

apparent on casual inspection. Another common defect arises from small interior bubbles. These may be isolated or grouped irregularly, or in very fine form may exist in lines or in plane or curved sheets, when they are called needles, phantom planes, or veils. So common are defects in quartz that only one in a hundred of the mined stones is saved for piezoelectric use.

Besides these various physical defects, crystals as found may have two other types of defects that result from structural misgrowth of otherwise perfect crystals, and give no evidence of their presence during inspection in ordinary light. The two types of quartz crystals, right-hand and left-hand crystals, can both be used in electrical work, but a single plate should not include material of both types. Although twinning, or the presence of both types in the same crystal, is common, usually any one crystal is predominantly of one type. A region containing twinning usually consists of thin layers of opposite kind. Inspection for optical twinning consists primarily in locating these small regions of unusable material so that they may be discarded in cutting.

The other form of twinning that may be present is electrical twinning. With such twinning, adjacent regions of quartz have their electric axes of opposite poles. This form of twinning is also common, but it differs from the optical in that each type may occupy large regions of the same crystal. Either type is usable, but not both in the same plate. During inspection the dividing line between regions of different types is marked on the crystal, so that eventually the regions may be separated and each section cut properly with respect to its own electric axis. The article illustrates photographically various kinds of crystal faults and describes the laboratory apparatus and procedure employed in examining the crystals.

FORTHCOMING EVENTS

Tuesday, August 8

QUEKETT MICROSCOPICAL CLUB (at the Royal Society, Burlington House, Piccadilly, London, W.1), at 7 p.m.—Exhibition of Specimens, and Discussion.

APPOINTMENTS VACANT

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

ASSISTANT LECTURER IN THE DEPARTMENT OF MATHEMATICS, an ASSISTANT LECTURER (temporary) IN THE DEPARTMENT OF PHYSICS, and an ASSISTANT LECTURER (temporary) IN THE DEPARTMENT OF ENGINEERING (with special qualifications in Electrical Engineering)—The Registrar, University College, Singleton Park, Swansea (August 5).

LECTURER IN MECHANICAL ENGINEERING in the Denbighshire Technical College—The Director of Education, Education Offices, Ruthin, Denbighshire (August 5).

LECTURER (woman) IN MATHEMATICS in the Bingley Training College—The Education Officer, County Hall, Wakefield, Yorks. (August 7).

ASSISTANT LECTURER IN MECHANICAL ENGINEERING, an ASSISTANT LECTURER IN ELECTRICAL ENGINEERING, and an ASSISTANT LECTURER IN MINING in the Cannock Chase Mining College—The Director of Education, County Education Offices, Stafford (August 8).

SENIOR TECHNICAL OFFICER (temporary) at London Headquarters of the Ministry of Town and Country Planning—The Ministry of Labour and National Service, Room 432, Alexandra House, Kingsway, London, W.C.2 (quoting Reference No. EA.950A) (August 10).

ASSISTANT EDUCATIONAL PSYCHOLOGISTS (2)—City Education Office, 12 St. Giles Street, Edinburgh 1 (August 11).

ASSISTANT MASTER (Graduate) to teach MATHEMATICS in the Sheffield Junior Technical School—The Director of Education, Education Office, Leopold Street, Sheffield 1 (August 12).

TECHNICAL OFFICER—The Executive Officer, Holland War Agricultural Executive Committee, 15 Market Place, Boston, Lincs. (August 12).

ASSISTANT LECTURER IN METALLURGY—The Registrar, The University, Leeds 2 (August 19).

READERSHIP IN PHYSICAL ANTHROPOLOGY—The Registrar, University Registry, Oxford (August 31).

CHAIR OF ELECTRICAL ENGINEERING—The Acting Registrar, The University, Leeds 2 (September 30).

LIBRARIAN—The Librarian, Queen's University, Belfast (October 31).

LECTURER IN THE SCIENCE DEPARTMENT (principal subjects: Inorganic, Organic and Physical Chemistry, with subsidiary Physics)—The Registrar, Merchant Venturers' Technical College, Bristol.

CHAIRS OF PATHOLOGY, PHYSIOLOGY and SURGERY in the Royal Faculty of Medicine, Baghdad, Iraq—The British Council, 3 Hanover Street, London, W.1.

SENIOR TECHNICAL OFFICER—The Secretary, Warwickshire War Agricultural Executive Committee, 8 Guy's Cliffe Avenue, Leamington Spa.

SPEECH THERAPIST—The Director of Education, Education Office, Chapel Street, Salford 3.

SCIENCE MASTERS (2), one PHYSICS and one CHEMISTRY, at Victoria College, Alexandria—The British Council, 3 Hanover Street, London, W.1 (endorsed 'Alexandria').

