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-

metric methods as fiber spaces in number theory (K. Yamazaki, following ideas of A. Weil); and number theory in algebraic varieties (A. Neron). Algebraic geometry is well represented: M. Nagata gives a systematic exposition of his general treatment of intersection multiplicities, following notions of C. Chevalley; J. P. Serre shows how the new methods of homological algebra yield improved proofs of the Cohen-Macauley theorems, and so on. Other articles follow, and the volume ends with 17 short notes by younger Japanese mathematicians. As a statement by the visitors (page xxxi) points out, the material conditions of young Japanese scientists are not favorable, but their devotion and talent are amply displayed here.

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New Books

The Origin of Life on the Earth. A. I. Oparin. Translated from the Russian by Ann Synge. Academic Press, New York, rev. ed. 3, 1957. 513 pp. $6.80.

Edward Williams Morley. His influence on science in America. Howard R. Williams. Chemical Education, Easton, Pa., 1957. 293 pp.

An Introduction to Genetic Statistics. Oscar Kempthorne. Wiley, New York; Chapman & Hall, London, 1957. 572 pp. $12.75.

Better Biology for High School. D. K. Gillespie. Vantage Press, New York, 1957. 249 pp. $3.50.

Check-List of North American Birds. Prepared by a committee of the American Ornithologists' Union. American Ornithologists' Union, 1957. 704 pp.

Hepatitis Frontiers. Frank W. Hartman, Gerald A. LoGrippo, John G. Mateer, James Barron. Little, Brown, Boston, 1957. 605 pp. $12.50.

Radiation Effects in Solids. G. J. Dienes and G. H. Vineyard. Interscience, New York, 1957. 234 pp. $6.50.

Cosmic View. The universe in 40 jumps. Kees Boeke. Day, New York, 1957. 48 pp. $3.25.

Social and Cultural Dynamics. A study of change in major systems of art, truth, ethics, law and social relationships. Pitirim Sorokin. Sargent, Boston, revised and abridged in one volume, 1957. 718 pp. $7.50.

Treatise on Marine Ecology and Paleoecology. vol. 2, *Paleoecology.* Memoir 67. Harry S. Ladd, Ed. Geological Society of America, New York, 1957. 1087 pp. $10.

New Frontiers of Knowledge. A symposium by distinguished writers, notable scholars and public figures. Public Affairs Press, Washington, 1957. 135 pp. $2.75.

El Archipielago de Los Roques y La Orchila. Sociedad de Ciencias Naturales la Salle, Caracas, Venezuela, 1956. 257 pp.

The Elements of Physics. Alpheus W. Smith and John N. Cooper. McGraw-Hill, New York, ed. 6, 1957. 683 pp. $7.50.

Guide to the Microscope. Arthur Beiser. Dutton, New York, 1957. 127 pp. $3.25.

Education for Planning: City, State and Regional. Harvey S. Perloff. Johns Hopkins Press (for Resources for the Future), Baltimore, 1957. 199 pp. $3.50.

Chronic Illness in a Large City. The Baltimore Study. vol. IV of *Chronic Illness in the United States.* Commission on Chronic Illness. Harvard University Press (for the Commonwealth Fund), Cambridge, Mass., 1957. 639 pp. $8.

Community Involvement. The webs of formal and informal ties that make for action. Christopher Sower, John Holland, Kenneth Tiedke, Walter Freeman. Free Press, Glencoe, Ill., 1957. 323 pp. $5.

College Men at War. Memoirs, vol. 24. John P. Monks. American Academy of Arts and Sciences, Boston, 1957. 334 pp. $10.00.

The Origins of Modern Science 1300–1800. H. Butterfield. Macmillan, New York, ed. 2, 1957. 252 pp. $3.

West Africa. A study of the environment and of man's use of it. R. J. Harrison Church. Longmans, Green, London, 1957 (order from Longmans, Green, New York). 574 pp. $8.75.

Biochemie der Ernährung. K. Lang. Steinkopff, Darmstadt, Germany, 1957. 426 pp. DM. 54.

The American Idea of Mission. Concepts of national purpose and destiny. Edward McNall Burns. Rutgers University Press, New Brunswick, N.J., 1957. 397 pp. $9.

Automation: What It Is, How It Works, Who Can Use It. Carl Dreher. Norton, New York, 1957. 128 pp. $2.95.

Neutron Cross Sections. Donald J. Hughes. Pergamon Press, New York, 1957. 192 pp. $5.

Fear: Contagion and Conquest. James Clark Moloney. Philosophical Library, New York, 1957. 153 pp. $3.75.

The Numbers of Man and Animals. J. B. Cragg and N. W. Pirie, Ed. Oliver and Boyd (for the Institute of Biology), Edinburgh, 1957 (order from Macmillan, New York). 160 pp. $2.75.

Installing Electronic Data Processing Systems. Richard G. Canning. Wiley, New York; Chapman & Hall, London, 1957. 203 pp. $6.

