

On his return to Japan in 1891, he founded a private bacteriological institute in 1892, and a year later it was subsidised by the Government of Japan. From 1899 until 1914 this great bacteriological institute—the Imperial Japanese Institute for Infectious Diseases—was directed by Kitasato with skill and success. Many of his pupils have attained a wide reputation in Europe.

For his valuable services to his country, Prof. Kitasato was chosen a member of the Japanese House of Peers in 1916, and was raised to the peerage with the title of Baron in 1923.

The impression he made was one of great dignity and seriousness, but he talked freely in German on bacteriological subjects. His knowledge of English was negligible.

Kitasato has created for himself by his high-class scientific work an enduring name not only in

Japanese medicine but also over the whole world. He was admitted a foreign member of the Royal Society in 1908.

W. B.

WE regret to announce the following deaths :

Lieut.-Col. Sir Charles Bedford, formerly director of the Central Excise Laboratory for India, known for his work on the manufacture and excise control of alcohol in India, on July 8, aged sixty-five years.

Dr. E. G. Echeson, known for his work in electro-metallurgy and chemistry, formerly assistant to Edison, on July 6, aged seventy-five years.

Prof. C. H. Kauffman, emeritus professor of botany and emeritus director of the herbarium of the University of Michigan, on June 14, aged sixty-two years.

### News and Views.

ON July 25 occurs the centenary of the death of the astronomer, Fearon Fallows, the first director of the observatory founded at the Cape of Good Hope through the action of the Commissioners of Longitude. Born in July 1789, at Cockermouth, Cumberland, the birthplace of Dalton, Fallows was brought up to his father's trade of weaving, but by study and the assistance of a clergyman was able to become a school teacher and then to proceed to Cambridge. Entering St. John's College, he graduated as third Wrangler in 1813, Sir John Herschel being Senior Wrangler, and became mathematical lecturer at Corpus Christi College. On Oct. 20, 1820, he was chosen director of the proposed observatory at the Cape, and to him fell the lot of choosing the site and of installing the first instruments. Immediately on arrival in 1821, with small instruments made by Dollond and Ramsden, he began observations of the principal southern stars, the results of which are contained in his catalogue of 273 stars contributed to the Royal Society in 1824. Later on, he published an account of a series of pendulum experiments. His work was done with but little assistance and in discouraging circumstances. He himself suffered from the effects of sunstroke, and his death at the early age of forty-two years was brought about through scarlatina and dropsy. He died at the naval base, Simons Town, but his grave, marked by a slab of black Robben Island stone, is near the observatory. He left some four thousand observations, which were afterwards reduced by Airy. His successors at the Cape have included Henderson, Maclear, Stone, and Sir David Gill.

ON July 17, in the Public Library of Kingston-on-Thames, a portrait memorial tablet was unveiled to commemorate the work of Eadweard Muybridge, one of the pioneers of modern cinematography. Born at Kingston-on-Thames in 1830, Muybridge emigrated to America, and, joining the staff of the United States Coast and Geodetic Survey, he rose to be director of the photographic surveys. About 1872, a discussion arose among some horse-lovers at the Sacramento race-course, California, as to whether a horse ever had all

four feet off the ground at once. A wager having been made, Muybridge was asked to settle the point with the aid of the camera. Placing on one side of the track a long white screen and on the other twenty-four cameras, he stretched threads across the track which were broken by the horse and released the camera shutters. The results were conclusive and showed that a galloping horse did, at times, have all four feet off the ground. Muybridge's interest was stimulated by this work and he carried on his investigations, publishing a book, "The Horse in Motion", and inventing apparatus for projecting pictures at rates between 12 and 32 pictures a second. In 1880 he invented his zoopraxiscope; in 1881, in Paris, where he met Marey, he also produced moving pictures, and the following year he lectured on the subject at the Royal Institution. He died twenty-seven years ago, bequeathing his zoopraxiscope and lantern slides to Kingston Museum.

