Meeting on Radiation

Second Tihany Symposium on Radiation Chemistry. Proceedings, May 1966. JÁNOS DOBÓ and PÉTER HEDVIG, Eds. Akadémiai Kiadó, Budapest, 1967. 829 pp., illus. $28.

The Second Tihany Symposium on radiation chemistry was more nearly an international one than the first, with a fairly large representation from the West, although the bulk of the papers originated in eastern Europe. This volume is therefore of considerable interest to readers in this country, as it provides, in English, a valuable entry to the radiation chemistry literature of a part of the world that has been especially active in the study of radiation effects. Over 100 papers are presented, in four general categories: inorganic and biological, aqueous solutions, organic systems, and polymers. The last makes up the bulk of the volume, approximately half the papers being devoted to various aspects of the formation or modification of polymers by ionizing radiation. These range from fundamental studies on the mechanisms of polymerization to a discussion of the modification of polyester tire cord by gamma radiation.

The section devoted to organic systems contains a number of valuable contributions in such fields as charge separation in nonpolar liquids, the trapping of electrons in solids, and the radiation chemistry of such extensively investigated systems as methanol, benzene, and methane, as well as investigations in a number of more exotic fields.

The radiation chemistry of aqueous systems is discussed in 18 papers ranging in subject matter from the determination of short-lived intermediates by pulse techniques to studies aimed at developing multi-megarad dosimeters. Other topics include the origins of hydrogen from irradiated solutions, the nature of the HO_2 radical, and the behavior of water adsorbed on silica gel.

Among the general papers are to be found a discussion of excitation transfer, an a priori calculation of the yields from irradiated water vapor, and an investigation of the mechanisms of radiation protection in biopolymers.

The volume is handsomely produced and is quite substantial in appearance. It is reasonably well indexed, and for the most part the articles, whether written in English or translated into it, are quite readable. The discussion following each paper is also reproduced, somewhat polished in form, one would imagine, but often providing additional insight into the problems considered in the paper.

There remains, then, only the question of the desirability of publishing such volumes as this at all. Some things can be said on both sides of that question. It is certainly convenient to have all these papers readily available in one volume. On the other hand, it will probably not be widely distributed, which markedly reduces this availability to the mass of those interested, whereas publication in the usual journals means ready accessibility to all. Publication in the regular journal literature also implies careful refereeing, something which is usually not employed in the preparation of such volumes as these. In balance, it would seem to me, in this particular case, that in view of the origins of many of the papers, publication in the present form is deserved and this will be a useful volume.

RUSSELL H. JOHNSEN
Department of Chemistry, Florida State University, Tallahassee

Motion

The Science of Movement. R. A. R. TRICKER and B. J. K. TRICKER. Elsevier, New York, 1967. 298 pp., illus. $9.

Here is a simple and unpretentious volume about the physics and biology of motion. So little background is assumed that any advanced high school student could read it with ease, yet the term "science" in the title is so obviously appropriate that no serious investigator need feel insulted. Facts and opinions, laws and conventions, proofs and demonstrations are quite clearly distinguished. About half the chapters are devoted to the development of the concepts of classical mechanics, with the historical perspectives neatly dovetailed with physical demonstrations. The ingenious exercises used to illustrate principles such as the conservation of angular momentum are conceived in the best string-and-sealing-wax tradition and provide fine examples of careful empirical measurements organized so as to create a logical structure.

The other half of the book (the boundaries are by no means clear) is concerned with description of the biological machinery effecting and coordinating motion, together with the application of physical principles, as they are developed, to the movements of organisms. These biophysical portions are equally effective although, of necessity, the authors' shots are more scattered. Generous space is given to athletics, in particular to the application of physics to the improvement of performances; this should greatly increase the attractions of the book for nonscientists. By contrast, animal locomotion gets more cursory treatment: Sir James Gray's *How Animals Move* seems to be a hard act to follow!

The breadth of the area covered provides both the main appeal and principal weaknesses of the book. The treatment, especially of the more biological topics, is highly (and often dismayingly) superficial. Occasionally, questionable statements crop up. The explanation of the role of dimples on golf balls is not the one usually given, and the tail of the dogfish appears to have been inverted along with the account of the function of its asymmetry. But inaccuracies are surprisingly infrequent considering the nature of the book and the prevalence of misinformation in the serious literature on the biology of movement. Indeed, the lucid treatment of recent progress in the physiology of nerves and muscles is unexpected in a popular account attempting to survey a wide field. And it is a distinct pleasure to encounter such diverse topics as Aristotle's mechanics, the sliding filament model of muscle contraction, and the mid-air righting of cats all nicely integrated under a single cover.

STEVEN VOGEL
Department of Zoology, Duke University, Durham, North Carolina

Biological Relationships

Symbiosis. Vol. 2, Associations of Invertebrates, Birds, Ruminants, and Other Biota. S. MARK HENRY, Ed. Academic Press, New York, 1967. 461 pp., illus. $17.50.

The concept of symbiosis was introduced in 1879 by the botanist De Bary, who defined it as "the appearance of cohabitation of unlike organisms." He included parasitism, mutualism, and commensalism as special cases. Examples of mutualism and commen-