The Economics of Under-Developed Countries. Peter T. Bauer and Basil S. Yamey. University of Chicago Press, Chicago, 1957. 284 pp. $2.25.

Biological Effects of Whole-Body Gamma Radiation on Human Beings (U). Harold O. Davidson. Johns Hopkins Press (for Operations Research Office, Johns Hopkins University), Baltimore, 1957. 101 pp. $3.

Catalysis. vol. 5, *Hydrogenation, Oxo-Synthesis, Hydrocracking, Hydrodesulfurization, Hydrogen Isotope Exchange and Related Catalytic Reactions.* Paul H. Emmett, Ed. Reinhold, New York; Chapman & Hall, London, 1957. 548 pp. $15.

Trends in Gerontology. Nathan W. Shock. Stanford University Press, Stanford, Calif., ed. 2, 1957. 223 pp. $4.50.

The Inner Metagalaxy. Harlow Shapley. Oxford University Press, London; Yale University Press, New Haven, Conn., 1957. 217 pp. $6.75.

Miscellaneous Publications

(Inquiries concerning these publications should be addressed, not to Science, *but to the publisher or agency sponsoring the publication.)*

Paralepididae II (Macroparalepis). Taxonomy, ontogeny, phylogeny and distribution. Carlsberg Foundation's oceanographical expedition round the world 1928–30 and previous "Dana"-expeditions. Vilh. Ege. Carlsberg Foundation, Copenhagen, Denmark, 1957. Kr. 28.

Botany. Laboratory manual. Erich Steiner, Alfred S. Sussman, Warren H. Wagner, Jr. Dryden Press, New York, 1957. 260 pp. $3.40.

Digital Differential Analyzers. George F. Forbes. The author, 10117 Bartee Ave., Pacoima, Calif., ed. 4, 1957. 175 pp. $5.

The Electrophysiology of the Heart. Annals, vol. 65, art. 6. Hans H. Hecht, conference chairman and consulting editor. 494 pp. $4.50. *Proteolytic Enzymes and Their Clinical Application.* vol. 68, art. 1. Gustav J. Martin, consulting editor and conference chairman. 224 pp. $3.50. *Biological Applications of Infrared Spectroscopy.* vol. 69, art. 1. Robert P. Bauman, consulting editor. 254 pp. $3.50. *Modern Ideas on Spontaneous Generation.* vol. 69, art. 2. Ross F. Nigrelli, conference chairman and consulting editor. 122 pp. $2.50. *Second Conference on Sulfonamides.* vol. 69, art. 3. Perrin H. Long, consulting editor. 148 pp. $3. *The Role of I^{131}-Labeled Proteins in Biology and Medicine.* vol. 70, art. 1. S. P. Masouredis, conference chairman and consulting editor. 152 pp. $3. *Determination of SR^{90} and BA^{140} in Bone, Dairy Products, Vegetation, and Soil.* vol. 71, art. 2. H. L. Volchok, J. L. Kulp, W. R. Eckelmann, J. E. Gaetjen. 12 pp. $0.75. *Transplantation of Fins in Xiphophorin Fishes.* vol. 71, art. 3. Klaus D. Kallman and Myron Gordon. 16 pp. $0.75. New York Academy of Sciences, New York, 1957.

A Restudy of the 1917 Eruption of Volcán Bóqueron, El Salvador, Central America. Fieldiana: Geology, vol. 10. No. 30. Sharat Kumar Roy. 20 pp. $0.75. *The Problems of the Origin and Structure of Chondrules in Stony Meteorites.* vol. 10, No. 31. Sharat Kumar Roy. 14 pp. $0.50. Chicago Natural History Museum, Chicago, 1957.

Eocene Mollusca from Nigeria: a Revision. Bulletin, Geology, vol. 3, No. 2. Frank E. Eames. 48 pp. 25s. *A Revision of the Lake Victoria Haplochromis Species (Pisces, Cichlidae).* pt. II, *H. Sauvagei (Pfeffer), H. Prodromus Trewavas, H. Granti Blgr., and H. Xenognatus, Sp. N.* Bulletin, Zoology, vol. 5, No. 4. P. H. Greenwood. 22 pp. 8s. *Neuroptera and Trichoptera Collected by Mr. J. D. Bradley on Guadalcanal Island, 1953–54.* Bulletin, Entomology, vol. 5, No. 7. D. E. Kimmins. 22 pp. 7s. *Odonata Collected by Mr. J. D. Bradley on Guadalcanal Island, 1953–54.* Bulletin, Entomology, vol. 5, No. 8. D. E. Kimmins. 12 pp. 4s. The British Museum (Natural History), London, 1957.

The Public Health Laboratory Service. First report of the Expert Committee on Health Laboratory Methods. WHO Tech. Rept. Ser., No. 128. World Health Organization, Geneva, 1957. 49 pp. $0.60.