AT the ninety-ninth annual meeting of the British Medical Association held at Eastbourne on July 17-25, the president, Dr. W. G. Willoughby, Medical Officer of Health of the town, took as the subject of his address, "Public Health—To-day and To-morrow". Respecting to-day, the situation is not altogether satisfactory, for the Registrar-General's returns for England and Wales demonstrate that there are still far too many deaths at early ages; and that, though the vitality of the nation has steadily improved, the expectation of life is still only fifty-five years for males and fifty-nine years for females. Coincidentally with the 40,000 annual deaths of children who escape the risks of infancy, there must be a large amount of sickness among the survivors, causing much indifferent health and permanent physical defects. That this is so is confirmed by the reports of national health insurance and by the wholesale rejections of would-be recruits for the fighting services. In the outlook for the future, owing to the reduction in the birth and death rates, we now have to deal with a population increasingly older than in the past; and as the population becomes older the prospect of a further reduction

in the death rate become less, so that if the present course of birth reduction continues, the excess of births over deaths will disappear.

UNFORTUNATELY, as Dr. Willoughby pointed out, there is a greater proportionate reduction in the number of births among the better types of the race than among the less satisfactory, resulting in a mental and physical disadvantage to the race as a whole. The proportion of mental defectives in the population has increased from about four to eight per 1000 in twenty-five years. Birth control is at its minimum among these people, who seem especially fertile. In a minor way, accidents and perilous occupations exact an increasing toll from the nation. There never was a time when so much was expected from the State without individual effort, and lack of such effort and want of employment tend to the acquiring of habits that are not conducive to health. Fortunately, some of the changes that are occurring are favourable to the health of the population, such as improved education. In the later portion of his address, Dr. Willoughby dealt with the relation of the medical profession to the public health, to post-graduate medical study and research, and to the auxiliary medical services.

A COMMUNICATION from Sir Aurel Stein in the *Times* of July 16 gives the first detailed account of the events which led up to the abandonment of his expedition of archæological and geographical exploration in Chinese Turkestan. Every effort had been made to conciliate the Chinese authorities. A memorandum describing the object and scope of the expedition was submitted and fully explained to the Ministry of Foreign Affairs when application was made for a permit; the wish was expressed that a Chinese scholar and topographer should accompany the party, and an undertaking was given that no object of archæological interest would be removed from the country without the previous consent of the Chinese Government. It is obvious that from the very outset a determined effort was made at every possible point to delay the expedition, in order that no work could be undertaken during the coming winter, the only season when archæological exploration is possible in the desert. The party was halted on the frontier of Hsin Chiang while permission to enter the province was obtained, although this had already been granted. This was only the first of a series of difficulties and delays, and in the end it was not until mid-November, some weeks late, that the expedition was allowed to leave Kashgar for Khotan. Even so, Sir Aurel was met at Keriya with the announcement that no digging was permitted, though this had been specifically sanctioned before he left Kashgar. Notwithstanding these obstructions, by the end of April the Tarim basin had been completely circumambulated and much valuable information acquired. At this point the request for a detailed memorandum of the objects of the expedition proved the last straw. As there seemed no prospect of any cessation of vexatious obstruction, Sir Aurel Stein returned to Kashmir.

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AN extraordinary meeting of the Institut International d'Anthropologie will be held in Paris on Sept. 20-27 in connexion with the Colonial Exhibition under the honorary presidency of M. Paul Doumer, President of the Republic, and Marshall Lyautey. This special meeting is to be regarded as the fifth Assemblée Générale of the Institut and the fifteenth Congrès International d'Anthropologie et Archéologie préhistorique. The Congress, in accordance with previous practice, will meet in five sections, under presidents as follows: morphological anthropology and study of races (Drs. Vallois and MacAuliffe); human palæontology and archæology (M. le Comte Begouen); eugenics and heredity (Dr. Vignes); psychosociology and criminology (Drs. Papillaut and Paul Boncour); ethnography, folklore, and human geography (M. Louis Marin). Special attention will be directed to topics relating to the French colonies, and in particular to extra-European archæology, a subject which the promoters of the Congress point out is becoming of increasing importance in the archæological field. Reports on problems in this province will be presented from MM. Reygasse, Joleaud, Patte, Laforgue, Benoit, Begouen, Père Koehler and others. Visits to museums, collections, and other places of interest to members of the congress are being arranged. Applications for membership should be addressed to the Secretariat of the Institut International d'Anthropologie, 15 rue de l'Ecole de Médecine, Paris, from which further details may be obtained.

