

A.R.P. Department and the Building Research Station in particular provided a valuable nucleus of technical information, and the Civil Defence Research Committee established in May 1939 was a further focus. Mr. Evans also referred to the generous help of the Patent Office Library, the Science Museum Library, the British Library of Political and Economic Science and the Royal Institute of British Architects. To the main subjects originally covered, such as H.E. and incendiary bombs, blast, ballistics, fragmentation and penetration, building and strength of materials, were soon added others such as lighting and black-out, physiological and psychological effects, camouflage and paint, window protection, location of industry and population. In regard to shelving, Mr. Evans stated that, as in other stations of the Department of Scientific and Industrial Research, books are shelved under broad subject headings, pamphlets by country and institution, periodicals alphabetically by title. In regard to book buying, he suggested that it would be of great value to librarians if publishers would set up a joint central library of new technical books where they could be inspected with the view of purchasing through the usual channels. Mr. Evans also commented on the limitations of microfilm, and appeared to lean rather to a photostat, urging strongly the termination of the system of loaning heavy bound periodicals and substituting a photostat or microfilm copy of the article required.

STUDIES OF THE AMARYLLIDACEÆ

HERBERTIA, the year-book of the American Amaryllis Society, has now reached its tenth volume (from L. S. Hannibal, Concord, California, July 1944). This publication maintains its potent blend of science with practice. It employs fertility in number of its titles with economical expression in its individual papers, to achieve a wide review of all questions which affect the horticulture of Amaryllids. Many facets are discussed—personal, historical, and cultural. In the sections on classification, genetics, the physiology of reproduction, and pathology, several interesting facts appear.

Dr. Hamilton P. Traub, editor of *Herbertia*, has published an account of the tribe *Brunsvigiæ*, which, it is proposed, should now include the genera *Crinum*, *Brunsvigia*, *Buphone*, *Nerine*, *Ammocharis* and *Cybtistes*. A new genus, *Worsleya*, has been proposed to separate the single species *W. procera* from the genus *Amaryllis*, with which it has no gene exchange, and from which it differs in several morphological characters. The genera *Agapanthus* and *Tulbaghia* are border-line genera between Amaryllidaceæ and Liliaceæ, now included in the former group. J. C. Th. Uphof reviews the present position of the two genera, and describes the species included in each. As a background for taxonomic studies, W. S. Flory, jun., reports the chromosome numbers for various species of Hemerocallideæ, Alstroemeriales and Amaryllidales which have been published since his earlier review in 1937.

Gardeners and students will be interested in a brief article by Kenyon L. Reynolds outlining the method for cross-pollinating *Narcissi*. This involves the ripening of pollen in a desiccator. V. T. Stoutemyer and Albert Close also discuss the latter question, suggesting the trial of freezing temperatures and definite humidities for storing pollen, and the use of

mixed pollen, hormones, and other substances for overcoming certain types of sterility. Their paper is, however, a wider review of the whole question of reproduction. Many seeds of Amaryllids germinate without a rest period, while others have a more or less protracted time of dormancy. Seeds of *Hymenocallis occidentalis* have an integument capable of photosynthesis, which appears to accelerate germination, though development can take place more slowly in the dark. It is interesting to note that vegetative propagation by scoring or cutting the base of the bulb is being employed more extensively in the Amaryllidaceæ. John V. Watkins adds a further note on the use of this method for *Lycoris aurea*.

L. S. Hannibal records the lesser bulb fly as a pest on several Amaryllids other than *Narcissus*. *Lycoris squamigera* and *Hæmanthus multiflora* appear to be even more heavily attacked than members of the genus *Narcissus*.

The natural order under discussion, however, seems to have but little acquaintance with pest or disease, and this factor should be added to that of superb garden beauty to inspire an even wider horticultural use of this interesting group.

NEW WOODS FOR CROSS-ARMS FOR TELEGRAPH LINES

AN article by G. Q. Lumsden (*Bell Lab. Rec.*, 22, No. 14; October 1944) discusses new woods for cross-arms and their preservation. Since the turn of the century, the open-wire lines of the Bell System (U.S.A.) have been carried mostly on Douglas fir and southern pine cross-arms. War emergency demands for these timbers have made it necessary, however, to seek substitutes, and the woods most readily available were red and jack pine from the Lake States and the inland type of Douglas fir from the north-west.

In testing out these alternatives it was decided to apply a preservative treatment to the new arms by an improved hot-and-cold bath process, instead of using the standard pressure processes regularly employed for southern pine arms. A solution of pentachlorophenol in petroleum was used instead of creosote for the cold bath. Pentachlorophenol is a comparatively new wood preservative, being practically soluble in water and leaving the surface of the wood clean.

