stand up to the strain of the racecourse as well as they do in their home island". Pressure of research in other directions is given as the reason for deferment of intensive study of the role of minor elements; but it seems fair to ask why the question of nutritional quality should be taken so fatalistically. The salary of a chemist or two would surely not be too much to add to an ordinary budget of chemical or veterinary investigation, and in conjunction with a rational policy of land use and nutrition would probably yield a high dividend.

The bulletin contains a large number of suggestive facts. Fiji has no native grass, the so-called 'native' grasses being importations which have run wild. In view of the decline of the natural indigo industry, it is interesting to learn that the cultivation of a trailing species of indigo for fodder and for purposes of soil protection is actually on the increase. What is a pest in one part of the world may be a useful grass in other parts of the world—or, as in Hawaii, in another part of one island. HUGH NICOL.

ECOLOGICAL PRINCIPLES AND FORESTRY

ON July 2, 1943, members of the forestry associations of Great Britain met at the invitation of the British Ecological Society to discuss problems arising from a paper by Sir Roy Robinson in *Forestry*, the journal of the Society of Foresters of Great Britain (see *Nature*, 152, 196; 1943). A fuller account of the meeting is now available (*Forestry*, 17; 1943).

Prof. A. G. Tansley, in opening the meeting, said he welcomed the desire for a closer contact between ecology and forestry. He thinks foresters would, through ecology, find much to help them to a scientific rationale of their practical operations. Prof. Tansley stresses that scientific ecology is a very young subject of research, almost entirely a product of the present century and only developed energetically since the War of 1914–18. It is in this newness of the subject that may lie the danger for the young forester. As is said, it has only been really developed since the War of 1914–18, and it is in this period that the word 'ecology' has come trippingly from the lips and pens of the young trained forester, the word being often made to serve as explanation for forestry processes as yet but dimly understood or assimilated by the junior. Prof. Tansley says: "I know very little of practical forestry, and I have often wished when I was teaching forestry students their elementary botany, and always from the general point of view of ecology, that I had had a practical training both in forestry and agriculture, just as I wished I had had a practical training in medicine when I was teaching biology to medical students. For just as scientific medicine is really a branch of applied biology, so forestry and agriculture may be regarded as branches of applied ecology."

To increase our knowledge of the ecology of woodlands, Prof. Tansley suggests a "continuous opportunity for access to and study of planting experiments together with the power of suggesting different variations and forms of control which are likely to lead to increased insight into the factors at work"—in fact, research work, which all foresters would welcome. It is, however, at present, a long step from this interesting and valuable work to the ordinary practical operations of the forester based on

the growth of crops to produce marketable timber. Sir Roy Robinson's explanation that in afforestation work some species are pioneers and others are successors is obviously correct. But practical research is required to show how to shorten the experimental period in new afforestation work, if such a step is economically or ecologically possible from the financial point of view.

The experienced practical forester feels that a distinction should be sharply drawn between the true ecological research point of view and its work, and the practical silvicultural activities of the executive forester who has to acquire a working knowledge of his soils in order to undertake his duties. In other words, the danger nowadays for the younger generations of foresters is that they may be led into silvicultural inaction pending the outcome of the ecologists' experiments, giving the latter "the power to suggest different variations and forms of control" of the silvicultural operations of the forester. The highly efficient silvicultural management gradually brought into being in European Continental forestry departments was not attained by such means, though such research work will always prove of value to the silviculturist when it has been brought to the point where its practical applications will obviously lead to better results.

BIOLOGICAL STUDIES IN SOUTH AFRICA

THE *South African Journal of Medical Sciences*, published quarterly by the University of Witwatersrand and the South African Institute for Medical Research, is devoted to original work in any of the sciences represented in the medical curriculum. C. de V. Bevan contributes to the February 1944 issue (9, No. 1) an interesting article on the cultivation of the South African Rickettsiae in developing chicks and the preparation of vaccines from the membranes of these. Dilute egg vaccines do not, he concludes, protect guinea pigs against epidemic infection, although they protect wholly against tick-borne infection and partially against endemic infection. Concentrated vaccines must be used in order to obtain complete protection against epidemic typhus produced by inoculation of guinea pigs with egg-passaged strains. A modified Machiavello technique for staining Rickettsiae is described. The author finds that clearer staining is obtained if the smears are cleared in benzene. Bacteria and Rickettsiae ground in a mortar with alundum are disintegrated. The development of the chick-embryo method will provide, the author thinks, smaller quantities of a far more potent vaccine than any that has yet been produced. The advantages of the egg-vaccine over the mammalian vaccines are discussed.

