

at 20° at a pH value of 5.5-5.8 at a maximum of 30 amp./sq. ft.

This composition gives appreciable control of the two metals, for if the temperature of the bath be increased the proportion of cobalt will be increased with a corresponding diminution of the nickel. Alternatively, by increasing the speed of rotation of the cathode, the nickel proportion can again be decreased. To reduce the cobalt proportion the current density only need be suitably decreased, while by lowering the pH towards acidity the alloy deposited acquires directly an increased nickel content at the expense of the cobalt. The introduction of triethanolamine makes it possible to deposit almost any proportions of cobalt and nickel.

The composition of such alkaline baths (in oz./gal.) is 10.7 nickel sulphate crystals, 4 nickel chloride crystals, 4 anhydrous sodium sulphate, and 16 triethanolamine, together with a second solution composed of 10.7 cobalt sulphate crystals, and 13.5 triethanolamine. In the latter instance the temperature of the bath is maintained at 23° C. and the two solutions are added in measured proportions as required. The corrosion-resisting properties of the combined cobalt-nickel deposit by far exceed those of the constituent metals, while the range of hardness, ductility and toughness is still further increased. The last two mentioned qualities are of special importance in the plating of stereotypes, where brightness is of no great account. The printing surface must withstand wear for lengthy periods without deteriorating, in which respect cobalt-nickel deposit has been of great practical value. The same type of deposit has been applied to the manufacture of rayon and other artificial silks, to surfaces which are exposed to heavy wear in regular textile mills and in modern laundry practice. In various instruments, automatic machines, and the finer parts of acoustic devices, cobalt-nickel deposit is preferred on account of the wide range of physical properties available.

## APPOINTMENTS VACANT

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

**ASSISTANT CHEMIST (MALE OR FEMALE)**—The Clerk and Manager, West Midlands Joint Electricity Authority, Phoenix Buildings, Dudley Road, Wolverhampton (endorsed 'Assistant Chemist') (August 14).

**LECTURER IN ENGINEERING** at the Walker Technical College, Oakengates—The Secretary for Education, Education Office, County Buildings, Shrewsbury (August 15).

**GRADUATE LECTURER IN BIOLOGY** at the Crumlin Mining and Technical College—The Director of Education, Higher Education Department, County Hall, Newport, Mon. (August 15).

**ENGINEER AND SECRETARY TO THE ISLE OF MAN ELECTRICITY BOARD**—The Chairman of the Isle of Man Electricity Board, Electric House, Circular Road, Douglas, Isle of Man (endorsed 'Appointment of Engineer and Secretary') (August 17).

**GRADUATE LECTURERS IN MECHANICAL AND ELECTRICAL ENGINEERING** at the Lincoln Technical College—The Director of Education, City Education Office, 4 Lindum Road, Lincoln (August 17).

**ASSISTANT TO THE CHIEF RESEARCH OFFICER OF THE MENTAL DISEASE RESEARCH DEPARTMENT**—The Secretary, The University, Birmingham (September 1).

**UNIVERSITY CHAIR OF CHEMISTRY**, tenable at the Royal Cancer Hospital—The Academic Registrar, University of London, Richmond College, Richmond, Surrey (September 1).

**DIETITIAN**—The Secretary, University College Hospital, Gower Street, London, W.C.1.

**GRADUATE ASSISTANT MASTER TO TEACH CHEMISTRY** in the Bury Municipal (Evening) Technical College and **GENERAL SCIENCE SUBJECTS** in the Bury Junior (Day) Technical School—The Director of Education, Education Offices, Bury.

**TEACHER IN ENGINEERING**—The Principal, County Technical College, Gainsborough, Lincs.

**SCIENTIFIC ASSISTANT (WOMAN), WITH KNOWLEDGE OF LANGUAGES AND UNIVERSITY STANDARD QUALIFICATIONS IN PLANT SCIENCE**—The Deputy Director, Imperial Forestry Bureau, Oxford.

## FORTHCOMING EVENTS

Wednesday, August 12

**INSTITUTE OF CHEMISTRY (LONDON AND SOUTH EASTERN COUNTIES SECTION)** (at Kodak Hall, Harrow), at 6 p.m.—Dr. J. Grant: "Chemist versus Forger".

Friday, August 14

**ROYAL ASTRONOMICAL SOCIETY** (at Burlington House, Piccadilly, London, W.1), at 4.30 p.m.—Geophysical Discussion on "The Figure of the Earth" (to be opened by Sir Gerald Lenox-Conyngham, F.R.S.).

Sunday, August 16

**ASSOCIATION OF SCIENTIFIC WORKERS** (at the Institution of Mechanical Engineers, Storey's Gate, Westminster, London, S.W.1), at 3 p.m.—Conference on "The Scientific Film and Scientific Film Societies".

