongly dichroic aquamarine, spodumene of three kinds and quartz in many different forms and habits. A series of well-shaped crystals of lapis-lazuli and three iridescent limonites from Queensland also have been bought.

Mathematics in Bombay

A VERY interesting experiment in the teaching of mathematics is being carried out in the University of Bombay. Prof. John Maclean, of Wilson College, has had the commendable courage to break away from the beaten track of academic mathematics by devising a special course for his students, dealing mainly with the uses of elementary mathematical methods in the description of quantitative phenomena. The course forms the subject matter of a recent book by Prof. Maclean entitled "Descriptive Mathematics", which was noticed in NATURE of March 7, p. 382. In the Bombay Intermediate Arts and Science examination in March, alternative papers were set; one being of the traditional academic type, whilst the other, entitled "Statistics and Nomograms", was designed to test the efficacy of the new course. Out of a total of 1,400 students, about twenty took this paper. Its questions cover a wide field, and range from Newton's interpolation formula, probability and frequency distributions to transcendental equations and the construction of various types of nomograms. It will be interesting to study the results of this experiment for, judged by the examination paper in conjunction with Prof. Maclean's book, the new course is certainly designed not only to stimulate interest, but also to render a rigorous presentation

of the basic ideas in mathematics much more vivid and powerful than that provided by the stereotyped courses.

Scientific Research in Australia

THE ninth annual report of the Council for Scientific and Industrial Research, Commonwealth of Australia (Canberra: Government Printer, 1936. 4s. 8d.), covers the year ended June 30, 1935, and gives brief accounts of the work of the various divisions in which the work is organised. Weed problems are receiving a considerable share of attention, particularly on the entomological side, through the introduction and distribution of insects which attack the plants in other countries. Investigations are being initiated into contagious bovine mastitis, a serious disease prevalent in dairy herds throughout the world, and an attempt is being made to establish at a dairy farm near Melbourne a normal herd free from the disease. The rabbit pest and the testing of seeds continue to receive attention, and in addition to its investigations on weed pests, the Division of Economic Entomology has been investigating means of preventing the attack of sheep by blowflies. The Division of Animal Health has discovered new and more effective methods of administering anthelmintics for the control of internal parasites of sheep, while the Division of Animal Nutrition has studied the 'coast disease' of sheep, drought feeding and the processes of wool growth. Soil problems, timber preservation and seasoning, the preservation and transport of fruit and chilled beef have been investigated by other Divisions. Even the brief accounts of these investigations contained in the present report indicate that the work of the Council is making noteworthy contributions to the welfare of the basic industries and occupations of Australia.

Geological Survey of Australia

WHEN the Commonwealth of Australia was established, the administration of mining affairs, including geological work, was left with the six independent States. The consequence is that Australia is to-day the only dominion without a national geological survey, a situation which is viewed with grave dissatisfaction by its scientific workers. Every effort hitherto made to remedy the position has failed owing to official opposition from some, but not all, of the State Departments of Mines. A conference between Commonwealth and State officers, held in Melbourne last month, was but little more successful than any of its predecessors. Political, rather than scientific, considerations appear to dominate the issue, and this further failure to agree upon the establishment of a national body, either by the Commonwealth alone or by the States acting jointly, is greatly to be regretted.

Economic Products of the British Empire

VOL. 34, No. 1 of the *Bulletin of the Imperial Institute* has been published by the Institute itself, but the general format remains practically unaltered. This number contains an important report by the

Imperial Institute Advisory Committee on Hides and Skins on a series of hides prepared experimentally in Southern Rhodesia with the view of improving the material turned out by the natives. It is shown that a simple method of drying the hides which was recommended by the Committee gives excellent results, as it did in the case of earlier experiments in East Africa, and is a great improvement over the ordinary native methods of sun-drying. An article by Mr. M. H. French, of the Tanganyika Veterinary Service, records the work which has been done in that Territory to improve the quality of the clarified butter (ghee) produced there. This product, although little known in Great Britain, is of great importance in tropical regions, since when properly prepared and stored it will keep almost indefinitely under conditions in which ordinary butter turns rancid in a few days. An article by Dr. E. O. Teale, mineral adviser to the Government of Tanganyika Territory, describes recent developments in gold mining in this country. Another article gives a brief outline of the mineral resources of Johore, one of the little-known Unfederated States of Malaya. Alluvial tin ore is being mined in three different areas. In another area iron ore is being mined, and unworked deposits are known to occur in three further regions. Gold and china clay are being produced in small amounts, wolfram has been found in one locality, and prospecting for coal is being carried on in two places.

