

References

1. R. THUN and G. HASS, *5th National Vacuum Symp. Trans.* (1958) 58.
2. M. D. COUTTS and E. R. LEVIN, *J. Appl. Phys.* **38** (1967) 4039.
3. M. SHIOJIRI, H. MORIKAWA, and E. SUITO, *Jap. J. Appl. Phys.* **8** (1969) 1077.
4. K. L. CHOPRA and S. K. BAHL, *J. Appl. Phys.* **40** (1969) 4171.
5. KANWAR BHADUR and K. L. CHAUDHARY, *Appl. Phys. Letters* **15** (1969) 277.
6. J. R. PARSONS and R. W. BALLUFFI, *J. Phys. Chem. Solids* **25** (1964) 263.
7. H. S. CHEN and D. TURNBULL, *J. Appl. Phys.* **40** (1969) 4214.

Received 26 May
and accepted 19 July 1971

S. K. SHARMA
O. P. BAHL
National Physical Laboratory,
New Delhi-12, India

Short Notices

Magnetic Properties of Materials

Editor Jan Smit

One of life's minor disappointments is that of seeing the name of one's favourite author on the spine of a book only to discover inside that he is not its author but its editor. Having made this remark it is only fair to point out that Professor Smit, in addition to contributing two excellent chapters himself, has achieved an unusually successful synthesis and has been excellently served by his contributors. The magnetic properties described in this book are essentially dynamic properties. There is, apart from thin films, no discussion of metallic systems and no chapter on permanent magnet alloys.

The virtues and weaknesses of multiple authorship are clearly seen in the early chapters. The first is a concise and quite brilliant introduction entitled "Some Concepts in Ferromagnetism" written by the editor himself. The second chapter "Crystallography, Chemistry and Technology of Ferrites" by Gerhard Winkler, subjects the reader to the most abrupt change of gear in the whole book. Yet this is an excellent contribution. There is just the feeling that in a book by a single author the transition would have been made via a description of the electronic structure of 3D elements, the effects of the crystal field in determining ionic site preferences and a reasoned plea that the solid state theorist's theory will be more pertinent if he appreciates the chemical and crystal-growth problems of ferrites and garnets. Unfortunately there remains the equally strong feeling that such an author would be quite unable to provide an account as authoritative as Dr Winkler's.[†]

The magnetic properties subsequently discussed are: "Ferrites at Radio Frequencies" (Jan Kerweel), "Magnetic Properties at Microwave Frequencies" (Jan Smit), "Magneto-optical Properties of Magnetic Crystals" (J. F. Dillon Jr.), "Square Loop Ferrites" (R. S. Weiss), "Magnetic Materials for Recording Tape" (J. C. Mallinson) and "Thin Films" (S. Middlehock). The authors are all experts and write with authority and distinction. The paucity of references more recent than 1966 is rather alarming. However, the various sections aim to present the fundamentals rather than the most recent developments. This they achieve without exception. Whether they collectively make a successful book is largely a matter of personal definition or prejudice.

E. W. L.

Magnetic Domains

R. S. Tebble

(Methuen and Co. Ltd 1969) 93 pp, £1.25

This book provides a very elementary introduction to the subject of magnetic domains. In a brief introductory chapter a few basic properties of ferromagnets are discussed, along with a summary of the principles of domain formation. There follow chapters devoted in turn to methods of domain observation, the energy contributions in magnetic crystals, domain structure, and its relation to the magnetisation curve. The final two chapters describe the more particular topics of single domain particles and thin films. These include a brief discussion on the use of the ideas

developed in practical applications such as permanent magnet materials, magnetic recording tapes and thin film memory elements.

The book is unfortunately in c.g.s. units and was written just a little too early to include anything about the rapidly expanding area of

“bubble domains”. It is however well illustrated both with diagrams and micrographs and should provide an easy introduction to the subject, not only for students but also for engineers and metallurgists with an interest in magnetic domains.

D.M.