## REPORTS and other PUBLICATIONS

(not included in the monthly Books Supplement)

### Great Britain and Ireland

**Report of the Marlborough College Natural History Society for the Year 1941.** (No. 90.) Pp. 30. (Marlborough: Marlborough College.) 2s.; to non-Members, 5s. [217]

**Transactions of the Royal Society of Edinburgh.** Vol. 60, Part 2, No. 17: The Genus *Primula*, Section *Nivales*. By Sir W. Wright Smith and Dr. H. R. Fletcher. Pp. 563-627. (Edinburgh and London: Oliver and Boyd.) 8s. [227]

**Department of Scientific and Industrial Research.** Index to the Literature of Food Investigation. Vol. 13, No. 3, December 1941. Compiled by Agnes Elisabeth Glennie, assisted by Catherine Alexander. Pp. iv+157-232. (London: H.M. Stationery Office.) 4s. 6d. net. [247]

### Other Countries

**Scientific Publications of the Cleveland Museum of Natural History.** Vol. 8, No. 4: The Infero-Gnathal Plates of *Titanichthys*. By David H. Dunkle and Peter A. Bungart. Pp. 49-60. Vol. 8, No. 5: A New Fossil Fish of the Family *Leptolepidae*. By David H. Dunkle. Pp. 61-64+plate 6. (Cleveland, Ohio: Cleveland Museum of Natural History.) [207]

**Forest Research Institute, Dehra Dun.** Leaflet No. 5: Note on a Hot Air Kiln for Seasoning Half-Wroughts of Shuttles, Bobbins, Helves, Picker-Arms, etc. By M. A. Rehman. Pp. ii+6. Leaflet No. 8: Wooden Poles for Overhead Electric Transmission. By V. D. Limaye. Pp. ii+3. Leaflet No. 11: Types of Timber Seasoning Kilns suitable for Drying Indian Woods. By M. A. Rehman. Pp. iii+6. (Dehra Dun: Forest Research Institute.) [217]

**Parliament of the Commonwealth of Australia.** Fifteenth Annual Report of the Council for Scientific and Industrial Research for Year 1940-41. Pp. 107. (Canberra: Government Printer.) 4s. 9d. [217]

**Indian Forest Records, New Series.** Silviculture, Vol. 4A, No. 2: Provisional Yield Tables for *Dalbergia sissoo*, Linn. f. in the Irrigated Plantations of the Punjab. By Bakshi Sant Ram. Pp. vi+117-143+10 plates. 2-8 rupees; 4s. Utilization, Vol. 2, No. 4: Third Interim Report on Work under Proj. 3 (Testing of Indian Timbers for Veneers and Plywood). By the Forest Research Institute. Pp. v+77-106. 9 annas; 10s. (Delhi: Manager of Publications.) [227]

**Practical Applications of Recent Lac Research.** Edited by H. K. Sen. Pp. iv+78+vi+19 plates. (Namkum: Indian Lac Research Institute.) [247]

**Smithsonian Miscellaneous Collections.** Vol. 101, No. 17: Developmental Physiology of the Grass Seedling, 1: Inhibition of the Mesocotyl of *Avena sativa* by Continuous Exposure to Light of Low Intensities. By Robert L. Weintraub and Edward D. McAlister. (Publication 3685.) Pp. ii+10+1 plate. (Washington, D.C.: Government Printing Office.) [247]

**Smithsonian Institution.** War Background Studies, No. 2: The Evolution of Nations. By John R. Swanton. (Publication 3686.) Pp. ii+23. (Washington, D.C.: Smithsonian Institution.) [247]

**Scientific Publications of the Cleveland Museum of Natural History.** Vol. 8, No. 5: Description of a New House Mouse from Cuba. By Philip N. Moulthrop. Pp. 79-82. (Cleveland, Ohio: Cleveland Museum of Natural History.) [247]

**Bulletin of the American Museum of Natural History.** Vol. 79, Art. 5: Results of the Vernay-Lang Kalahari Expedition—Larger Mammals of Bechuanaland Protectorate. By John Eric Hill. Pp. 367-390+plates 36-43. (New York: American Museum of Natural History.) [247]

### Catalogues

**Methyl-Testosterone B.D.H.** Pp. 2. **Sulphaguanidine B.D.H.** Pp. 2. **Valogen: Vitamin 'B' and Mineral Tonic.** Pp. 2. (London: The British Drug Houses, Ltd.)

**Carbon-in-Steel Determination Apparatus: an Improved Ströbllein Type Apparatus for use in Accurate Estimation of Carbon in Steel to 0.01 per cent in about One Minute.** (GT. 1332.) Pp. 4. (London: Griffin and Tatlock, Ltd.)