National Bureau of Standards

A REPRINT from the annual report of the U.S. Secretary of Commerce, 1935, describes briefly the more important of the developments of the Bureau of Standards during the last twelve months. Scientific workers and engineers are making increasing use of its facilities. The testing of supplies and materials has increased by 15 per cent over the previous year. This is partly due to the building activities of various Government agencies. Having received an exceptionally pure sample of the metal gallium, its freezing point was determined and found to be $29.780 \pm 0.005^\circ \text{C}$. The melting point of this element is so low that the crystals melt to a liquid on a hot summer day. An investigation has been completed on the efficiency of a large number of rust-preventing materials with particular reference to their use in preventing corrosion in aviation engines during storage. Certain types of materials have been found to be extremely effective for this purpose and for use as general rust preventatives. Laboratory tests of numerous types of oil filters show that some of these devices are most efficient in removing impurities formed in the oil during service. Two formulæ were developed for ink powders which make a writing ink superior to the present federal specification. Work has shown that the superior properties of the English clays are apparently due to the presence in them of certain natural fluxes which are not found in American clays. These fluxes have been identified and studies are now being made of American clays modified by the addition of fluxes. A code for the safety glass used in automobiles has been formulated. It was

developed by the co-operation of manufacturers and users of glass and motor-cars. It specifies tests for wire glass, heat-treated glass and laminated glass which ensure satisfactory safety glass.

Scientific Horticulture

THE fourth year-book of the Horticultural Education Association ("Scientific Horticulture", from the Editor, Mr. R. T. Pearl, South Eastern Agric. Coll., Wye, Kent, 3s. 6d. net) presents many helpful contributions. Several papers describe the special considerations of gardening in various parts of England, or discuss the horticultural needs of a particular industry, such as cider-making; and the number of articles which achieve the difficult blend of science with practice shows a gratifying increase over previous year-books. There are also articles which summarize the findings of research stations. Dr. W. F. Bewley writes on "Twenty-one years' Glasshouse Research at Cheshunt", whilst Mr. R. B. Dawson portrays the origin and work of the Board of Green-keeping Research. Prof. R. J. D. Graham has collected the results of the late Laurence Baxter Stewart on vegetative propagation, and his tables, showing the times and seasons when difficult cuttings may be rooted, will be of very real value to gardeners. Plant pathology has two papers: "The *Phytophthora* Disease of Strawberry" by Mrs. N. L. Alcock and Mr. D. V. Howells, and "The Virus Diseases of Glasshouse and Garden Plants" by Dr. K. M. Smith. Very useful reviews of the present position of research into vernalisation and into photoperiod are given by Dr. O. N. Purvis and Prof. F. G. Gregory respectively. Messrs. W. J. C. Lawrence and J. Newell describe "Seedling Growth in Partially Sterilised Soil", and Drs. Kidd and West issue a warning about the gas storage of apples. They show that the harmful concentration of carbon dioxide in the atmosphere of the store varies with temperature and also with the oxygen content. The president of the Association, Mr. H. L. Jones, chose the subject "Horticultural Education in North Wales" as the title of his address. The contributions are rarely reports of new work, but serve, in an admirable manner, to make available the more abstruse, and often isolated, findings of research in pure science.

Sands, Clays and Minerals

THE April number (Vol. 11, No. 4) of *Sands, Clays and Minerals*, published by Mr. A. L. Curtis, Westmoor Laboratory, Chatteris, once again brings home to readers the fundamental purpose of this magazine. The editorial reiterates that at any rate a partial solution to the problem of unemployment lies in opening up the vast unexploited mineral resources of the British Empire. Numerous industries depend on minerals as raw materials, and increased production leads to increased activity in these industries, with a corresponding fall in unemployment. Certain minerals now being obtained from foreign sources might be produced wholly or in part within the British Empire. Obstacles to optimum development of such resources are not irremovable, though at the present time they