polemics of medicine with his advocacy of heroic doses of metallic mercury, from which he derived fame as the "Quicksilver Doctor," which episode gives title to this book.

This is a very enjoyable book, providing us not only with almost all that is known about Thomas Dover but placing him in his contemporary setting among his teachers, friends, acquaintances, and critics. Many a famous name—Radcliffe, Sloan, Mead, Dampier, Woodes Rogers, Lady Montagu—enters into the narrative. There are many details of Thomas Dover's life which are obscure or unknown, but the author, Kenneth Dewhurst, seems to have searched all possible sources and is thus able to expand the little that is known of his subject. However, the author gives 1662 as the date of Dover's birth, against 1660 in *The Dictionary of National Biography,* without apparently recognizing the inconsistency between his own sources—the admission register of Gonville and Caius and the baptisimal register—and other entries. Likewise, Thomas is accepted as the editor of the 1770 edition of the *Annalia Dubrensia* memorializing his grandfather, whereas the internal evidence points to Thomas' older brother John. Supporters of the "light blue" will be a little disturbed to find (page 12) Cambridge's greatest ornament, William Harvey, "amongst the vanguard of Oxford pioneers." But these are trivia, in a tale exceptionally well told.

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The Defect Solid State. T. J. Gray, D. P. Detwiler, D. E. Rose, W. G. Lawrence, R. R. West, and T. J. Jennings. Interscience, New York, 1957. 511 pp. Illus. $11.

This volume consists of a rather diffuse collection of essays, six of them by T. J. Gray and the other six by colleagues of his at the Alfred University College of Ceramics. Since little more than half of the material presented has anything to do with "the defect solid state," one might perhaps wonder why that title was chosen; perhaps the authors felt that it has a fashionable ring at the present time. At any rate, the book should prove interesting to some who work in other fields, notably ceramics and metallurgy.

Of the articles by Gray himself, it is difficult to write constructively. The author roams over the extensive field, or series of fields, to which he has contributed, touching in his path on the electrical properties of semiconductors and on dislocations, solid state diffusion, adsorption, oxide film growth, corrosion, magnetism, and catalysis. Unfortunately, the result is highly disorganized; good critical comments lie next door to wild and inaccurate statements. It is staggering to find, for example, the sentence (page 34): "An accepted criterion for a semiconductor is that the material possesses a measurable Hall coefficient." More generally, a particular piece of mathematical work (or a particular argument) may crop up three or four times—often in a different notation each time—with no indication that the same territory has been covered in an earlier section. This trouble is worsened by what seems to have been remarkably sloppy proof-correcting of the equations. For example, in the five equations on pages 39 and 40 and the accompanying text, there are six typographical errors; of the equations, the fourth is irrelevant (quite apart from the fact that one of the symbols and one of the phrases associated with it are left unexplained and do not seem to occur again), while the fifth turns out, on close inspection, to be no more than an approximate form of the first, except that *every symbol is different*!

The most disappointing chapter is that on "Defect Structure and Catalysis." Precisely because this is such a woolly subject and because so much nonsense has been writen on it, one looks for something better in the way of a critical survey than that offered here. One seeks in vain for some quantitative correlation, for example, between the activation energy of a catalyzed reaction and the position of the Fermi level (in the bulk or at the surface) in the catalyst. The chapter on "Magnetic Properties of Solids" is better, but it ignores almost everything that has been done in electronic paramagnetism in the last quarter century; electronic paramagnetic resonance (as distinguished from ferromagnetic resonance), for example, is not mentioned, and there is not even a reference to the modern work on crystal fields, which has led to an essentially complete solution of the problem of anomalous g-values.

The chapter by D. P. Detwiler on "Certain Theoretical Aspects of Semiconductivity" may be of use as an elementary introduction to the subject, and the chapter on "Dielectric Materials" by the same author is a competent, if not particularly novel, treatment of the static and dynamic electrical properties of insulators.

D. E. Rose's chapter on "Phase Equilibria" is a good piece of pedagogy and should be useful, both as an introduction and for reference purposes, to metallurgists. Detwiler's chapter on "Intermetallic Compounds" is too brief to be of much value. On the technological side, there are sections on "Experimental Techniques" by R. R. West (differential thermal analysis) and on "Microbalance Techniques" by T. J. Jennings. Possibly the best, and certainly the best written, article in the book is W. G. Lawrence's chapter on "Ceramic Materials for High Temperatures." I am not competent to criticize the accuracy or comprehensiveness of the material in this chapter, but that material is well organized and attractively presented. It is a pity that the same cannot be said for all of the rest of the book.

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Proceedings of the International Symposium on Algebraic Number Theory. Tokyo and Nikko, Japan, September 1955. Science Council of Japan, Tokyo, 1956. 267 pp.

This volume records a successful symposium, organized by the Science Council of Japan under the joint sponsorship of the International Mathematical Union. The subject of algebraic number theory was well chosen, for the current developments of this subject are not only fruitful in their own right but reach effectively into other fields such as homological algebra and algebraic geometry. The location of the symposium in Japan was suitable, for the crown of algebraic number theory lies in the class field theory, which owes much to the pioneering papers published in 1920–22 by the Japanese mathematician T. Takagi (honorary president of this symposium). This interest has remained active, as witness the current contributions of Japanese mathematicians such as Iwasawa, Nakayama, and Tannaka to the beautiful recent developments of class field theory.

The symposium assembled some ten mathematicians from abroad, as well as 55 from Japan. This volume, after presentation of introductory material, presents the mathematical addresses which they delivered at the symposium. Noteworthy is the rapid development of the study of the "complex multiplication" which arises in the description of class fields over certain special algebraic number fields (imaginary quadratic fields). Recent work here was stimulated by papers of A. Weil, of about 1950, and was carried further by M. Deuring, who reports here on his results. Further essential progress has been achieved by the young Japanese mathematicians G. Shimura and Y. Taniyama, whose results overlap current ones of Weil (all reported here), and the discussions at the symposium between these men and others manifestly contributed more ideas for the future (see, for example, pages 9, 32).

Many other developments are represented: modern methods in class field theory involving the study of *idèle* class group (E. Artin, A. Weil) and of cohomology groups; the use of such geo-