kind. A serious reader will also be disappointed at the amazing number of misspelled names: "Pearse" instead of "Pearce," "Osterbrok" instead of "Osterbrock," "Matsukov" instead of "Maksutov," and so on.

The book consists of an introduction ("Some fundamental ideas of astrophysics") and of 19 chapters, arranged in four parts: (i) "Atoms and molecules in space," (ii) "Solid particles in space," (iii) "From atoms to grains and from grains to stars," and (iv) "Diffuse matter outside the Milky Way."

In conclusion, it is appropriate to mention that Dufay's own research has had a considerable influence on the development of the ideas discussed in his book. Thirty years ago he investigated the relative contributions to the diffuse light of the night sky of the "air-glow," of resolved and unresolved stars, of starlight scattered by interstellar particles, and so on. His most recent work with infrared-sensitive photographic emulsions and suitable light filters has demonstrated the relatively much greater transparency of space in infrared light than in ordinary blue or violet light.

OTTO STRUVE
University of California, Berkeley

Analytical Microscopy. Its aims and methods in relation to foods, water, spices, and drugs. T. E. Wallis. Little, Brown, Boston, Mass., ed. 2, 1957. 215 pp. Illus. $5.50.

For many years, fortunate was the microscopist who had access to T. E. Wallis' little book. Now we can all have a copy that is twice as large and has twice the number of illustrations, plus two appendixes—one of numerical data on seed weights, vein-islet numbers, leaf palisade ratios, stomatal numbers, pollens, and drug powders and the other on formulas for useful stains and reagents. The bibliography is modernized, and the author is now listed as a member of the Society for Analytical Chemistry rather than of the Society of Public Analysts.

The materials examined are foods, drugs, fibers, mineral substances, and water. Measurement, drawing, and quantitative methods are described and discussed by an old master. Clear drawings are given to aid in identification of starches, plant fragments, insects, and other contaminants associated with these products. There are many numerical data on the sizes of botanical materials.

The outstanding advantage of this book, in my opinion, is the description and discussion of the basic methods of preparing a sample and of procedures for examination with the microscope. The book is practical, is largely based on the author's broad experience as a microscopist, and considers problems that are not solvable by chemical methods alone. The professional microscopist will gain more from the book than will those working in a limited field, although any student who has to use a microscope will benefit from browsing among these chapters. By some, methods which do not include ultrathin sectioning, and so on, will be considered old-fashioned; others will agree with Wallis that shrinkage and distortion should be avoided whenever possible.

OSCAR W. RICHARDS
American Optical Company

A Monograph of the Immature Stages of African Timber Beetles (Cerambycidae). E. A. J. Duffy. British Museum (Natural History), London, 1957. 338 pp. + plates. £5 5s.

This is the second in a proposed series of monographs on larvae of timber beetles. It corresponds in format and presentation to the previous volume. Species from Madagascar and other neighboring islands are included, in addition to those from Africa. Readily workable keys are presented, which make possible for the first time the identification of "all species of major importance."

Significant morphological characters are adequately described and often clearly illustrated, and there are ten plates of excellent black-and-white photographs showing typical damage. Information on biology, hosts, and distribution and often on parasites or predators is made available, much of it for the first time. A remarkably complete bibliography of significant papers is presented.

W. H. ANDERSON
U.S. Department of Agriculture

The Granite Controversy. Geological addresses illustrating the evolution of a disputant. H. H. Read. Interscience, New York, 1957. xix + 430 pp. Illus. $6.75.

The Granite Controversy brings together eight addresses by H. H. Read, delivered between 1939 and 1954, all on the controversial topic of the origin of granite. Some of the earlier of these addresses were not widely distributed because of war conditions; in any event, this republication in a single volume is very useful. Anyone who has had the privilege of hearing Read speak does not have to be told of the vigor of his prose or of his humor and his skill in debate. The book is well written, with life and verve, and, even though from the nature of the material there is considerable repetition, it is a pleasure to read.