A RECENT communication to the Société Préhistorique Française by Mr. Ludovic MacLellan Mann, in the fourth part of the Society's *Bulletin* for the current year, deals with his discovery of an apparently unique site and a new culture of pre-Chellean age in the gravels of Stanstead, Upper Caterham, Surrey. Systematic excavation in the summer of 1930 brought to light what is claimed to be evidence of human occupation and a flint factory at a depth of 7 metres beneath strata of alluvium, sand, and gravels which are absolutely sterile. Mr. Mann has found material which he regards as a series of implements, finished and unfinished, two hearths, and animal bones. The pressure of the immense mass of superincumbent material and moisture have rendered the flint extremely fragile, and some implements, in addition to artificial fracture, show subsequent natural fracture due to pressure. The number of unfinished implements far exceeds that of the finished, and the small implements are more numerous than the large. The unfinished large implements, which show every stage of manufacture and exhibit what is apparently a new technique, have certain characteristic forms, of which that with a horseshoe cutting-edge is the most typical. The small implements have a wide variation in form, some of them resembling those of the last phase of the stone age. Mr. Mann admits that the implements are difficult to find and identify; nevertheless, he claims that here is unquestionably a workshop site of a new pre-Chellean culture (for which he suggests the name "Stansteadian") of late Pliocene or early Pleistocene date.

THE B.C.G. ('Bacille Calmette-Guèrin') vaccine is a culture of a bovine strain of the tubercle bacillus which by cultivation for a number of generations upon a glycerine-hile medium has become non-virulent and is tolerated by bovines. Animals treated with this vaccine become relatively insusceptible to tuberculosis, and vaccination of human beings is now being attempted. Numbers of children have been vaccinated in France, and according to Calmette the incidence of tuberculosis among them is much less than among non-vaccinated children in similar environments. Experiments by Calmette and Wilbert at the Pasteur Institute, French Guinea, upon chimpanzees and monkeys, showed that of vaccinated and control animals kept with infected monkeys, none of the vaccinated and all of the controls became tuberculous. A. Stanley Griffith has carried out a further series of experiments on the protective power of B.C.G. vaccine against tuberculosis in monkeys (Med. Research Council: *Spec. Rep. Series*, No. 152. H.M. Stationery Office, 9d. net). His conclusions are that the strain of B.C.G. vaccine used in these experiments can produce local tuberculous lesions in the rhesus monkey, but these are always benign and do not lead to generalisation. Vaccination with it, however, whether by feeding or by injection, has failed to afford the complete protection to monkeys claimed by Wilbert, but may in some instances have produced a low grade of relative immunity. Full details are given of the experiments performed and of the results obtained.

THE ninth International Dairy Congress was held in Copenhagen on July 13-17. The Congress was attended by more than 1600 delegates, of whom 800 came from Denmark, 200 from the other Scandinavian countries, and the remainder from other parts of Europe, the United States, and other parts of the world. About 200 representatives of various agricultural, dairying, manufacturing, and scientific interests attended from Great Britain and Ireland and the Dominions. More than thirty governments sent official representatives. The Congress was officially opened on the afternoon of July 13 by the president, Mr. S. Overgaard, in the presence of His Majesty King Christian X. In the evening the Congress was entertained by the Mayor of Copenhagen in the world-famous Town Hall. The four mornings of the Congress were devoted to sectional discussions of papers covering an extremely wide range of dairying interests: public health legislation and administration, bacteriology, animal husbandry, genetics, biochemistry, dairy machinery, and other interests were all thoroughly represented. The afternoons were devoted to a series of tours to points of interest within a radius of about fifty miles from Copenhagen. These included experimental farms and dairies, bacon factories, typical Danish agricultural units, milk distributing centres, as well as a number of places of less technical interest. A National Dairy Exhibition was also held at the Forum during the Congress week.

HISTORICALLY, perhaps the most important happening at this particular Congress was the formation of

a special branch of tropical dairying within the dairy federation. The slow but steady increase of tropical dairying has brought with it its own problems, and congresses like the one just held, even were they to serve no other purpose, would be invaluable in affording opportunities for the discussion of such special problems and for the creation of the machinery necessary to secure the permanent interchange of experience and views about them. The next International Dairy Congress is to be held in 1934 in Berlin, and an invitation was extended by His Excellency Baron G. Acerbo dell' Aterno, the Italian Minister of Agriculture, for the 1937 Congress to take place in Italy.

