The Institute of Astronomy, founded with Academia Sinica in 1928, is the successor of the Peking Central Observatory, and now controls the Purple Mountain Observatory and the Phœnix Hill Observatory at Nanking and Kunming, respectively. A photometric and spectrophotometric study of the sun, planets and stars with the 24-in. reflector, observations of Cepheids and variable stars with the Ross camera and the astrocamera, and studies on solar activities with the spectroheliosoope are planned. The Institute of Chemistry, also founded in 1928, now occupies part of the former Shanghai Science Institute. Its work has included the ultra-violet absorption spectra of simple polyatomic molecules, the synthesis of compounds related to the sex hormones and the chemistry of fused ring systems, the chemistry of the santonins, and the extraction of alkaloids from native plants and study of their structure. Some of this work has had to be suspended, and that now in progress includes studies of the kinetics of the reactions of alcohols, aldehydes and ketones with hypoiodite solutions; phosphatases and the mechanism of their action; the application of the Hofmann reaction; the preparation of local anæsthetics; the effect of ions on the determination of sulphate; the determination of tungsten; the electro-deposition of metals and the determination of uranium in ores rich in columbium and tantalum.

The Institute of Geology, now re-established in Nanking, with eleven research fellows, four research associates and seven corresponding fellows, has explored the mining areas of Hupeh, the structure and tectonic history of the Tsinling range and the Nanking hills, coal-fields and mines in Kwangsi; the stratigraphical development, structure and mineral resources of the Nanking region and the mountain ranges between Szechuan and Kupeh and between Kweichow and Hunan. Quaternary glaciation has been discovered in the Lu-Shan and other areas, and most of the plant fossils collected from Kiangsu and elsewhere have been described; while in geomechanics the Institute has developed a new branch of geology.

The Institute of Zoology was formed in 1944, with the Institute of Botany, out of the Institute of Zoology and Botany organised in July 1934 to succeed the Metropolitan Museum of Natural History established in January 1930. Following these successive re-organisations, the Institute has turned its attention to fish biology, entomology, parasitology, protozoology and experimental zoology, but has not yet resumed work in oceanography. The research staff of the Institute of Botany comprises six research fellows and two research associates, and work in progress includes a survey of higher plants in eastern China, a continuation of the study of higher fungi of China, studies of freshwater Algæ in south-western China, plant physiology, forestry, plant morphology and pathology, and cytogenetical studies on wheat, millet and sorghum.

The Institute of Meteorology, which returned to its original site in September 1946, is now engaged entirely in research on climatology, dynamical meteorology and long-range forecasting. A map of magnetic anomalies in south China is in preparation, and some phases of the theory of seismic waves are being studied. The Institute of History and Philology, established at Canton in 1928 and rehabilitated, after successive evacuations, at Nanking in 1946, is organised in four sections, two of which deal with archæology and with anthropology and ethnology, respectively. Much of the research work of these sections has already been published.

The Institute of Social Sciences, founded at Shanghai in March 1928, and moved to Nanking in January 1932, incorporated the Institute of Social Research, Peiping, in July 1934, and is now located at Li-Chuang, Szechuan. The staff of six research fellows, two part-time research fellows and four research associates is now engaged chiefly in the study of Chinese economy and finance arising out of war conditions, including a study of the national income of China. The Institute of Medicine, established in March 1944, is at present located at Shanghai, where a physiological unit, an organic chemistry unit (studying citrinin) and biochemical unit are at work, but is still being organised.

The Institute of Engineering was organised in March 1928, and its programme has included research on porcelain, on glass (taken over from the Institute of Chemistry), the metallurgy of iron and steel, timber in Yunnan, the design of internal combustion engines, extraction of cobalt oxide from crude ores, electroplating and plastics. The Institute is still located partly in Kunming and partly in Shanghai. The Institute of Psychology has now returned to Shanghai, where it was originally founded in May 1929, and a new programme of neurophysiological research is being planned in place of the studies in physiological and industrial psychology and comparative neuroanatomy interrupted by the war in China.