In the same issue, Margaret L. Creed discusses the nutritional value of a poor South African diet and of certain dietary supplements, and N. Sapeika reports on the digitalis action of a glycoside from the liliaceous species *Urginea rubella*. More than twenty-five species of *Urginea* have been recorded in South Africa; many of these probably contain a toxic glycoside and a few are known to be toxic to stock. The issue concludes with a paper by O. S. Heyns and S. S. Hersch on the birth-weight of urban Bantu and the incidence among them of syphilis, still-birth and premature labour.

The Biological Supplement to this journal is published separately. The February 1944 issue includes a noteworthy article by C. J. van der Horst on further stages in the embryological development of *Elephantulus*, the affinities of which with the Insectivora and Lemuroidea relate this study to the embryology of the primates and of man.

Christine Gilbert records work on the development of the post-renal segment of the inferior vena cava in the same species. G. H. Roux gives a beautifully illustrated account of the cranial anatomy of the marine amphibian *Microhyla Carolinensis*. Protozoology is represented by a description, by A. J. Gibbs, of the life-history of the Adeleid coccidian *Chagasella* sp., found in the salivary glands of the plant-feeding Hemipteran *Cenaeus carnifex*.

G. LAPAGE.

FORTHCOMING EVENTS

Thursday, December 28

ROYAL INSTITUTION (at 21 Albemarle Street, London, W.1), at 2.30 p.m.—Sir Harold Spencer Jones, F.R.S.: "Astronomy in our Daily Life", 1: "The Spinning Earth" (Christmas Lectures).

Saturday, December 30

NUTRITION SOCIETY (at the London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C.1), at 11 a.m.—Conference on "The Nutritional Role of the Micro-Flora in the Alimentary Tract".

ASSOCIATION FOR SCIENTIFIC PHOTOGRAPHY (at Caxton Hall, Westminster, London, S.W.1), at 2.30 p.m.—Discussion on "The Choice of Materials for Scientific Photography" (Papers by Dr. H. Baines and Mr. F. J. Tritton).

ROYAL INSTITUTION (at 21 Albemarle Street, London, W.1), at 2.30 p.m.—Sir Harold Spencer Jones, F.R.S.: "Astronomy in our Daily Life", 2: "The Revolving Earth" (Christmas Lectures).

APPOINTMENTS VACANT

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

ANALYTICAL CHEMIST FOR THE METALLURGY DIVISION of the National Physical Laboratory—The Ministry of Labour and National Service, Central (T. and S.) Register, Room 5/17, Sardinia Street, Kingsway, London, W.C.2 (quoting Reference No. F.3304.A) (December 27).

DEMONSTRATOR or ASSISTANT LECTURER (temporary) in BOTANY—The Acting Registrar, The University, Leeds 2 (December 30).

SPEECH THERAPIST—The Director of Education, Education Offices, Woodlands Road, Middlesbrough (December 30).

TEACHER mainly for MATHEMATICS and ENGINEERING SCIENCE in the Junior Technical School and in Senior Day and Evening Classes—The Principal, County Technical College, Gainsborough, Lincs. (January 5).

ASSISTANT REGISTRAR—The Secretary, Bedford College for Women, Regent's Park, London, N.W.1 (January 6).

RADIO DEVELOPMENT ENGINEERS for the laboratory of a large electrical engineering works in the N.W.—The Ministry of Labour and National Service, Central Register, Room 5/17, Sardinia Street, Kingsway, London, W.C.2 (quoting Reference No. A.736.XA) (January 11).