REPORTS and other PUBLICATIONS

(not included in the monthly Books Supplement)

Great Britain and Ireland

Scientific Proceedings of the Royal Dublin Society. Vol. 23 (N.S.), No. 24: Studies in Peat, Part 11: Peat-Tar Oils. By J. Reilly, Patrick Moyrhan and Desmond Reilly. Pp. 239-246. 1s. Vol. 23 (N.S.), No. 25: Studies in Peat, Part 12: Mona Wax (Irish Peat Wax) and Emulsification. By J. C. Aherne and J. Reilly. Pp. 247-256 + plate 10. 1s. 6d. (Dublin: Hodges, Figgis and Co., Ltd.; London: Williams and Norgate, Ltd.) [47]

Report on the Extension of Scientific Research in Manchester University particularly in relation to the Industries of its Area. Pp. 27. (Manchester: Manchester University Press.) 1s. net. [47]

Agrarian Problems from the Baltic to the Aegean: Discussion of a Peasant Problem. (Post-War Problems.) Pp. 96. (London and New York: Royal Institute of International Affairs.) 3s. net. [57]

Imperial Agricultural Bureaux. Joint Publication No. 7: Imperata Cylindrica: Taxonomy, Distribution, Economic Significance and Control. Pp. 64. (Aberystwyth: Imperial Agricultural Bureaux.) 2s. 6d. [57]

Imperial Bureau of Plant Breeding and Genetics. Potato Collecting Expeditions in Mexico and South America, 2: Systematic Classification of the Collections. By Dr. J. G. Hawkes. Pp. 142 + 2 plates. (Cambridge: School of Agriculture.) 7s. 6d. [107]

Imperial Bureau of Animal Nutrition. Technical Communication No. 15: Minerals in Pasture Deficiencies and Excesses in relation to Animal Health. By F. C. Russell. Pp. 91. (Aberdeen: Imperial Bureau of Animal Nutrition.) 5s. [107]

My Struggle: the Life Story of a London Paperhanger. By W. Margrie. Pp. 12. (London: The Author, 65 Trafalgar Avenue, S.E.15.) 3d. [107]

Ministry of Health: Department of Health for Scotland. Report of Inter-Departmental Committee on Medical Schools. Pp. 313. (London: H.M. Stationery Office.) 4s. 6d. net. [127]

Report of the Astronomer Royal to the Board of Visitors of the Royal Observatory, Greenwich, read at the Annual Visitation of the Royal Observatory, 1944 June 3. Pp. ii + 20. (London: Royal Observatory, Greenwich.) [127]

Victory Vision. By Clew Garnet. Pp. 40. (Canterbury: J. A. Jennings, Ltd.) 1s. 6d. [137]

Other Countries

Indian Forest Leaflet No. 58: Studies on Adhesives, Part 7: Rape Seed Protein-Formaldehyde Dispersions as Plywood Adhesives. By D. Narayanamurti, V. Ranganathan and D. C. Roy. Pp. ii + 7. 4 annas; 5d. Indian Forest Leaflet No. 59: Studies on Adhesives, Part 8: Adhesives from Oil Seed Cakes and Whole Seed Meals. By V. Ranganathan and D. C. Roy. Pp. ii + 5. 4 annas; 5d. (Dehra Dun: Forest Research Institute.) [117]

Bernice P. Bishop Museum. Bulletin 174: The Polynesian Species of Hedyotis (Rubiaceae). By F. Raymond Fosberg. Pp. 102 + 4 plates. Bulletin 177: A Revision of the Pteridophyta of Samoa. By Carl Christensen (Seleginella), by A. H. G. Alston. Pp. 138 + 4 plates. Bulletin 178: The Flora of Niue Island. By T. G. Yuncker. Pp. 126 + 4 plates. Bulletin 180: Report of the Director for 1942. By Peter H. Buck (Te Rangī Hiroa). Pp. 41. (Honolulu: Bernice P. Bishop Museum.) [117]

Occasional Papers of the Bernice P. Bishop Museum. Vol. 17, No. 11: Apioninae and Brachyderinae of Fiji (Coleoptera, Curculionidae). By Elwood C. Zimmerman. Pp. 151-170. Vol. 17, No. 12: New Hawaiian Species of Peperomia. By Harold St. John. (Hawaiian Plant Studies, 10.) Pp. 171-176. Vol. 17, No. 13: Distribution of the Ophioglossum on Islands of the Pacific Ocean. By Harold St. John. (Pacific Plant Studies, 2.) Pp. 177-182. Vol. 17, No. 14: Some Curculionidae from Rotuma Island (Coleoptera). By Elwood C. Zimmerman. Pp. 183-190. Vol. 17, No. 15: Fijian Tingitidae (Hemiptera). By C. J. Drake and M. E. Poor. Pp. 191-206. Vol. 17, No. 16: Notes on Polynesian Glochidion and Phyllanthus. By Leon Croizat. Pp. 207-214. Vol. 17, No. 17: New Fijian Peperomias. By T. G. Yuncker. Pp. 215-220. Vol. 17, No. 18: Descriptions and Records of some Fijian Psyllidae (Homoptera). By Leonard D. Tutthill. Pp. 221-228. Vol. 17, No. 19: Anatomical Studies of Three Species of Ouagapia. By Yoshio Kondo. Pp. 229-248. Vol. 17, No. 20: Land Shells (Synceiridae) from the Southern and Western Pacific. By C. Montague Cooke, Jr., and William J. Clench. Pp. 249-262. Vol. 17, No. 21: A New Species of Elasmias from Rurua, Austral Islands. By C. Montague Cooke, Jr., and Yoshio Kondo. Pp. 263-266. Vol. 17, No. 22: Thysanoptera of Fiji. By Dudley Moulton. Pp. 267-312. (Honolulu: Bernice P. Bishop Museum.) [117]