THE Empire Forestry Association, founded in 1921, has recently issued a small brochure entitled "Forests, an Imperial Treasure", which briefly puts the case of the importance at the present day of the forests of the Empire and their proper development; a personal appeal is also made for more funds, in the shape of additional subscriptions to the membership of the Association. At first sight, the value and the possibilities of propaganda and active assistance to the cause of forestry in all its branches open to such an Association would appear to be of the first magnitude. In some Continental countries the membership of similar associations comprises professional forest officers, private owners of forests, timber merchants, and representatives of many other important industries the raw products of which come from the forest. The trouble in the British Empire has been, and still is, that our people, from cabinet minister downwards, do not possess that instinctive recognition of the value of the forest to the countryside and the benefits, direct and indirect, which the possession of areas of well-managed forests confer upon a country and its people. The brochure of the Empire Forestry Association rightly recognises the enormous potential value of existing Empire forests, a value which, in the opinion of many, has become greatly enhanced as a result of the War. In spite of all substitutes, timber still remains of prime importance. The brochure states, "Timber cannot be immediately produced. . . . It is a question of years—of slow, steady growth, and careful tending from sapling to the forest giant", and the same remains true for the controlling forest staff. It takes time to secure a fully trained and organised forest staff with a graduated service of from 1 to (say) 30 or 35 years. Irregularities in recruiting, cutting down in hard times, and over-recruiting in periods when revenue is abundant, may be a sound policy in the spending departments. But when applied to a forest department, it spells disorganisation both in administration and, more important, out in the forests, where the loss in potential forest revenue is accumulative. The brochure does not make specific mention of this aspect, the foundation of all successful forest management.

THE introduction in 1869 of a number of egg clusters of the gipsy moth into the United States led to no serious consequences until twenty years later. In 1889 the larvæ of this insect caused severe defoliation

of trees in the neighbourhood of Boston, Mass., and the rapid spread of the pest into other States led to Congress making an appropriation in 1906 to enable adequate control measures to be taken. The brown-tail moth was first found in 1897 in Somerville, Mass., and its initial spread was more rapid than that of the first-mentioned species. The two kinds of insect demand very similar methods of control, and the whole subject is reviewed by Mr. A. F. Burgess in *Farmer's Bulletin*, No. 1623, issued by the U.S. Department of Agriculture in December. The Federal Government is largely concerned with checking the spread of these insects into uninfested areas, while the affected States themselves aim at reducing the infestations within their own administrative territories. The Government of Canada and several of the Provinces have also organised control and eradication measures within the Dominion. In so far as Canada is concerned, the gipsy moth appears to have been eradicated and the brown-tail moth is found in decreasing numbers. In the United States, the brown-tail moth has also declined very appreciably, and imported parasites have been responsible for a considerable proportion of the good results obtained. Other factors, including spraying operations, have also played their part. With the gipsy moth, imported natural enemies have reduced its numbers in many localities; but they are not equally effective over the entire infected area, and the best mechanical and chemical methods of control have to be energetically applied. The establishment of a barrier zone, 25-30 miles broad, is an important measure in an attempt to check the westward spread of the insect, and, so far, this appears to have accomplished its purpose.

In northern Italy the Italian State railways electrified many railway lines with three-phase supply at the low frequency of  $16\frac{2}{3}$  cycles per second. To increase the output of their converter sets in substations or placed in the open beside the railway, they possess a number of portable substations. These can help any substation that is overloaded or even replace a unit which is temporarily out of commission. The output of a substation must be sufficient for the greatest traffic load even although it occurs very rarely. With portable substations these peaks can be provided for, and so the size of the requisite buildings and machinery for these substations can be reduced. In southern Italy the State railways are now being electrified with 3000 volts direct current. Very favourable results with this system have been obtained on the Benevento-Foggia line, which is being extended to Naples. Further main line railways are being electrified on this system. For example, the railway connecting Bologna and Florence and the railway between Rome and Naples. With direct current obtained from a three-phase supply, the use of portable substations is particularly convenient, as mercury arc rectifiers can be used which occupy little space and are not too heavy. A full description of one of these portable rectifier substations capable of converting 2000 kilowatts, which has been constructed for the Italian State railways, is given in the *Brown Boveri Review* for June. The rectifier is fitted with a high

vacuum pump, and so the set can be put into use at once even after a long journey. A photograph is given in the *Review* of a portable rectifier substation, two of which will be in operation this year.