UNIVERSITY CHAIR OF CONCRETE TECHNOLOGY tenable at Imperial College of Science and Technology—The Academic Registrar, University of London, c/o Richmond College, Richmond, Surrey (February 26).

PROFESSOR OF MATHEMATICS, and a PROFESSOR OF CHEMISTRY—The Secretary, Queen's University, Belfast (March 31).

LECTURESHIP IN MORAL PHILOSOPHY AND THE HISTORY OF PHILOSOPHY (including Greek Philosophy)—The Secretary, Queen's University, Belfast (April 30).

SPEECH THERAPIST—The Education Officer, Town Hall, Chesterfield. LABORATORY STEWARD IN THE DEPARTMENT OF PATHOLOGY—The Secretary and Registrar, The University, Bristol.

REPORTS and other PUBLICATIONS

(not included in the monthly Books Supplement)

Great Britain and Ireland

City and Guilds of London Institute. Report of the Council to the Members of the Institute for the Year 1943. Pp. xlix. (London: City and Guilds of London Institute.) [211]

Religious Instruction in Schools. Preliminary Statement prepared by a Committee of representatives of the Joint Conference of Anglicans and Free Churchmen, the Association of Education Committees and the National Union of Teachers. Pp. 8. (London: National Union of Teachers.) [211]

Britain and the World: an Outline of Reconstruction Problems. By the Hon. H. A. Wyndham. (Looking Forward Pamphlets, No. 1.) Pp. 60. (London and New York: Royal Institute of International Affairs.) 1s. net. [311]

Ministry of Aircraft Production. A College of Aeronautics: Report of the Interdepartmental Committee on the Establishment of a School of Aeronautical Science. Pp. ii+98. (London: H.M. Stationery Office.) 2s. net. [711]

Science in Post-Primary Education, with reference to the Scientific Education in Schools of Pupils of 11-18, and its relation to their subsequent Training in Universities and Colleges. Interim Report of a Sub-Committee of the Association of Women Science Teachers. Pp. vi+22. (London: John Murray.) 1s. 3d. net. [911]

An Annotated Bibliography of Medical Mycology, 1943. Edited by Dr. S. P. Wiltshire, in collaboration with Dr. Charles Wilcocks and J. T. Duncan. Pp. 32. (Kew: Imperial Mycological Institute.) 5s. net. [911]

Lighting Reconstruction Pamphlet, No. 5: Public Lighting in the City and Highway. Pp. 16. (London: Illuminating Engineering Society.) 1s. [911]

Imperial Bureau of Pastures and Forage Crops. Bulletin 31: The Provision of Animal Fodder in Tropical and Subtropical Countries, Part 1. Pp. 84. 4s. Bulletin 32: Advances in Grassland Husbandry and Fodder Production, First Symposium. Pp. 108. 4s. (Aberystwyth: Imperial Bureau of Pastures and Forage Crops.) [911]

Quality Control Chart Technique when Manufacturing to a Specification: with Special Reference to Articles Machined to Dimensional Tolerances. By Dr. B. P. Dudding and W. J. Jennett. Pp. iv+74. (London: General Electric Co., Ltd.) 2s. 6d. [911]

Medical Science and Physical Education. A three-part Interim Report by the Research Board for the Correlation of Medical Science and Physical Education. Pp. xx+119. (London: Ling Physical Education Association.) 2s. [911]

Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences. No. 583. Vol. 231: A Revision of *Williamsoniella*. By T. M. Harris. Pp. 313-328+plates 25-26. 4s. 6d. No. 584. Vol. 231: On Large-scale Sample Surveys. By P. C. Mahalanobis. Pp. 329-451. 19s. (London: Cambridge University Press.) [911]

Proceedings of a Conference on Problems in the Utilisation of Small Coals, held at the Institution of Civil Engineers, November 10th and 11th, 1943. Pp. 294. (London: British Coal Utilisation Research Association.) [1411]

