

furnace of 6,000 kilowatt capacity, probably the largest electric melting unit in Europe, has just begun operation in Sheffield. Within its small area of furnace hearth (13 ft. diameter), as much energy is consumed per day as the aggregate loads of Cambridge, Salisbury and Tonbridge. Unfortunately, the requirements of larger and interconnected power stations make it essential to install higher rupturing capacity switch-gear, and this constitutes a heavy charge on small firms which may want to use electric furnaces. Seeing that the cost of the energy consumed by the furnace during its average life (ten years) is about thirty times the original cost of the complete installation, the companies should offer attractive conditions to steel manufacturers. The extreme purity of arc furnace steel owing to the absence of slag inclusions is now generally recognized, and for many types of forging this steel is specified. The choice between high-frequency furnaces and arc furnaces is difficult to make. Although the capital expenditure for high-frequency furnaces is much higher, yet when melting operations only are required they are cheaper to work.

#### Astronomy in Japan

THE Kyoto Imperial University has accepted a donation equivalent to about £10,000 from the Osaka Electric Railway Co. towards the building of an observatory on the southern peak of Ikomasan at a height of 640 metres. The observatory will include a main building with a 9-metre dome, a solar laboratory, housing for a reflector and a dormitory. The equipment of the solar department of the Kwasan Observatory is to be transferred to this new site, in addition to other instruments including the 80-cm. Tomkins reflector. Later a large museum devoted to astronomical exhibits and those of allied sciences will be built near the Ikomasan Observatory. Prof. Yamamoto will be the director of the group. The Kwasan Observatory will then become a purely academic institution. The Osaka Municipal Electric Museum, which has recently been completed, includes a Zeiss planetarium, which is installed under an 18-metre dome on the sixth floor of the Museum. *Bulletin* No. 326 of the Kwasan Observatory directs attention to a daily series of sun-spot observations made for fourteen years by Mr. Katue Misawa, whose failing eyesight now prevents the series from being carried on. The observations, which have been made regularly under excellent weather conditions, have been of great use in supplying data with the minimum delay to Japanese investigators. Observations of the zodiacal light are receiving special attention in Japan, and it is planned to establish a special observatory at Onomiti, Hiroshima-Ken, at a height of 150 metres. The observed longitude of the Kwasan Observatory, deduced from 74 observations made with the 90 mm. Bamberg transit in conjunction with the reception of Greenwich wireless time signals, is  $-9^{\text{h}} 3^{\text{m}} 10.315^{\text{s}} \pm 0.002^{\text{s}}$  or  $E. 135^{\circ} 47' 34.72'' \pm 0.03''$ . The elements of latitude variation for the epoch 1934.0–1935.9 computed by Dr. Kimura from data provided by five northern stations are given in *Bulletin* No. 322.

#### Hygiene in the Bacon Factory

WITH this title, *Bull.* No. 1, published by the Bacon Development Board, Thames House, London, S.W.1 (1s.), lays down certain standards of sanitation as a condition of every licence to produce bacon, and describes in some detail a system of sanitation which, if adhered to, will assist curers to comply with the conditions of their licence, and help them, in their own interests, to reduce the risk of spoilage of their products. The construction, maintenance and equipment of the factory are first discussed, after which the daily and the periodical cleaning of the premises are described. Next, the keeping of the meat and bacon clean and wholesome, and the personal hygiene of the employees are dealt with. Data are given in an appendix upon sources and reduction of contamination and the use of sodium hypochlorite as a disinfecting agent.

#### Brown-Firth Research Laboratories

A BROCHURE of some seventy pages deals with the equipment and work of the Brown-Firth Research Laboratories in Sheffield. The various types of research undertaken are described briefly, and the apparatus used is illustrated. A long list of original papers which have been published is appended, together with a catalogue of books, manuscripts and reports available in the library. To all who are concerned in any way with the development of modern steels, this publication cannot fail to be of interest.

#### 1851 Exhibition Studentships and Scholarships

THE science scholarship committee of the Royal Commission for the Exhibition of 1851 has recently awarded the following senior studentships and overseas scholarships, upon the recommendations of the universities and other institutions named: SENIOR STUDENTS. Dr. H. J. Bhabha (University of Cambridge), for research in theoretical physics at Cambridge; Dr. H. N. Rydon (Imperial College of Science and Technology), for research in organic chemistry at Oxford; Dr. J. L. Harley (University of Oxford), for research in mycology at Oxford; Dr. A. H. S. Holbourn (University of Oxford), for research in experimental physics at Oxford. A fifth Studentship was given to Dr. T. S. Westoll, who was a palaeontologist recommended by University College, London, but he has been appointed to a lectureship at Aberdeen and therefore will not take up the award. OVERSEAS SCHOLARSHIPS. *Canada*: Mr. A. J. C. Wilson (Dalhousie University, Halifax), for research in physics at the Massachusetts Institute of Technology and the University of Cambridge; Mr. D. M. Ross (Dalhousie University, Halifax), for research in experimental zoology at the University of Cambridge; Dr. H. Rudoff (McGill University, Montreal), for research in organic chemistry at the University of Oxford; Dr. J. L. Morrison (McGill University, Montreal), for research in physical chemistry at the University of Cambridge; Mr. A. G. Ward (Queen's University, Kingston), for research in physics at the University of Cambridge. *Australia*: Mr. R. D. Hill (University of Melbourne), for research in physics at