

its control, crucibles, atmospheres, the Bridgman and the pulling (Czochralski) techniques. The final paragraphs in the book are on the control of dislocation density, dendritic crystals and growth without crucibles.

The book is well written, supplied with many figures, an extensive reference register and an author and subject index. It will be very helpful for those working with single crystals grown from the melt.

The book constitutes the fifth volume of the series of monographs on selected topics in solid-state physics, E. P. Wohlfarth, editor.

* * *

The reviewer worked with single crystals of Zn, Cd, Mg, with Zn-Cd, Zn-Sn, Zn-Bi crystals, with crystals of brass, and on eutectic crystallization.

Energy transformation

LA CONVERSION DES ENERGIES.
By Regis David. 128 pp. Presses
Universitaires de France, Paris, 1966.

by R. Bruce Lindsay

Because it is possible to interpret practically everything that goes on in the world of our experience as either a transfer or transformation of energy, any writing devoted to this general theme arouses agreeable expectations, and the present book is not entirely disappointing in this regard. It is another small volume in the very extensive series called "Que Sais-je?" (Le Point des Connaissances Actuelles). The author is an assistant to the Faculty of Sciences of the University of Paris. He has sought to present in as simple a way as possible the most important types of practical energy transformation, with special emphasis on new developments that promise technological success.

The book opens with a conventional discussion of the conversion of mechanical energy into electrical energy through the electric generator and the converse transformation in the electric motor. This very short chapter is followed by seven longer ones that treat in turn the transformation of light energy into electric energy (photoelectric effect); the direct conversion of electrical energy into radiation energy (electro-luminescence); the transfor-

mation of chemical energy into electrical energy (cells and storage batteries); the conversion of thermal energy into electrical energy (thermoelectricity); the mass-energy transformation of nuclear physics (fission and fusion); magnetohydrodynamic conversion; and finally miscellaneous types of transformation like piezoelectricity.

The treatment is in general descriptive with rather simple illustrations, but the basic mathematical formulas are presented, though in general without derivation. Much attention is given to modern developments such as fuel cells, thermoelectric generators, nuclear energy, and plasma physics. The last named subject is treated with particular effectiveness, though it does demand of the reader a substantial background of electromagnetic theory and physical statistics.

The author's style is clear and succinct. It is unfortunate that the book has no index and that the bibliography is very inadequate. However it will

make a useful addition to the library of any student of physics or engineering.

* * *

The reviewer is Hazard Professor of Physics and former dean of the graduate school at Brown University.

The changing AEC

CONTRACTING FOR ATOMS. By Harold Orlans. 242 pp. The Brookings Institution, Washington, D. C., 1967. \$6.00

by Bernard Hodes

Sociologist Orlans continues the great debate over the future of the aging Atomic Energy Commission with this broad study of AEC operations. His discussion includes the civilian reactor industry and AEC contractors, big science and the universities and (most interesting to physicists) the future of the national laboratories. Underlying his analyses is the (debatable) thesis



FUEL CELL replaces internal-combustion engine in demonstration arranged by Union Carbide.