Bessel functions to the habits of lizards seems very little known, and much time has in consequence been wasted by research workers in collecting information on subjects in which bibliographies were already in existence.

Street Lighting

ILLUMINATING engineers are beginning to agitate for national control of the lighting of roads and streets. In the *Electrical Review* of June 8, C. W. Sully points out that boroughs and urban councils in Great Britain are granted powers regarding street lighting by the Public Health Act of 1875 and that rural districts exercise their powers under the Lighting and Watching Act of 1833. The public lighting of all our thoroughfares to-day is controlled by Acts published either sixty or a hundred years ago. Our population has nearly trebled since 1833 and has increased by more than seventy per cent since the last Act became law. There were no fast moving vehicles on our roads sixty years ago—there are now two million licensed automobiles. The existence of vast numbers of cinemas and also of greyhound racing tracks encourages pedestrians to use the streets after dark. Yet much of our highway lighting is mounted on similar posts spaced at the same distance apart as when our road vehicles were fitted with lanterns carrying candles. The candle power of the lights have been increased a hundred-fold in order to lessen the risk of accidents but in many roads the lighting is very 'patchy', the lamps acting mainly as beacon lights. It is wasteful to employ large units without suitable directive fittings to ensure a uniform distribution of the light. The new British Standard Specification makes a special feature of this by setting out a spacing ratio for street lights which produces a more uniform illumination. In general this entails altering the height of the posts. It would be advisable if the Government would allot to one of its numerous departments the task of specifying the minimum light to be provided on the various roads which it has already classified. It appears that new legislation is required to deal with this important matter.

Some Aspects of the Vertebrate Brain

In his presidential address before the Linnean Society of New South Wales on March 28, Prof. A. N. Burkitt outlined progress in our knowledge of the structure and workings of the brain. The present lopsidedness of our knowledge, so amazing in the physical and chemical world and so backward as regards the very instrument which has created human civilisation, is the cause of much of the discontent and difficulties of our present age. Recent work upon the sense organs and the impulses they transmit to the brain, and some idea of how closely parallel to the physical reality these impulses may be, was discussed, partly in relation to philosophical problems. The bearing of the evolution of the sense organs upon the evolution of the brain, so ably outlined by Elliot Smith, was briefly mentioned. The importance of the recent discovery that the emotional aspect of life is associated with the activity of a special part of the brain, the thalamus, distinct and separate from the great thinking and discriminatory apparatus, the cerebral cortex, was emphasised, and suggestions were made as to the possible bearing of this knowledge upon the Freudian hypothesis. Finally, an attempt was made to suggest some inkling of the physiological phenomena that occur in the brain during conscious thinking in all its myriad aspects; also the mechanisms concerned in expression and the control of muscles, together with the evolution of these controlling mechanisms and muscles, were briefly outlined.

Organisation of Production

UNDER the title "Prohibiting Poverty", a pamphlet by P. M. Martin, written and published by P. M. Martin, Winter Park, Florida, outlines a plan for obtaining economic security, based on the view that the prime purpose of organised society is to enable everyone to get a living. The plan, described as the "National Livelihood Plan", proposes to separate necessaries from luxuries, and to deal with them in separate departments of government on different principles. The production of necessities is to be organised under a new national organisation, known as the Commons, the function of which is to produce and distribute a basic livelihood in necessities to the entire population. This organisation would operate without money, distributing goods as produced without selling them. It would be recruited compulsorily by the whole youth of the nation from school-leaving age and would utilise the full advantages of scientific discovery in increasing industrial output and efficiency. After eight years' service, the Commoner would pass into the Capitals, in which the existing capitalistic organisation of society would persist, limited, however, to the production of luxuries, and in which his previous labours have earned him or her a free distribution for life from the Commons of the basic necessities of life. The Commons would be directed by a salaried body of technical experts, men of science and investigators concerned with the continual development and full utilisation of improved methods of production.

Animal Breeding in the British Empire

THE Imperial Bureau of Animal Genetics has issued a bulletin of 47 pages by Dr. F. Fraser Darling on animal breeding in the British Empire, obtainable from Oliver and Boyd, Edinburgh, or 33 Paternoster Row, E.C., at 1*s*. It summarises the present position and work in progress in the breeding of farm animals in all parts of the Empire. The first part deals with Great Britain and the Dominions, where conditions are mainly temperate; the second part with India and the Colonies, which are largely in the tropics. The more practical aspects of the breeding of horses, cattle, sheep, pigs and goats are considered. Reference is made to such recent developments as sperm storage for horse insemination, and the fact that breeds of pigs differ in the number of ribs and hence

in their value for bacon. Useful information is given regarding sheep breeding in Britain, Canada, Australia, New Zealand and South Africa, and the varying problems each country has to face. We learn that the world's record for butter-fat production —1,614 lb. in a year—is held by an Australian Shorthorn, that Romney Marsh sheep are successful in New Zealand, and that camel breeding is developed by Government in the Sudan. Zebu cattle and buffaloes have been introduced from India into the West Indies, Tanganyika and British Guiana. Cattle suitable for the tropics can probably be produced by crosses between zebu and certain European breeds. Such crosses between zebu cows and Friesian bulls have produced a satisfactory breed in Trinidad, but Krishna Valley zebu in Tanganyika crossed with Devons or Aberdeen Angus give intractable animals unsuitable for domestic uses.