THE generation of water gas by blowing a coke bed alternately with air and steam has an industrial importance which has increased since the process came to be used for preparing hydrogen on a large scale for synthetic and other purposes. This has led to a considerable study of its thermal economy by the Institution of Gas Engineers and by the Fuel Research Board. The preparation of accurate heat balances of a process which consists of a series of rapid alternations of operations at a high temperature presents much difficulty. One method of checking the measurements is to equate, if possible, the heat set free in the 'air blow' with the heat absorbed in the 'steam run', and the results of such a study made at the Fuel Research Station are described in a paper, "The Water Gas Process: a Study of the Carbon and Thermal Balance" (*Technical Paper No. 30*, H.M. Stationery Office, 9d. net). Great attention was given to devising methods for metering the gas streams involved and measuring the hitherto indeterminate quantities. In spite of the difficulty of the task, it was possible to account as heat absorbed on the 'run' for 90 per cent of the heat evolved in the 'blow'. The remainder unmeasured is equivalent to about 3.3 per cent of the coke fed into the generator. It is of the same order as estimated losses during clinkering and by radiation.

WE have received the first number of a new publication, "Occasional Notes of the Hong Kong Horticultural Society" (No. 1, February 1931), edited by Dr. G. A. C. Herklots. In a foreword, the editor points out that within the small territories of Hong Kong very diverse conditions prevail, from the point of view of the gardener, from Victoria Peak with its winter fogs and cool nights to the warmer conditions of the lower levels and Kowloon. It is proposed in the new journal to deal with the special problems relating to the cultivation of particular plants in Hong Kong (sweet peas are dealt with in this number) and also to describe various genera of interesting plants, species of which have been introduced to Hong Kong gardens, and five species of *Thunbergia* are thus dealt with and illustrated in four simple line drawings. Mr. R. A. Nicholson contributes notes on the cultivation of various garden favourites, roses, carnations, dahlias, etc., under Hong Kong conditions; whilst the editor contributes a note upon the soils of the Hong Kong territories. These soils, formed by the weathering of igneous rocks under tropical conditions with relatively heavy rainfall, tend to be of the red laterite type, poor in the necessary salts and becoming acid in reaction. This note is useful as pointing the way both to empirical manual treatment and also to a more thorough scientific study of the soils of the territories when the workers are available. If this new journal can fulfil the task it has set itself, it should prove a very useful medium for spreading information and stimulating inquiry and research upon

horticultural problems both in Hong Kong and in a wider field.

THE annual report of the Smithsonian Institution upon its "Explorations and Field-work" for 1930 reveals again that energy and lavish expenditure which are the envy of other countries. Field expeditions, not content with concerning themselves with twenty-three of the States of their own country, touched upon every continent and upon many islands. The subjects of the expeditions were as different as their objectives; they included the radiation of the sun, the ancient Eskimo culture of Alaska, Indian music, the fauna and flora of central China, birds of Spain, fossil horses in Idaho, and so on. It might be said that the scientific value of the expeditions varied also. That to Spain, for example, must have partaken rather of a collecting excursion for the replenishing of cabinets, for European zoologists have already done pretty well by the birds of Spain; one feels, indeed, that such a theme might well be left to them, and that energies should rather be concentrated on work lying to hand likely to yield fresher results. Many of the expeditions, however, were of fundamental importance; we need only cite Dr. J. W. Gidley's collecting in the fossil bone deposit at Hagerman, Idaho, which seems to have been a watering place for the wild creatures of the region, so many hundreds of skeletons remain there. Sufficient material of the rare extinct horse, *Plesippus*, was collected to build three or four complete skeletons.

WHILE progress has been made in Great Britain in the study of oil-paintings by microscopic analysis, largely through the work of Prof. A. P. Laurie, experts on the Continent have also been turning their attention, with great effect, to this recent and fascinating branch of research. The variety of aims and methods employed is so considerable that an International Conference, organised by l'Office International des Musées, was held on Oct. 13-17, 1930, in Rome, "for the study of scientific methods applied to the examination and preservation of works of art". With commendable promptitude the papers read at the Conference have been published in the journal of the International Office of Museums, *Muscion* (vols. 13-14, 1931). Subjects of discussion included the optical examination of paintings, the chemical and micro-chemical analysis of paintings and mural decorations, the importance of the use of X-rays and its limitations; and an introductory paper by J.-F. Cellerier deals generally with scientific methods and usages in the examination of paintings. Otherwise the magazine contains much information of interest to curators of art collections. There is a short summary in English of the chief papers.

