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that the contents of the volume are greater than its main title would indicate. There are even an explanation of MKS units and a comparison of the different rationalized and unrationalized systems.

On the whole the notation is satisfactory and in accord with standard contemporary usage. Occasionally the French terminology strikes one by its difference from the terms we are used to, e.g. the "rotationnel" rather than "curl" of a vector. He speaks of fields which are "Newtonian" and "Laplacian" rather than "lamellar" and "solenoidal".

A great deal of information is encompassed in the two hundred pages of the book. It is organized as a logical unfolding of the subject rather than a compendium; as a result it is not particularly suitable as a reference book. One would not look in it, for instance, for a collection of the more recondite vector identities on one page. Its wealth of subject matter, with mathematics and physics in parallel, may make the book rather hard going for the casual reader, but one finishes reading the volume with the feeling that attending Professor Bauer's course of lectures must have been a rare opportunity for the students.

Gas Dynamics. Vol. 1 of Applied Mathematics and Mechanics. By Klaus Oswatitsch. Translated from German by Gustav Kuerti. 610 pp. Academic Press Inc., New York, 1956. \$4.00. Reviewed by C. M. Ablow, Stanford Research Institute.

An introductory aerodynamics text may properly be asked to provide clear descriptions of the physical phenomena encountered, a frank critique of the method of reduction of the basic ideas to mathematical form, and a compendium of important results together with indications of how they were obtained. The present work rates high on all three points.

The first chapter gives definitions of thermodynamic quantities and a refreshingly novel discussion of the limits of the perfect gas and constant specific heats assumptions. The next chapter on one-dimensional, steady flow begins with the normal shock relations, deducing the third order contact between Rankine-Hugoniot and isentropic pressure-density curves and continues with a discussion of steady flow with combustion or condensation.

The chapter on one-dimensional unsteady flow necessarily contains much formidable mathematics including some exact solutions of the flow equations and sections on Massau's finite difference, characteristics method. An introduction to interior ballistics and to the spherical blast waves of Taylor and Guderley is included as application of the theory.

The fundamental flow equations are derived from the integral forms of the conservation postulates in the next chapter. This method exhibits clearly just where such assumptions as isotropy enter the equations and what must be done when these assumptions are no longer valid. The integral relations are applied in the next chapter to flows through ram-jets, cascades, turbines,



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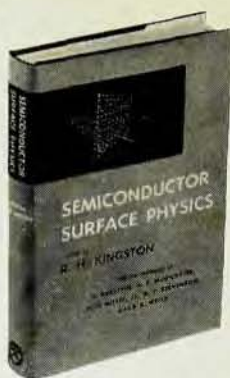
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SEMICONDUCTOR SURFACE PHYSICS

Proceedings of the Conference
on the Physics of Semicon-
ductor Surfaces, June, 1956



Edited by R. H. KINGSTON, with the assistance of
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and similar lossy, heated ducts where over-all effects rather than flow details are of interest.

The next five chapters, VI through X, give a broad survey with much clarifying detail of methods for handling two- and three-dimensional, steady and unsteady, inviscid flows. While the casual reader is perhaps overwhelmed by the multitude of methods and results presented, the working physicist may well use these chapters as a guide through the maze of possible attacks on his problems.

The last two short chapters give some indication of the previously neglected influence of viscosity and of flow measurement techniques. Large-scale shock polar and characteristics charts for two-dimensional flow and a nomogram connecting flow variables in isentropic flow are inserted in a pocket at the back of the book. Each chapter concludes with a long reference list giving sources of materials discussed and of additional details.

The typography is excellent, the paper and binding of good quality. The translator has been sufficiently well acquainted with his subject to put the original German into clear, colloquial English. The symbols have also been translated into those of standard American usage. An innovation which this reviewer hopes will not be adapted by other authors is the frequent reference to the fundamental differential equations of gas dynamics as "the g. d. equations".

Professors Oswatitsch and Kuerti present a comprehensive and well-ordered text which offers the student and research worker a sound introduction and detailed survey of the methods of modern aerodynamics.

Fundamentals of Physics (3rd Revised Edition). By Henry Semat. 914 pp. (also available as 2-volume set). Rinehart & Co., Inc., New York, 1957. \$8.00. *Reviewed by Joseph G. Hoffman, Roswell Park Memorial Institute.*

A friend told me about his experience as judge in one of this spring's high-school science congresses wherein students give lecture demonstrations. One of the young aspirants indicated to his audience that he had perhaps influenced the activity of a radium source by a slight change of temperature. Actually, the temperature change had affected the photographic method of detecting radiation. Aside from its broader implications, the story made me wonder how many physics texts would state that natural radioactivity cannot be influenced by ordinary physical agents. Professor Semat's book does not state this although it does describe current means for inducing nuclear transformations. And it must be added that the sections on nucleonics are well thought out for pedagogical purposes.

The task of conveying to the beginner the formidable subject matter of physics is achieved here in 914 pages. The high-school student would not find in it a clue about the impossibility of modifying radioactivity by temperature. But then, there are a whole host of questions students might encounter, such as the origins of gravity or the wave-like properties of particles, whose