Book Reviews

Works intended for notice in this column should be sent direct to the Editor (A. J. C. Wilson, Department of Physics, University College, Cathays Park, Cardiff, Great Britain). As far as practicable books will be reviewed in a country different from that of publication.

Texturen metallischer Werkstoffe. By G. WASSERMANN and J. GREWEN. Pp. xii + 808 + 567 figs. Berlin: Springer-Verlag. 2nd edition. 1962. Price DM 148·00.

Since the appearance of the first edition in 1939 an enormous amount of research effort has been expended throughout the world on the study of textures in metallic material. This reflects both the technical importance of and scientific interest in the subject. Most crystals are essentially anisotropic with respect to some of if not all their properties, and since by far the greater proportion of metallic materials is used in the polycrystalline form, it follows that texture, or preferred crystalline orientation, results in anisotropy which will affect the behaviour of the material. Thus, silicon-iron sheet used for transformer laminations can be produced with crystal directions of easy magnetization in favourable orientations. On the other hand preferred orientation in metal sheet used for the production of various articles by deep-drawing and pressing can add substantially to the cost. All this was appreciated by metallurgists in 1939, but since then many more countries have developed their own industries and there has been a tendency towards continuous and fully automated production. Also many new metals and alloys, little more than laboratory curiosities before the war, are now of considerable technical importance.

It is therefore not surprising that so much energy has been devoted to texture research and that new and rapid methods of texture determination involving use of modern diffractometer equipment have been developed. Pioneer work was carried out in Germany notably by the senior author and the new and enlarged monumental edition is a credit to him and to German thoroughness.

Following a brief but adequate outline of the various forms of textures in the first section, a complete survey is made in section 2 of methods of texture determination. The latter are mainly X-ray diffraction methods involving photographic or counter techniques, although optical, acoustic, mechanical and magnetic methods are also dealt with. In section 3 (the longest) a detailed description of textures is given. These include growth textures in castings and electroplatings, deformation textures in wire, tube and sheet produced by hot and cold working with standard industrial processes, classified according to the crystal symmetry of the metals or alloys concerned. Metals work-harden during cold deformation and generally have to be annealed to soften to a manageable state. Accordingly a large section of this chapter is concerned with textures after annealing.

Theories put forward to account for the development of growth and deformation textures are surveyed in the fourth section, together with those for textures resulting from annealing deformed material. The latter receive the greater attention, justifiably since they are technically the most important in determining the properties of the final product and also because they throw light on one of the most interesting phenomena in metallurgy: recrystallization.

The fifth section, in which the influence of texture on a wide range of properties of fabricated materials is discussed, is the most valuable. The range embraces mechanical, thermal, chemical, electric and magnetic properties, which emphasizes the technical importance of what has been to the reviewer and, from the reference list, to more than a thousand others a fascinating field of study.

The sixth and final section is a collection of appendices setting out the essential data and equations required in texture work as well as presenting a comprehensive index of textures in a convenient tabular form.

The reviewer commends this book to the libraries of all metallurgical departments and of corresponding industrial research establishments, as well as to all workers in the field who can read the language. For the sake of the less talented it is hoped that some benevolent organization will sponsor a translation.

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International Union of Crystallography

Report of Executive Committee for 1962

Personal notes

In 1962 the scientific world again lost a number of distinguished scientists who made great contributions to science. On 28 August the (Canadian) National Research Council, Adhering Body to the Union for Canada, lost its President, Dr E. W. R. Steacie, who was also President of ICSU since his election in 1961. All who participated in the Fourth General Assembly and International Congress of the Union in Montreal in 1957 will remember Dr Steacie as one of the principal hosts for these meetings.

The death of Prof. Niels Bohr on 18 November was a great shock to all scientists. Prof. Bohr, who laid the foundations of the quantum theory of atomic structure, has been one of the most distinguished physicists of our time, and his work has been of great importance to the development of modern crystallography as well.

At the end of the year the community of crystallographers lost one of its senior members by the death, on 31 December, of Sir Charles Darwin. His name will always remain connected with the distinction of perfect and mosaic crystals, and of primary and secondary