

wood-eating insects new to science in the past few years and a classification of the susceptibility of various timbers to insect attack. More than 300 pages are devoted to wood-eating insects and their vegetative hosts, and in another 150 pages these insects are grouped under their host plants. There are very good drawings of several insects, and the indexes make for easy reference. It takes a little while to find out what this authoritative work contains because the pages are uncut.

pH Electrodes and Accessories

AN 8-page catalogue, No. 130-963, issued by W. G. Pye and Co., Ltd., gives details of the Pye Ingold pH electrodes and accessories now being manufactured at the firm's Cambridge factory. The components are in accord with the specification of Dr. Werner Ingold, whose own company in Zurich is devoted exclusively to the design and production of pH electrodes and assemblies. In the descriptions in the catalogue of glass electrodes and combined electrodes, emphasis is placed on the physical shape of the pH-sensitive membrane, for example, the spherical or bulb-shaped membrane gives a large surface area and rapid response; the hemispherical or dome-shaped membrane has mechanical strength and resistance to abrasion; and the needle membrane is suitable for puncture measurements in tough materials.

The electrodes have electrical leads of suitable lengths integrally attached and terminated in appropriate coaxial and wander plugs to suit Pye pH meters, but other types of terminals can be provided to suit customers' requirements. The electrical null point, that is, the pH value of a solution at which the measuring assembly gives a potential of zero mV, is at a nominal value of 2 pH. The resistance ranges at 20° C of the glass electrodes are quoted in the catalogue in megohms, and the resistances at 20° C of the laboratory and industrial reference electrodes are of the order of 2.0 kilo-ohms \pm 20 per cent and 0.5 kilo-ohms \pm 20 per cent, respectively. The measurement range of both the glass and combined electrodes is 0-13 pH and they can be used continuously in temperature conditions up to 70° C, and in special cases up to 130° C. There are, in addition, some electrodes with spherical membranes made from a special low-resistance glass, for use within the temperature range -10° C to 70° C.

Biology of the Weed Plants

THE introduction of new techniques to practical subjects like agriculture and horticulture frequently calls for more knowledge of fundamental biology than we as yet possess. This is particularly true of weed control by the fascinating possibilities of selective hormone herbicides. Sir Edward Salisbury, in his Masters Memorial Lecture, 1962, to the Royal Horticultural Society, has indeed turned his mind to the problem, and brought us back to the fundamentals of how weeds become established in our gardens (Reprint from the *Journal of the Royal Horticultural Society*. Vol. 87, Parts 8, 9, 10 and 11, 1962. By Sir Edward Salisbury. Pp. 50. London: The Royal Horticultural Society, 1963. 2s. 6d., postage 6d.). Weeds have a marked lack of specialization to restricted environmental conditions; they are not seasonally inhibited by either the cold of winter or the heat of summer, have no specialized constraints in relation to day-length, have prolonged fruiting and protracted periods of seed germination. The booklet has many excellent line diagrams to illustrate particularly the last point. One well-grown plant of *Chenopodium rubrum* produced more than 551,000 seeds, with germination more than 98 per cent, yet this and other species can also produce minute, depauperate, but fertile plants in large numbers under poorer conditions. Many perennial weeds take from the soil inordinate amounts of macro- or micro-nutrients and thus diminish the growth of 'wanted' plants. While annual weeds have remarkably efficient seed propa-

gation, the perennials are frequently distinguished by great facility of vegetative regeneration from parts of the root system. Plants that can do this are even more persistent as weeds than those with underground stems. Altogether, the 'mauvaises herbes' of our French colleagues are far from bad; they are highly efficient in survival value. Sir Edward has performed a most useful service in showing the strength of our enemy, and the detailed knowledge should help greatly in the application of our modern defences.

The Medical Research Council Laboratory Animals Centre

VOLUME II of the *Collected Papers of the Laboratory Animals Centre* contains the nine papers dealing with "The Environment of Laboratory Animals", the subject of a symposium held at the Centre in 1962. (Pp. 72. Carshalton: Laboratory Animals Centre. Medical Research Council Laboratories, 1962. 12s. 6d.). The interests were wider than those concerning laboratory animals; "Occupational Therapy", by D. Morris, covered zoo animals and the need to provide conditions that keep the animals alert and interested. He stated that zoo animals in general live longer than their wild counterparts, an indication of advances in study of such creatures and lessons learned from the past. An intriguing title was "Briefing and Architect" when animal houses are planned. Food, accommodation, density of populations and temperature were matters dealt with.

The *News Letters* issued by the Laboratory Animals Centre to the organizations concerned with its activities are very informative about the movements designed to provide suitable animals for research. *News Letter* No. 25 (January, 1963) gives information under thirteen headings including meetings, isolation accommodation for germ-free mice, etc.

Teachers' Problems in Biology and Physics

Queries in Biology consists of an occasional duplicated sheet intended to help teachers of biology to find answers to problems which they cannot solve locally. Each issue comprises a list of questions, all anonymous, and answers to questions previously asked, with acknowledgments and references. Persons interested in joining the scheme are invited to send a stamped, addressed, foolscap envelope, two loose 3d. stamps, and their current list of problems to Christopher J. Perraton, Marling School, Stroud, Glos. A similar scheme for physics is being started by John Jenkins, Rodway Technical High School, Mangotsfield, Bristol. Both schemes have the approval of the Bristol area branch of the Association for Science Education. Others who would be willing to provide answers to problems are invited to submit their names as honorary consultants to the schemes, together with a note as to their special fields of knowledge.

Postgraduate Course in the Science of Materials

A NEW one-year postgraduate course in the Science of Materials has been introduced by the Imperial College of Science and Technology, London, based on the Departments of Chemical, Electrical and Mechanical Engineering, and of Chemistry, Mathematics, Metallurgy and Physics. The course, which will lead to the award of the diploma of Membership of the Imperial College, is aimed at enabling graduate engineers and scientists to participate effectively in materials research and development in industry. At the same time, it will provide the fundamental knowledge on which engineering decisions involved in the application of new materials may be based. Applicants, who should possess a degree in engineering, science or metallurgy, a diploma in technology or equivalent qualification, should write to the Registrar, Imperial College of Science and Technology, London, S.W.7, preferably before June 1, from whom further information can be obtained.