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