No one could consider the book an objective weighing of the evidence—in fact, the author freely admits his bias toward granitization rather than toward a magmatic origin for granite. To him, all granite masses are members of a "granite series," to be traced from one geologic environment to another, through time. Their associated rocks and structural relations vary widely but can be considered to form a consistent pattern. In regionally metamorphosed terrains, many bodies are derived from essentially undisplaced sedimentary or volcanic rocks. Emanations from the mantle have introduced silica, potassa, alumina, and other substances to produce a metamorphic aureole, passing inward from schist, through gneiss, to migmatite, and finally to granite. The material of the granite mass was hot enough and had enough interstitial fluids to flow readily, yet it was never molten. Owing to its plasticity and low density, orogenic stresses cause some of the material to rise, so that it ultimately comes, in part, to occupy spaces far distant from, and at shallower levels than, the site of the transformation of the parental rocks. These cross-cutting granites have contact aureoles of the Barr-Andlau type that have led to the idea that granites have been derived from molten rock or magma. Although they are traveled bodies, their origin, like that of the granites of metamorphic terranes, lay in the transformation of older rocks. Parts of these cross-cutting bodies may have been molten, but the bulk was probably crystalline throughout time, so that the emplacement was of a crystal mush.

Read's disarming preface emphasizes the undoubted fact that the origin of granite clearly took place under conditions not susceptible of laboratory duplication and states that therefore field evidence should control our theory of origin. The interpretation put on identical field relations by different geologists will necessarily vary with their individual experiences. Geologists working in nonmetamorphic terranes have naturally differed in their inferences from those working in regionally metamorphosed rocks. The idea of magmatic granite has arisen in nonmetamorphic regions. Clearly, Read's experience has been chiefly among the regionally metamorphosed rocks.

Read's conclusion that granites have not arisen, in general, by crystal fractionation of a basaltic magma—the theory to which Bowen's name is inseparably attached—will probably be accepted by most field geologists. There simply are not the vast quantities of intermediate intrusive rocks that this theory demands. Read's insistence on a distinctly

different origin is persuasive, and to me, compelling. But when he goes on to argue (page 155 and elsewhere) that the existence of abundant lavas of granitic composition is irrelevant to the question of the existence of a granitic magma, he seems to write a lawyer's brief. It is as much as to say that basaltic lavas do not prove the existence of a basaltic magma. Despite this bias, there are pages in which Read grants that the second variety of "granites" of his "Granites and granites" dichotomy may, indeed, be partly magmatic. This admission seems to render unnecessary the strained logic that considers glassy siliceous lavas irrelevant to the question of molten siliceous magmas, potentially sources of magmatic granite.

Space limitations preclude an elaborate discussion of the arguments. Every geologist interested in petrology and metamorphism will find much of interest in the book. The discussion of metamorphic facies, of the depth factor in metamorphism, of the migmatite and basic fronts, and of many other topics are of great interest and value. Not the least merit of the book is its review of the long history of the granite controversy. But the modern papers cited seem to have been selected mainly because they support the author's thesis, and far too many of them are quite unconvincing even to a rather sympathetic reader. In the American literature cited, one looks in vain for field reports by Lindgren, Knopf, Larsen, or Buddington; the question of stoping is cavalierly dismissed without reference to Barrell, Daly, Butler, or Loughlin. Similar bias is shown throughout.

The book thus seems to me to present an attorney's brief for the transformist position. That position seems strong enough not to require shoring up with so many ex parte arguments. If ultrametamorphism can produce a migma, as most field men will grant, there is nothing incredible about the further step of complete melting, even though it has not been proved. Nor would the concession of the existence of granitic magma or of stoping in some places disprove, or even weaken, the arguments for transformation in other locales. Not every problem in plutonic geology must have a single solution, nor must one accept as final the progress reports of 1957. At least, the author has not gone over to the dry diffusionists!

No one can read Read's stimulating review without perceiving some fruitful new relationships. Read is a scholar and an experienced and thoughtful field man. His book is recommended to every "hard-rock" geologist, however dangerous it might be to the uncritical.

JAMES GILLULY
U.S. Geological Survey

The Aleut Dentition. A correlative study of dental characteristics in an Eskimoid people. Coenraad F. A. Moorrees. Harvard Univ. Press, Cambridge, Mass., 1957. 196 pp. Illus. $4.50.

Coenraad Moorrees asks how useful the dentition is for the classification of races and specifically whether the characteristics of the teeth distinguish eastern from western Aleuts. These questions are only partially answered. Instead, he reports a survey of the teeth of 156 living Aleuts (all those available), a review of racial odontology, and a series of hypotheses for future study. In dental morphology the Aleuts resemble other Eskimos and Mongoloids. Eruption of teeth is precocious, by European standards. Lower jaws sometimes jut; they never recede. Dental decay has greatly increased following a change in the diet.

The author of the monograph is cautious in his interpretive sallies. His meticulous work therefore awaits further exploitation by other students of genetic and environmental factors in dental variation and disease.