10/6

ENDOCRINE GLANDS IN INSECTS

DURING the last fifteen years it has been proved that the processes of growth and reproduction in insects are controlled by hormones circulating in the blood. In some instances the source of these hormones has been well established. For example, the 'juvenile hormone' present in the young stages, which prevents the premature occurrence of metamorphosis, is a product of the corpus allatum. But there is still much confusion, both in knowledge and in terminology, about the organs which may be concerned in these hormonal mechanisms.

A memoir published recently by P. Cazal* should go far to clarify the subject, at least on the morphological side. This paper, which is abundantly illustrated with simplified anatomical drawings and exact histological figures, deals in great detail with the 'retrocerebral endocrine glands' and the associated sympathetic or stomatogastric system in all the orders of insects. A total of some 130 species of insects has been studied. There is fairly general agreement about the structures comprised within this system; they are the frontal ganglion, the recurrent nerve, the hypocerebral ganglion, the corpora cardiaca (for which Cazal proposes the name 'corpora paracardiaca') innervated from a medial and lateral group of ganglion cells in the pars intercerebralis of the brain, the corpora allata and the associated nerves.

The author subscribes to the analogy, developed by Hanström and others, between the retrocerebral system in insects and the hypophysis of vertebrates. In both we have an ectodermal epithelial rudiment (the adenohypophysis on one hand, the corpus allatum on the other), homologous perhaps with a

* "Les glandes endocrines rétro-cérébrales des insectes (étude morphologique)." By P. Cazal. Pp. 227. (Paris: *Bull. Biol. Fr. Belg.*, Suppl. 32, 1948.)

cephalic nephridium, which unites during growth with a nervous rudiment (the neurohypophysis or the corpus cardiacum) to form an endocrine complex. Both neurohypophysis and corpus cardiacum are innervated from cells in the brain (the hypothalamus and the protocerebral cells respectively), which themselves probably have a neurocrine function.

The corpus cardiacum (or paracardiacum) is made up of two sorts of cells: chromophil cells which stain deeply with hæmatoxylin after osmic acid fixation, and chromophobe cells, which are probably glial in nature. The chromophil cells are regarded by Cazal as modified neurones, which give off ramifying processes with bulbous extremities discharging their secretion into the blood. In the corpora allata, droplets of secretion with similar staining properties are formed in association with the mitochondria. Further secretory droplets are to be seen along the nerve fibres which connect the neuro-secretory cells of the protocerebrum with the corpus cardiacum.

A very clear account is given of the puzzling structures which make up Weismann's ring in the larvæ of the higher Diptera. There is general agreement that the small dorsal cells represent the corpus allatum; the ventral cells of chromophil and chromophobe types are clearly the corpus cardiacum; Cazal supports E. Thomsen and others in regarding the large lateral cells as pericardial cells which have secondarily acquired an endocrine function. But this last conclusion is based only on the general appearance of these cells. They contain droplets which stain with osmic acid and potassium iodide, a reaction that is thought to be specific for certain phenolic compounds.

V. B. WIGGLESWORTH

APPOINTMENTS VACANT

APPLICATIONS are invited for the following appointments on or before the dates mentioned:

LECTURER IN PHYSICS—The Registrar, Technical College, Sunderland (August 6).

SENIOR PROFESSIONAL OFFICER (Physiology), to take charge of the Plant Physiology Section of the Western Province Fruit Research Station, Stellenbosch—The Secretary, Union of South Africa, South Africa House, Trafalgar Square, London, W.C.2 (August 6).

ASSISTANT LECTURER IN AGRICULTURE, and an ASSISTANT LECTURER IN BIOLOGY—The Clerk to the Governors, Essex Institute of Agriculture, Writtle, Chelmsford (August 6).

SCIENTIST (Grade III) or a SCIENTIFIC TECHNOLOGIST (Grade I) in the Fife and Clackmannan Area Laboratory, Cowdenbeath—The Establishments Officer, National Coal Board, 1 Eglinton Crescent, Edinburgh (August 6).

PLANT PATHOLOGIST (Scientific Officer grade) in connexion with potato storage investigations being carried out at the University of Nottingham School of Agriculture, Sutton Bonington—The Secretary, Agricultural Research Council, 6a Dean's Yard, London, S.W.1 (August 8).