"POSITIVE Eugenics in Practice" is the title of an article in the April issue of the *Eugenics Review* (vol. 23, No. 1). The writer, Mr. Alfred Dachert, conceived the idea many years ago of founding a township for the express purpose of housing couples who would be likely to raise healthy families. In 1921 the city of Strasbourg, realising the significance of the work, placed a site at his disposal, and with funds contributed

by the company he managed, building was commenced and 140 houses are now completed, specially planned so as to avoid unnecessary labour for the young housewife. As tenants for the purpose in view, it was necessary to find healthy, vigorous, and comely young couples who really wanted children, and a system of selection was adopted, based upon the application, an interview, visitation of the present home, and medical examination. The experiment seems to be an unqualified success, the birthrate is much higher than in the city of Strasbourg itself, and the behaviour of the citizens has been exemplary. To maintain its purpose, infertile couples have to be replaced by others, but this has been necessary only in nine instances during the seven years since the birth of the township.

VITAMIN A has been shown by Green and Mellanby to be of value as an anti-infective agent when given in large doses. The British Drug Houses, Ltd., London, N.I. have recently put on the market a preparation made from mammalian liver under the name of Avoleum, which, unlike their original product, Radiostoleum, contains no added vitamin D. As mammals, unlike fish, do not store the latter in their livers, the concentrate may be considered to be free from the anti-rachitic factor. The blue value by the antimony trichloride test is about ninety times higher than that given by an average good codliver oil. The concentrate is also standardised in rats by its power of promoting growth and preventing and curing xerophthalmia in comparison with a known sample of codliver oil. Avoleum is suitable for administration in acute conditions in which massive doses of vitamin A are required and also in cases in which vitamin D is contra-indicated. It is issued in capsules, each containing 3 minims of the solution: the dose is 1-3 capsules daily.

It is announced in *Science* that the Roosevelt Memorial Association, New York, has awarded a Roosevelt Medal to Dr. C. Hart Merriam, chief of the U.S. Biological Survey from 1885 to 1910, and since then research associate of the Smithsonian Institution.

THE following have been elected to fill the vacancies which will occur in the Council of the Institution of Electrical Engineers on Sept. 30: *President*, Capt. J. M. Donaldson; *Vice-Presidents*, Mr. J. M. Kennedy and Mr. F. W. Purse; *Hon. Treasurer*, Mr. E. Leete; *Ordinary Members*, Lieut.-Col. A. G. Lee, Mr. C. le Maistre, Mr. H. A. Ratcliff, Dr. E. H. Rayner, Mr. R. H. Schofield, Mr. J. W. J. Townley, and the Viscount Falmouth.

THE International Congress of Mathematics will be held at Zurich on Sept. 4-12, 1932. There will be general discussions on the present position of mathematics, also short papers of recent research work. In connexion with the Congress, receptions and excursions are being arranged. Further details will be available in October.

REFERRING to a paragraph that appeared in NATURE for July 4 (vol. 128, p. 15), the Rev. J. P. Rowland, S.J., informs us that, with the aid of addi-

ditional records (the total number used being twenty), he has made a new determination of the position of the epicentre of the North Sea earthquake of June 7. This he finds to be in lat. 53° 57' N., long. 1° 25' E., or about 22 miles to the north-east of the position previously assigned, the corresponding time at the origin being 0 h. 25 m. 24 s. G.M.T.

THE London Natural History Society has recently published a pamphlet describing its constitution and activities. Founded in 1858, its present headquarters are at the London School of Hygiene and Tropical Medicine. The president is the Right Hon. Viscount Grey of Fallodon. Members of the Society enjoy the privileges of admission to all lectures; use of the Society's collection and library, receipt of the annual copy of the *London Naturalist*, and access to places of interest. The Society is divided into archaeological, botanical, entomological, ornithological, plant galls, and rambling sections. The annual subscription is 7s. 6d., with an entrance fee of 2s. 6d. Application for membership should be made to the Secretary, 91 Queen's Road, Buckhurst Hill, Essex.