About 1,100 cross-arms were treated at a time. These were laid in a tank and kept from floating by steel rails secured to the tank sides. Heavy lids were put on to hold heat, prevent excessive evaporation and keep out rain. The hot-and-cold bath non-pressure treatment was then applied. Creosote, heated to above 220° F., was pumped in to fill the tank. From two to four hours later, depending on the condition of the timber treated and the outside temperature, this creosote was pumped off. As soon as possible, and while the cross-arms were still hot, the tank was filled with a 5 per cent solution of pentachlorophenol in an aromatic petroleum at 90–125° F. After allowing another two to four hours for this solution to be absorbed, the tank was again drained and the cross-arms removed for stacking.

At the end of the cold-bath treatment, the sapwood was completely penetrated and the heartwood was penetrated around the pinholes. Retention of preservative solution varied with the amount of sapwood

present, averaging about 8.5, 6.4, 0.6 lb. of solution per cubic foot of wood for red pine, jack pine and heartwood inland fir, respectively, in the sections between pinholes.

The treated arms were stacked for curing by a method recently devised by the Bell Laboratories to keep end checking, splitting and warping to a practical minimum. They were laid on a sturdy foundation of 8 in. by 8 in. timbers with their ends well protected by overlapping alternate tiers. After curing, part of the arms were X-piled, to determine their tendencies, if any, to bleed, warp and split.

Breaking tests on sample arms indicated that inland fir is practically as strong as the current standard coast-type fir and southern pine arms, and that red and jack pine are about 80 per cent as strong.

Successful non-pressure treatment of red pine, jack pine and inland fir cross-arms with hot creosote, followed by cold pentachlorophenol dissolved in a suitable petroleum, opens new avenues of relief in a restricted lumber field. Other woods may be used provided they are strong enough and will take preservative treatment. For example, ponderosa pine, western hemlock and larch are all worth considering, if the supply situation warrants it. On the basis of work already done, the Bell Laboratories recommend the more promising substitute woods for cross-arms, and standard specifications have already been revised to include red pine, jack pine, lodgepole pine and inland fir.

FORTHCOMING EVENTS

Saturday, January 6

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", 5: "Clocks and Time Keeping" (Christmas Lectures).

Monday, January 8

FARMERS' CLUB (at the Royal Empire Society, Craven Street, Strand, London, W.C.2), at 2.30 p.m.—The Rt. Hon. the Earl De La Warr: "British Agriculture and World Conditions".

ROYAL GEOGRAPHICAL SOCIETY (at Kensington Gore, South Kensington, London, S.W.7), at 5 p.m.—"The Burmese Scene" (Recent Kodachrome Films with Commentary by U. Myat Tun).

INSTITUTE OF FUEL (NORTH-EASTERN SECTION) (at the Central Station Hotel, Newcastle-upon-Tyne), at 5.15 p.m.—Prof. H. L. Riley, Mr. J. Blaydon and Mr. H. E. Gibson: "The Molecular Nature of Coking Coal Bitumens".

Tuesday, January 9

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", 6: "Finding Position at Sea and in the Air" (Christmas Lectures).

ILLUMINATING ENGINEERING SOCIETY (at the E.I.M.A. Lighting Service Bureau, 2 Savoy Hill, London, W.C.2), at 5.30 p.m.—Mr. R. Gillespie Williams: "The Poetry of Light".

INSTITUTION OF CIVIL ENGINEERS (ROAD ENGINEERING DIVISION) (at Great George Street, Westminster, London, S.W.1), at 5.30 p.m.—Discussion on "Lay-out of Road Intersections" (to be opened by Mr. A. J. H. Clayton).

Wednesday, January 10

ROYAL SOCIETY OF ARTS (at John Adam Street, Adelphi, London, W.C.2), at 1.45 p.m.—Mr. G. R. Critchley: "How Wrecked and Sunken Ships are Salvaged" (Dr. Mann Juvenile Lecture).

INSTITUTE OF FUEL (at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C.2), at 2.30 p.m.—Sir Alfred Egerton, F.R.S., and Mr. Malcolm Pearce: "Methane".

INSTITUTE OF PETROLEUM (at 26 Portland Place, London, W.1), at 4.30 p.m.—Dr. G. B. M. Sutherland and Dr. H. W. Thompson: "Spectrographic Methods Applied to the Petroleum Industry".

Friday, January 12

INSTITUTION OF MECHANICAL ENGINEERS (in conjunction with the APPLIED MECHANICS GROUP) (at Storey's Gate, St. James's Park, London, S.W.1), at 5.30 p.m.—Mr. A. Fogg: "Fluid Film Lubrication of Parallel Thrust Surfaces"; Dr. D. Clayton: "An Exploratory Study of Oil Grooves in Plain Bearings".

NORTH-EAST COAST INSTITUTION OF ENGINEERS AND SHIPBUILDERS (in the Lecture Theatre of the Mining Institute, Newcastle-upon-Tyne), at 6 p.m.—Mr. H. O. Walker: "Notes on the Buchi System".