METALLURGICAL CHEMIST IN CHARGE, Dominion Laboratory—The Office of the High Commissioner for New Zealand, 415 Strand, London, W.C.2 (August 10).

LECTURER IN ENGINEERING—The Registrar, Merchant Venturers' Technical College, Bristol 1, endorsed 'L.E.' (August 13).

SENIOR LECTURER or LECTURER IN ANATOMY, DEMONSTRATORS IN ANATOMY, a LECTURER IN INDUSTRIAL HYGIENE, a LECTURER or ASSISTANT LECTURER IN THE DEPARTMENT OF BACTERIOLOGY, and a LECTURER or ASSISTANT LECTURER IN THE DEPARTMENT OF BOTANY—The Registrar, The University, Sheffield (August 13).

SENIOR ASSISTANT IN MECHANICAL ENGINEERING in the Engineering (Non-Faculty) Department—The Registrar, Merchant Venturers' Technical College, Bristol 1, endorsed 'S.A.E.' (August 13).

BRITISH COKE RESEARCH ASSOCIATION FELLOWSHIP—The Registrar, The University, Sheffield (August 15).

ASSISTANT LECTURER IN THE DEPARTMENT OF ELECTRICAL ENGINEERING—The Secretary, University College, Gower Street, London, W.C.1 (August 15).

RESEARCH OFFICER IN THE COAL RESEARCH SECTION of the Division of Fuel Research, Sydney (Ref. No. 2183), a RESEARCH OFFICER IN THE DIVISION OF ELECTROTECHNOLOGY, National Standards Laboratory, Sydney (Ref. No. 2310), and a RESEARCH OFFICER IN THE BUILDING RESEARCH SECTION, Melbourne (Ref. No. 2320)—The Chief Scientific Liaison Officer, Australian Scientific Research Liaison Office, Africa House, Kingsway, London, W.C.2, quoting the appropriate Ref. No. (August 20).

ASSISTANT IN THE BOTANY DEPARTMENT—The Secretary, The University, Aberdeen (August 20).

SENIOR LECTURER or LECTURER IN PHYSIOLOGY, and an ASSISTANT LECTURER IN PHYSIOLOGY—The Registrar, The University, Sheffield (August 27).

ASSISTANT LECTURER or LECTURER IN STATISTICS—The Registrar, The University, Leeds 2 (August 27).

PROFESSOR OF GENETICS, a PROFESSOR OF ENTOMOLOGY, a PROFESSOR OF AGRICULTURAL CHEMISTRY (Chemistry of Insecticides and Fungicides), a PROFESSOR OF ANIMAL PRODUCTION, a PROFESSOR OF SOIL SCIENCE, a PROFESSOR OF DAIRY, a PROFESSOR OF PLANT BREEDING, and a PROFESSOR OF AGRICULTURAL ECONOMY, at Farouk I University, Alexandria—The Director, Egyptian Education Bureau, 4 Chesterfield Gardens, London, W.1 (August 31).

ASSISTANT CURATOR (male) in the Botany Department of the Natural History Museum—The Town Clerk, The Guildhall, Nottingham (August 31).

PROFESSOR OF PHARMACEUTICAL CHEMISTRY, a PROFESSOR OF PHARMACOGNOSY, a PROFESSOR OF PHARMACOLOGY, and a PROFESSOR OF PHARMACEUTICS, in the Faculty of Medicine Pharmacy School of Farouk I University, Alexandria—The Director, Egyptian Education Bureau, 4 Chesterfield Gardens, London, W.1 (August 31).

TECHNICAL ASSISTANT (Grade II) IN THE DEPARTMENT OF PHYSICS—The Registrar, The University, Nottingham.

SENIOR MEDICAL LABORATORY TECHNICIAN IN THE PATHOLOGICAL LABORATORY—The Secretary, Rochdale and District Hospital Management Committee, 132 Drake Street, Rochdale.

ASSISTANT PHYSICIST—The Secretary, Lambeth Group Hospital Management Committee, Renfrew Road, London, S.E.11.

