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the applications of satellites for peaceful and military purposes.

The author illustrates many of the technical problems and concepts with a great deal of numerical data. I wonder, however, if the nonscientific reader is interested in all the data that the author places before him. On the other hand, the nonspecialist in space science with a scientific background might find this aspect very interesting. Sections of the book must by necessity be pedagogic in nature and other parts are more or less progress reports. Some readers will find the balance between these two aspects of the book to be according to their liking and others not so. This depends very much upon the background which the reader brings to the book. Surprisingly there is very little propaganda in the book, and the places where there is some are quite transparent.

There are some places where this reviewer might question some of the wisdom of certain details in the proposed scientific applications of satellites. For example, the suggested utilization of a sodium-coated mirror for a reflecting telescope on a satellite (why not aluminium?—it reflects down into the vacuum ultraviolet). But in general his science is sound.

Over all, the book is well written and the translation is free, for the most part, from awkward constructions. The technical production of the book is good, but there are a few obvious proofreading errors. There is one bad error in the labeling of a diagram, but it is so obvious that it should not bother the reader.

I feel that anyone interested in learning about the efforts in space science both in Soviet Russia and elsewhere (up to the launchings of the first sputniks) would profit greatly from reading this book.

The Structure of Metals: A Modern Conception. Lectures by G. V. Raynor, J. A. Catterall, A. G. Quarrell, J. Nutting. 118 pp. (Inst. of Metallurgists) Interscience Publishers, Inc., New York, 1959. \$4.00. Reviewed by David Turnbull, General Electric Research Laboratory.

IN this book are published the 1958 lectures of a refresher course for metallurgists arranged annually by the British Institution of Metallurgists. The purpose of these courses is to survey the current state of knowledge of some aspect of metallurgy.

Though the book is called *The Structure of Metals* the coverage is limited essentially to electronic and dislocation structures. There are four papers entitled and authored as follows: (1) The Electronic Structures of Metals by G. V. Raynor, (2) Experimental Aspects of the Electron Theory of Metals by J. A. Catterall, (3) Dislocations in Metals by A. G. Quarrell, and (4) Seeing Dislocations by J. Nutting.

The papers by Raynor and Quarrell for the most part follow quite closely the patterns of the corresponding treatments in elementary texts on metal physics. The papers of Catterall and Nutting give useful summaries of some of the important new experimental develop-

ments in the fields. Catterall shows that, although really important advances in techniques for investigating electronic structures have been made recently, the results are still far from definitive. In contrast, Nutting indicates how results achieved by improved techniques of electron transmission microscopy have confirmed to a remarkable degree earlier predictions of the dislocation theory.

All of the papers are written lucidly and at quite an elementary level. They should serve quite well the purpose for which they are intended.

The Atom and the Energy Revolution. By Norman Lansdell. 200 pp. Philosophical Library, Inc., New York, 1958. \$6.00. *Reviewed by Norwood Russell Hanson, Indiana University.*

MR. Lansdell's book is a fact-studded description—well lubricated with graphs, statistics, and photographs—of how the increasing availability of atomic energy is affecting the energy resources of the world as a whole. The strictly conceptual content of Mr. Lansdell's work, therefore, is subordinate to setting straight the factual record about the impact of this new energy discovery on the respective capacities of nations in the world-wide struggle for economic and social survival.

The first portion describes the demands being made on the world's orthodox energy resources. How the major, and minor, countries compare with each other in this connection is clearly delineated. Next, Lansdell analyzes the several types of power: wind power, water power, vegetable resources, solar energy, electrochemical generation of electricity, direct conversion of radiation into electrical current, and finally atomic energy. A popular, and (to the specialist) mildly inadequate, survey of the history and theory of atomic energy release is set forth. None of this is new, but its utilization for Lansdell's objectives is effective and interesting. The same observations apply to the author's accounts of the resources available for atomic energy development and of the actual and potential applications of nuclear technology.

Now Lansdell settles down to his major objectives. What practical, experimental, and theoretical moves are being made within our world for the understanding and exploitation of this new force in human affairs? He tells us in admirable detail. The section on the political and commercial organizations for atomic energy development will apprise many readers of facts they cannot have assessed before. The international organizations concerned with this development—EURATOM, CERN, IAEA—are described with refreshing plausibility. Most of us will never have an opportunity to read the mountains of words written about such agencies, and Lansdell's summation is extremely valuable.

The volume concludes by discussing the world impact of atomic energy. Such subjects as the influence of atomic energy development on other industrial techniques and its influence on the balance of world trade are surveyed with the author's uniform capacity for amassing stores of factual material and presenting their

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