National Institute of Agricultural Botany

THE fourteenth report of the National Institute of Agricultural Botany records considerable progress in the selection and multiplication of improved crops. Exhaustive tests of yield of many farm and garden plants have been made in different districts, and authoritative comparisons of varieties are now available. Considerable research is being devoted to problems of seed-testing, and a large number of routine tests have been made for other investigators. The classical potato trials at Ormskirk, Lancs, seem to have suffered from severe climatic conditions, but the work on potato synonyms progresses satisfactorily, and should do much to protect the farmer and gardener from unfair exploitation. The head office of the Institute is in Huntingdon Road, Cambridge, and a very close co-operation is maintained with related organisations.

Ichthyology in the United States

THE twentieth anniversary number of *Copeia* (No. 4, December 1933. American Society of Ichthyologists and Herpetologists), which deals with fishes, reptiles and amphibians, is dedicated to its founder, John Treadwell Nicholls. In it are included many interesting and valuable papers, notable among them being "Deep-Sea Stomiatoid Fishes" by William Beebe, in which one new genus and eight new species are described from the Bermuda Oceanographic Expeditions of the Department of Tropical Research of the New York Zoological Society. These were all taken within the eight-mile circle, the centre of which is at lat. 32° 12′ N., long. 64° 36′ W., 9¼ miles south-south-west of Nonsuch Island, Bermuda. The barbels of some of these fishes are very peculiar; one of them, belonging to *Ultimostomias mirabilis* gen. et sp.nov., has a barbel measuring 417 mm. in length (more than ten times the length of the fish itself). Other papers on fish are by Albert Eide Parr, George S. Myers, E. W. Gudger and C. M. Breder, Jr. A new snake from Panama is described by E. R. Dunn and there is an interesting article on the immunity of rattlesnakes to their venom by A. A. Nichol, Volney Douglas and Lewellyn Peck. Other papers are on the nests and young of the Allegheny salamander, the ophidian generic names *Ahaetulla* and *Dendrophis*, secondary sexual characters of *Bufo melanostictus*, and *Pseudemys troostii-elegans* complex, a case of sexual dimorphism.

Strength of Spirits

As is well known, the Finance Act of 1915 provided that where by reason of the high temperature or strength of spirits the ordinary Sikes hydrometer was not applicable, the strength may be ascertained by means of the supplemental Sikes *A* hydrometer, using tables identified as II and IV prepared by the late Sir Edward Thorpe when principal of the Government Laboratory. Under the Strength and Weight of Spirits Ascertainment Regulations, 1930, when the same conditions of high temperature or strength apply, the use of a further supplemental Sikes *B* hydrometer is permitted. When this is used without the poise marked *A* attached, Tables V and VI prepared by Sir Robert Robertson are applicable. Tables II, IV, V and VI have been issued under the authority of the Commissioners of H.M. Customs and Excise in one volume at 2*s*. 6*d*. (London: H.M. Stationery Office): the ordinary tables I and III are printed in a separate volume. The tables cover temperatures from 30° to 100° F.

Institution of Petroleum Geologists

THE summer meeting of the Institution of Petroleum Technologists will be held in London at the Royal Society of Arts on June 28–29. The programme consists of a series of papers, available in advance, on general topics which will be submitted for discussion. The subjects of the first day's discussions are the relation of oil and coal to the petroleum industry, measurement of oil in bulk, and the format of the Institution's *Journal*. The second day is being given to a series of reports on the progress of naphthology; the Refining and Chemical Section, under the chairmanship of Dr. F. H. Garner, will occupy the morning session, while the Field Technology, Geology and General Sections, under the chairmanship of Mr. A. Beeby Thompson, will take up the afternoon session. During the course of the annual dinner on June 29, the Redwood Medal of the Institution will be presented to Dr. David White, of the U.S. Geological Survey, who is known for his studies in palæobotany. This medal is awarded biennially, and is given for contributions to our knowledge of petroleum technology.

Rockefeller Medical Fellowships

THE Medical Research Council announces that, on behalf of the Rockefeller Foundation of New York, it has made the following awards of travelling fellowships for the academic year 1934–35: Mr. I. Aird, demonstrator in anatomy, University of Edinburgh, and clinical tutor in surgery, Royal Infirmary, Edinburgh; Mr. I. A. Anderson, house physician, Royal Infirmary, Aberdeen; Prof. E. G. Oastler, professor of physiology, St. Mungo's College, Glasgow,