Friday, January 12—Saturday, January 13

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE (DIVISION FOR SOCIAL AND INTERNATIONAL RELATIONS OF SCIENCE) (at the Royal Institution, Albemarle Street, Piccadilly, London, W.1)—Conference on "The Place of Science in Industry" (to be opened by Sir Richard Gregory, Bart., F.R.S.)

APPOINTMENTS VACANT

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

MECHANICAL ENGINEER by the Government of British Honduras for the Public Works Department—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. C.2406.A) (January 10).

LECTURER (full-time) IN THE DEPARTMENT OF CHEMISTRY—The Principal, Derby Technical College, Normanton Road, Derby (January 10).

ASSISTANT CHIEF CHEMIST (essential qualifications are supervision and direction of Laboratory Staff engaged in investigational work and routine testing of production samples in entomological, physical, organic and colloidal chemistry, with particular reference to detergents and emulsification) for a permanent superannuable appointment in Yorkshire—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.3039.XA) (January 10).

ASSISTANT TO THE ADVISORY OFFICER IN ANIMAL HUSBANDRY—The Secretary, West of Scotland Agricultural College, 6 Blythwood Square, Glasgow (January 10).

EDUCATIONAL PSYCHOLOGIST—The Director of Education, County Offices, Oxford (January 15).

METALLURGIST (must hold a University degree in Metallurgy and be well versed in the Metallography and Heat Treatment of Alloy Steels and Aluminium Alloys) by progressive firm on the South Coast—The Ministry of Labour and National Service, Central Register, Room 5/17, Sardinia Street, Kingsway, London, W.C.2 (quoting Reference No. F.2363.XA) (January 16).

RESEARCH ASSISTANT (male) in the Agricultural Entomology Division of the Ministry of Agriculture—The Assistant Secretary (Establishments), Ministry of Finance, Stormont, Belfast (January 16).

SENIOR POST as RUBBER RESEARCH CHEMIST with a large Company in the North of England engaged in rubber manufacture—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.3360.XA) (January 17).

TEACHER (full-time) OF ENGINEERING SUBJECTS for senior and junior students in the Northampton College of Technology—The Secretary for Education, Borough Education Office, Springfield, Cliftonville, Northampton (January 20).

LECTURER IN THE MECHANICAL AND CIVIL ENGINEERING DEPARTMENT of the Sunderland Technical College—The Director of Education, Education Office, 15 John Street, Sunderland (January 20).

HEAD OF THE SCIENCE DEPARTMENT of the Blackburn Municipal Technical College—The Director of Education, Education Offices, Library Street, Blackburn (January 20).

HEAD OF THE PHYSICS DEPARTMENT—The Principal, Derby Technical College, Normanton Road, Derby (January 22).

REGIUS CHAIR OF ANATOMY at Glasgow University—The Private Secretary, Scottish Office, Fielden House, 10 Great College Street, London, S.W.1 (February 24).

DIRECTOR OF MUSEUMS—The Town Clerk, Municipal Buildings, Dale Street, Liverpool 2 (February 28).

LABORATORY STEWARD IN THE DEPARTMENT OF PATHOLOGY—The Secretary and Registrar, The University, Bristol.

DEPUTY ASSISTANT RADIUM CUSTODIAN (female) in the Radium Department—The Clerk to the Governors, St. Bartholomew's Hospital, London, E.C.1.

GRADUATE ASSISTANT MASTER qualified to teach MATHEMATICS, SCIENCE and ENGINEERING DRAWING in the Junior Technical School and National Certificate Classes in the Ashton-under-Lyne Technical School—The Director of Education, 8 Warrington Street, Ashton-under-Lyne, Lancs.

TEACHER OF BIOLOGY who can also offer service in CHEMISTRY and/or PHYSICS, and a TEACHER (full-time) IN THE MATHEMATICS AND PHYSICS DEPARTMENT—The Principal, Municipal Technical College, Hopwood Lane, Halifax.

REPORTS and other PUBLICATIONS

(not included in the monthly Books Supplement)

British Rubber Producers' Research Association. Publication No. 53: Distribution of Oxygen in Oxidised Rubbers. By R. F. Naylor. Pp. 10. Publication No. 54: The Interaction between Rubber and Liquids. Part 5: The Osmotic Pressures of Polymer Solutions in Mixed Solvents; Part 6: Swelling and Solubility in Mixed Liquids. By G. Gee. Pp. 18. (London: British Rubber Producers' Research Association.) [2112]

Hope for the North-East. Pp. 16. (Newcastle-upon-Tyne: Association of Scientific Workers.) 3d. [2812]

Catalogue

Annotated Catalogue of Works on Physics, including also Items on Collateral Sciences, and comprising the Library of Prof. John Tyndall. (No. 873.) Pp. 88. (London: Henry Sotheran, Ltd.)