LECTURER IN CHEMISTRY, to teach to Intermediate and Final B.Sc. standard—The Clerk, Northern Polytechnic, Holloway, London, N.7.

LECTURERS (part-time) ON MECHANICAL OR CIVIL ENGINEERING subjects to University Degree standard, and DEMONSTRATORS (University Graduates in Engineering) as Demonstrators in the Mechanical and Civil Engineering Department—The Principal, Battersea Polytechnic, Battersea, London, S.W.11.

LECTURER IN METALLURGY—The Principal, Central Technical College, Suffolk Street, Birmingham 1.

LECTURER IN MICROBIOLOGY at the Massey Agricultural College, Palmerston North—The High Commissioner for New Zealand, 415 Strand, London, W.C.2.

REPORTS and other PUBLICATIONS

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Conseil Permanent International pour l'Exploration de la Mer. Rapports et procès-verbaux des réunions, Vol. 123: Studies on the Biology of the Cod in Greenland Waters. By Paul M. Hansen. Pp. 77. (Copenhague: Andr. Fred. Høst et fils, 1949.) 8 kr. [35

British Guiana. Report on the Geological Survey Department for the Year 1947. Pp. iii+39+3 plates. (Georgetown: Geological Survey Department, 1948.) 48 cents. [105

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United States Department of Commerce: Weather Bureau. Research Paper No. 30: First Partial Report on the Artificial Production of Precipitation—Stratiform Clouds, Ohio, 1948. By Richard D. Coons, R. C. Gentry and Ross Gunn. Pp. iii+63. 30 cents. Technical Paper No. 5: Highest Persisting Dewpoints in Western United States for Durations of 12 to 120 Hours. Pp. 27. 35 cents. (Washington, D.C.: Government Printing Office, 1948.) [125

Catalogues

Mercury-in-Steel Thermometers. (List T.40.) Pp. 40. (London: Negretti and Zambra, Ltd., 1949.)

Engineering Bulletin, No. 237: Lisbon–Vila Franca Trunk Telephone Cable. By F. W. Martin, G. W. Arcus and D. Gibbon. Pp. 8. Engineering Bulletin, No. 238–9: Short Circuit Data; Plant Impedance and Fault kVa. By E. A. Beavis and K. J. Hacke. Pp. 8. (London: Siemens Brothers and Co., Ltd., Woolwich, 1949.)

Technique: a Journal of Instrument Engineering. Vol. 3, No. 2, April. Pp. 9–16. (Beckenham: Muirhead and Co., Ltd., 1949.)

Rohm and Haas Reporter. Vol. 7, No. 1, February. Pp. 26. (Philadelphia: The Rohm and Haas Company, 1949.)

Gallenkamp Plumbing Units. (Publication No. 517.) Pp. 4. (London: A. Gallenkamp and Co., Ltd., 1949.)

Rectifying Valve Type U.19. (Ref. D1.9.) Pp. 4. Transmitting and Power Rectifying Valves. (Ref. SP. 7/3.) Pp. 6. Receiving and Rectifying Valves. (Ref. SP. 8/3.) Pp. 10. (Chelmsford: Marconi's Wireless Telegraph Co., Ltd., 1949.)

Sciex Bulletin. No. 5 Technical Series, May. Pp. 20. (London: Scientific Exports (Great Britain), Ltd., 1949.)

Soucol Brand Carbonaceous Cation Exchange Material: Data for use in the Design of Water-Softening Plants. (Technical Publication No. 22.) Pp. 20. Doucil Brand Base Exchange Material: Data for use in the Design of Water-softening Plants. (Technical Publication No. 23.) Revised edition. Pp. 28. Doucil Brand Base Exchange Material: Data for use in the Design of Domestic Water-softeners. (Technical Publication No. 24.) Revised edition. Pp. 12. The Lime and Soucol Process: a Process for Water Treatment. (Technical Publication No. 25.) Revised edition. Pp. 12. (Warrington: Joseph Crosfield and Sons, Ltd., 1948.)

B.D.H. Laboratory Chemicals and Testing Outfits. Pp. vi+254. (London: British Drug Houses, Ltd., 1949.)