GABRIEL WARD LASKER
Wayne State University

The Principles of Heredity. Laurence H. Snyder and Paul R. David. Heath, Boston, Mass., ed. 5, 1957. xi + 507 pp. Illus. $6.25.

This is the fifth edition of Snyder's well-known textbook pertaining to heredity. Like its predecessors, it is written in a simple and direct style. It should serve well any introductory college course in genetics. Its new features are primarily its format and its new sections, on pseudoallelism, on DNA, and on bacterial genetics. Unfortunately, it was published too early to include the recent evidence that the Y-chromosome of man may not carry as many genes as was previously thought. The chapter on human blood groups and their nomenclature has been brought up to date. Many new problems have been included.

HERLUF H. STRANDSKOV
University of Chicago

New Books

A History of Industrial Chemistry. F. Sherwood Taylor. Abelard-Schuman, New York, 1957. 483 pp. $7.50.

Laboratory Experiments in College Physics. Cicero Henry Bernard. Ginn, Boston, Mass., ed. 2, 1957. 335 pp. $4.25.

Medical Writing. The technique and the art. Morris Fishbein. Blakiston Div., McGraw-Hill, New York, ed. 3, 1957. 272 pp. $7.

Morphological Astronomy. F. Zwicky. Springer, Berlin, 1957. 303 pp. DM. 49.60.

Sir Isaac Newton's Mathematical Principles of Natural Philosophy and His Systems of the World. Translated into English by Andrew Motte in 1729. The translations revised and supplied with a historical and explanatory appendix by Florian Cajori. University of California Press, Berkeley, 1947. 715 pp. $6.50.

The North American Deserts. Edmund C. Jaegers. Stanford University Press, Stanford, Calif., 1957. 318 pp. $5.95.

Principles of Plant Pathology. E. C. Stakman and J. George Harrar. Ronald, New York, 1957. 592 pp. $8.

The Teaching of Hygiene and Public Health in Europe. A review of trends in undergraduate and postgraduate education in 19 countries. WHO Monogr. Ser. No. 34. F. Grundy and J. M. Mackintosh. World Health Organization, Geneva, 1957 (order from Columbia University Press, New York 27). 254 pp. $5.

Antarctic Hazard. Ross Cockrill. Philosophical Library, New York, 1957. 230 pp. $4.75.

An Approach to Modern Physics. E. N. da C. Andrade. Doubleday, Garden City, N.Y., 1957. 266 pp. Paper, $0.95.

Basic Mathematics for Radio and Electronics. F. M. Colebrook and J. W. Head. Iliffe, London; Philosophical Library, New York, ed. 3, 1957. 359 pp. $6.

Beyond Freud. A creative approach to mental health. Camilla M. Anderson. Harper, New York, 1957. 288 pp. $4.

Colorimetric Analysis. vol. I, *Determinations of Clinical and Biochemical Significance.* Noel Allport and J. W. Keyser. Chapman & Hall, London, ed. 2, 1957. 424 pp. $9.

The Computing Laboratory in the University. Preston C. Hammer, Ed. University of Wisconsin Press, Madison, 1957. 236 pp. $6.50.

Craig and Faust's Clinical Parasitology. Ernest C. Faust and Paul F. Russel; assisted by David R. Lincicome. Lea & Febiger, Philadelphia, ed. 6, 1957. 1078 pp. $15.

Dairy Bacteriology. Bernard W. Hammer and Frederick J. Babel. Wiley, New York; Chapman & Hall, London, ed. 4, 1957. ix + 623 pp. $9.

Electron Microscopy. Proceedings of the Stockholm Conference, September 1956. F. S. Sjostrand and J. Rhodin, Eds. Academic Press, New York, 1957. 366 pp. $17.50.

From Sterility to Fertility. A guide to the causes and cure of childlessness. Elliot E. Philipp. Philosophical Library, New York, 1957. 120 pp. $4.75.

Glass Reinforced Plastics. Phillip Morgan, Ed. Iliffe, London; Philosophical Library, New York, ed. 2, 1957. 291 pp. $15.

The Human Brain. From primitive to modern. A. M. Lassek. Thomas, Springfield, Ill., 1957. 250 pp. $4.75.

Lens Materials in the Prevention of Eye Injuries. Arthur H. Kenney. Thomas, Springfield, Ill., 1957. 73 pp. $3.50.

Medical Radiation Biology. Friedrich Ellinger. Thomas, Springfield, Ill.; Blackwell, London; Ryerson, Toronto, 1957. 978 pp. $20.