THE Empire Marketing Board has made a grant of £15,790, spread over five years, towards a scheme for the development of rice research in India which aims at increasing the yield and improving the quality of Indian rice. The scheme is organised by the Imperial Council of Agricultural Research of the Government of India. The Empire Marketing Board has offered to bear half the cost of developments in Burma, the principal rice-exporting Province, and Bengal, where Patna rice is grown for export. Schemes for development of research in the remaining five Provinces are to be financed entirely by the Imperial Council. About 33,000,000 tons of rice are produced annually in India, of which only a small proportion is exported. The scope for research is immense. Improvement may come through breeding better varieties of rice already grown in India, or through establishing there new and better kinds of rice from other countries. A beginning has already been made and more than a million acres are under improved varieties.

THE Ministry of Health has published a "Review of certain Present Aspects of Smallpox Prevention", which deals with the subject particularly in relation to the vaccination acts (*Reps. on Pub. Health and Med. Subjects*, No. 62. H.M. Stationery Office. 1s. net). It is concluded that in spite of the fact that England and Wales, of the population of which some forty per cent are unvaccinated, are intrinsically more vulnerable to the serious and rapid spread of severe epidemic smallpox than are countries where the population is compulsorily vaccinated and re-vaccinated, the protective methods which are part of ordinary British administration should prove efficacious in protecting the community from invasion. Post-vaccinal encephalitis is also discussed, and the vaccination requirements of certain European countries are summarised.

THE *Annual Report* of the Calcutta School of Tropical Medicine, Institute of Hygiene, and the Car-

michael Hospital for Tropical Diseases, 1930, recently issued (Calcutta: Bengal Government Press, 1931), contains summaries of the work, routine and research, carried out in the laboratories and wards. Lieut.-Col. Acton, the director, in his introduction, after alluding to some of the administrative difficulties of the post, gives a useful review of the recent advances in tropical medicine. Recent investigations indicate that epidemic dropsy, vast epidemics of which have occurred in Calcutta from time to time, is connected with the consumption of badly stored rice, and is related to beriberi. Promising results have been obtained in the treatment of oriental sore with local injections of a 2 per cent solution of acid berberine sulphate. The growth of the *Leishmania* parasite of this disease in culture is completely inhibited by a dilution of 1 : 80,000 of this drug.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—An assistant master for science and engineering at the Oswestry Technical Institute—The Clerk to the Governors, Technical Institute, 18 Arthur Street, Oswestry (July 26). A lecturer in civil engineering in the Faculty of Engineering of the University of Bristol—The Secretary and Acting Registrar, University, Bristol (July 27). A temporary investigator under the Department of Agriculture for Scotland, in connexion with an investigation of the marketing of grain and grass seeds in Scotland—The Establishment Officer, Department of Agriculture for Scotland, Queen Street, Edinburgh (July 29). A lecturer in biochemistry (fermentation industries), at the Heriot-Watt College, Edinburgh—The Secretary, Heriot-Watt College, Edinburgh (July 31). A part-time assistant in the Department of History and Method of Science of University College, London—The Secretary, University College, Gower Street, W.C.1 (Aug. 4). A veterinary education officer under the Derbyshire Education Committee—The Director of Education, County Education Office, St. Mary's Gate, Derby (Aug. 5). A head of the Building Department of Woolwich Polytechnic—The Principal, Woolwich Polytechnic, S.E.18. A master for manual instruction, principally in woodwork, under the Middlesex Education Committee—The Secretary, Education Offices (H), 10 Great George Street, S.W.1. A teacher of carpentry and joinery at the Tottenham Polytechnic—The Principal, Tottenham Polytechnic, High Road, N.15. Teachers of electrical science, workshop calculations, workshop drawing, workshop science, and engineering drawing at the Guildford Technical College—The Director, Technical College, Park Street, Guildford. Part-time instructors in practical work in the engineering shop, practical geometry, engineering drawing, mathematics, chemistry, physics, and mechanics at the Watford Junior Technical School in Engineering—The Principal, Technical School, Watford. A temporary scientific assistant at the Air Defence Experimental Establishment—The Superintendent, Air Defence Experimental Establishment, Biggin Hill, Kent. A laboratory attendant in the senior physical laboratory of Oundle School—W. Llowarch, 6 Milton Road, Oundle.