

the w -plane, then it is a constant." Apart from the obvious typographical error, we have to ask what kind of certain curve is meant? A simple closed curve? Any arc? A continuous curve? The student who knows the answer will not be misled, but then he has little need of the book in any case.

One can only regret that a really good text should be marred by such poor treatment. Perhaps the brightest feature of the situation is the well-justified modesty of the translator who chose to remain anonymous.

High Pressure Physics and Chemistry. R. S. Bradley, ed. Vol. 1, 444 pp. \$15.50; Vol. 2, 361 pp. \$12.50. Academic Press, New York, 1963.

Reviewed by Stuart A. Rice, University of Chicago.

Amongst the flood of review volumes, there occasionally appears a comprehensive treatise that is both timely and welcome. In my opinion, *High Pressure Physics and Chemistry* falls into this elite category. Following the pioneering work of Bridgman, there has been an enormous expansion in the use of high-pressure techniques for a variety of studies. To discover what has and has not been done, what is the current state of the art, etc., would require a survey of a large number of journals scattered over a great variety of disciplines, except for the existence of review volumes. Of the several treatises written since 1949, this two-volume work is the most comprehensive; extensive bibliographies at the end of each chapter cover the literature up to early 1963. Despite the large number of contributors, there is relatively little overlap and repetition among articles.

Several chapters describe experimental techniques, but only Chapter 2 is devoted exclusively to a discussion of the production and measurement of high pressures. Aside from the historical material in Chapter 1, all of Volume 1 is devoted to the properties of matter in the gaseous, liquid, and solid states. The topics surveyed include: properties of compressed gases, compressibility and equation of state for liquids and solids, phase changes, transport and electrical

properties of liquids and solids, and others. I have found the various articles almost uniformly good. In general, the exposition is clear, the references appropriate, and a fine balance is maintained between theory and experiment. Volume 2 contains material more directly of chemical interest. The contributions include surveys of high-pressure studies of geochemical interest, chemical equilibria and chemical kinetics, x-ray techniques, shock waves, and radio-frequency spectroscopy.

High Pressure Physics and Chemistry will be an indispensable reference tool for all investigators interested in the use of high-pressure techniques. As a bonus, the quality of the writing makes the text useful for beginning graduate students.

Atomes, Molécules, Noyaux. By Pierre Fleury and Jean-Paul Mathieu. Vol. 8 of *Physique generale et expérimentale*. 346 pp. Eyrolles, Paris, 1963. 68,05 NF.
Reviewed by Hans Bichsel, University of Southern California.

Some information about the whole series of which this is the last volume is contained in the last chapter "Remarques sur l'étude de la physique"; the material for a "first" study of physics is provided, presumably at the college level: "The arrangement is in the traditional sequence of topics, but indications of atomic and molecular structure are scattered throughout the series, while in contrast, nuclear physics and wave mechanics are taken up only in the last volume." The material in this last chapter should probably be read by the student at the beginning of his studies rather than at the end. Some of the remarks presented might be of interest to the teachers in the United States who are at present concerned with the reorganization of our physics curricula and books.

To get down to a discussion of Volume 8: In just about 300 pages of text (not counting the chapter mentioned above and miscellaneous tables and pages of glossy photographs) a profusion of material is offered. Not only the subjects indicated in the title are discussed but a description of the whole of modern physics is given. After a review of the

properties of particles and waves and the basis of quantum mechanics, chapters on atoms and molecules follow. A discussion of the properties of condensed substances, including some solid-state theory, and quantum statistics closes the first half. The second part of the book (about 120 pages), dealing with nuclear transmutations and structure, includes the standard subjects of nuclear physics, and, in addition, sections on cosmic rays, accelerators, and reactors.

The whole approach is quite different from the presentation in the average American textbook. One has an impression of a great conciseness of expression. Just as an example: the very first paragraph in the text reads, "Matter cannot be divided indefinitely; numerous experimental facts show that any chemical element is composed of identical *atoms*, and that these atoms can be in different states (neutral, excited, ionized) which will be discussed later, and also that there are for many elements several isotopic varieties (see paragraph 1-5) differing slightly in their masses, but very little in their other properties." The development of concepts progresses at a fantastic pace. For example, the fundamentals of a mass spectrograph are derived on about half a page (including a schematic drawing), while the *focusing* conditions are derived on the rest of the same page. On the following page, another two types of spectrographs are discussed, together with the mass spectrometer.

This same conciseness is also found in the extensive referrals to other sections of this volume and just as readily to all the rest of the series. There is hardly a page without one or several referrals to other volumes. Several original explanations, experiments, or illustrations have not come to my attention before; e.g., the idea of describing the creation of an electron and positron pair as the formation of a heap of sand from level ground—one has to dig a hole somewhere to produce the heap—can be worked out quantitatively; similarly, an experiment by Brumberg and Vavilov (no reference given) demonstrating unambiguously the quantum nature of light by visual observation sounds fascinating. It is interesting to