Iron and Steel Institute. Special Report No. 30: Ironmaking at the Appleby-Frodingham Works of the United Steel Companies, Ltd. By G. D. Elliot and the Staffs of the Appleby-Frodingham Ironworks, Scunthorpe, and of the Central Research Department, Stocksbridge (the United Steel Companies, Ltd.). Pp. vi+230+16 plates. (London: Iron and Steel Institute.) 16s. [1411]

Other Countries

Imperial Council of Agricultural Research. Miscellaneous Bulletin No. 58: Canning of Tomatoes in Baluchistan. By Dr. G. S. Siddappa and A. M. Mustafa. Pp. 4+2 plates. (Delhi: Manager of Publications.) 10 annas; 1s. [2710]

Memoirs of the San Diego Society of Natural History. Vol. 2: The Geology and Paleontology of the Marine Pliocene of San Diego, California. Part 1: Geology. By Leo George Hertlein and U. S. Grant. Pp. 72+13 plates. (San Diego: San Diego Society of Natural History.) 1.50 dollars. [3010]

Publications of the Dominion Observatory, Ottawa. Vol. 13: Bibliography of Seismology, No. 14: Items 5564-5673, July to December 1943. By Ernest A. Hodgson. Pp. 231-252. (Ottawa: King's Printer.) 25 cents. [3010]

British Honduras. Report of the Forest Department for the Year ended 31st December 1943. Pp. 10. (Belize: Forest Department.) [3010]

Imperial Council of Agricultural Research. Scientific Monograph No. 15: Dry Farming in India. By N. V. Kanitkar. Pp. x+352. (Delhi: Manager of Publications.) 13.12 rupees; 21s. 6d. [3111]

Annals of the New York Academy of Sciences. Vol. 45, Art. 8: The Organization of the New York Academy of Sciences; its Incorporation, its Amended Charter, its Constitution and By-Laws, together with a Classified List of its Members. Revised to August 1, 1944. By Eunice Thomas Miner. Pp. 317-356. (New York: New York Academy of Sciences.) [711]

Cawthron Institute, Nelson, New Zealand. Annual Report, 1943-4. Pp. 35. (Nelson: Cawthron Institute.) [711]

State of California Department of Natural Resources: Division of Fish and Game, Bureau of Marine Fisheries. Fish Bulletin No. 59: The Commercial Fish Catch of California for the Years 1941 and 1942. By the Staff of the Bureau of Marine Fisheries. Pp. 68. (Sacramento: California State Printing Office.) [911]

Brooklyn Botanic Garden Record. Vol. 33, No. 2: C. Stuart-Gager and the Brooklyn Botanic Garden. Pp. 69-178. (Brooklyn, N.Y.: Brooklyn Institute of Arts and Sciences.) [911]

Bulletin of the American Museum of Natural History. Vol. 83, Art. 5: A Preliminary Study of the Thermal Requirements of Desert Reptiles. By Prof. Raymond Bridgman Cowles and Charles Mitchell Bogert. Pp. 261-296+plates 19-29. (New York: American Museum of Natural History.) [911]

Academia Brasileira de Ciências. Symposium sobre Raios Cósmicos, Rio de Janeiro, Agosto 4-8, 1941. Pp. 180+19 plates. (Rio de Janeiro: Academia Brasileira de Ciências.) [911]

University of Colorado Studies. Series B: Studies in the Humanities, Vol. 2, No. 2: Fitz-James O'Brien, a Literary Bohemian of the Eighteen-Fifties. By Prof. Francis Wolle. Pp. xi+309. (Boulder, Colo.: University of Colorado.) 2 dollars. [911]

Proceedings of the United States National Museum. Vol. 95, No. 3183: New Species of Buprestid Beetles from Trinidad. By W. S. Fisher. Pp. 397-410. (Washington, D.C.: Government Printing Office.) [1011]

Smithsonian Institution: United States National Museum. Bulletin 185: Checklist of the Coleopterous Insects of Mexico, Central America, the West Indies and South America, Part 2. Compiled by Richard E. Blackwelder. Pp. iii+189-342. (Washington, D.C.: Government Printing Office.) 30 cents. [1011]