

advances and important applications are not covered. It would obviously help in a series of this kind if the writing of these shorter technical articles could be delayed relative to those of a more extensive and permanent nature. An important topic which receives little publicity—namely the theoretical problems of handling high-energy beams—is covered in detail (King). The volume is dominated by an extensive and illuminating review of the interaction of strange particles with nuclei (Burhop, Davis, and Zakrzewski). The majority of results discussed are obtained using emulsion techniques: this is clearly an opportune moment to review such work prior to the large output of data to be expected from bubble chambers and spark chambers. The popular subject of dispersion relations in theoretical nuclear physics is discussed by Eden. Finally, the many ingenious experiments carried out in establishing the electromagnetic properties of the muon are covered by Farley. Apart from the technical article on semiconductor counters, the present volume is devoted to high-energy physics. This, no doubt, reflects the current trend; nevertheless, it is to be hoped that progress in both theoretical and experimental nuclear physics below about 50 MeV will not be too overshadowed in future volumes.

The Dawn of a New Age. Reflections on Science and Human Affairs. By Eugene Rabinowitch. 332 pp. University of Chicago Press, Chicago, 1963. \$6.95.

Reviewed by Bruce H. Billings, Aerospace Corporation.

One of the striking phenomena of our times has been the involvement and interest of scientists in public affairs. With the advance of technology to the point where science can literally destroy the globe, there has come a belief on the part of many scientists that they should shoulder more of the responsibility for political relationships and governmental problems. Dr. Rabinowitch, who is one of the world's foremost experts in photosynthesis, is one of those who has been politically inspired. In 1945, he and some of his friends founded the *Bulletin of the Atomic Scientists*. Since then, un-

der his editorship, the *Bulletin* has been the spokesman for those who have felt an urgent sense that governmental and national relationships have not kept pace with progress in physics, chemistry, and mathematics. *The Dawn of a New Age* is a collection of essays by Dr. Rabinowitch, most of which have been published over the years in the *Bulletin*. These essays are important both because of the message they carry and because of the insight they give into the characteristics of a politically inspired scientist. The essays cover several themes with variations. In the main theme Dr. Rabinowitch points out that the world has made political progress since World War II, that more progress must be made in order to avoid nuclear holocaust, and that meaningful disarmament should be preceded by political progress. The tone of the message is well said by the preface, which is the author's exhortation at the 1962 Pugwash Conference. He called for a rebellion of mankind against a system which sets part of it against each other. He says, "A man cannot be asked to become a perpetrator or conniver in a million fold murder of innocent men, women and children." It is certainly appropriate that an engineer working on the Atlas Guidance System or the Polaris Propulsion System or their Soviet equivalents, understand and ponder this main theme. Dr. Rabinowitch leaves it up to him to decide whether he is a perpetrator or a conniver and furthermore what he should do about it.

For those who remember FDR as "that man," part of the second theme of the essays may come as a bit of a shock. This theme has to do with the ability of the scientist to see world events as analogs to physical phenomena and thereby use analogs to physical laws to predict future events. Two of the essays in this vein are in the nature of prophesies, one written in 1939 and 1940 describing the probable course of World War II, the other in 1962 describing the probable events in the next 25 years. The '39 prediction is remarkable in its accuracy and requires that the '62 forecast be taken quite seriously. The important prediction here is that the probability of nuclear war is low.

However, Dr. Rabinowitch says, "The dark future . . . for the capitalist countries has been averted . . . by the breakthrough of the New Deal in the United States, by the creation of the welfare state in Scandinavia and in Great Britain. . . ."

It is difficult to end a discussion of these essays without one last quote. "It is as abnormal for the armed forces to finance research outside their own laboratories (such as NRL and Aberdeen) as it would be for the military to take over continuous responsibility for American colleges other than West Point and Annapolis." This is a real jolt to Route 128.

Although there are quite a few scientists today who are spending time thinking about the problems of social relationships, this number is far too small. *The Dawn of a New Age* is a good book for the physicist who is conscious that there is more to life than the mu meson. In addition, the book is good fun, although perhaps it was not intended as such by Professor Rabinowitch.

Continued Fractions. By A. Ya. Khinchin. 94 pp. University of Chicago Press, Chicago, 1964. Cloth \$5.00, paper \$1.95.

Reviewed by T. Teichmann, General Atomic Division, General Dynamics Corporation.

Continued fractions provide an elegant and simple representation of the intrinsic properties of numbers, i.e., a representation independent of any ordinary fractional or "n"-ary system used. (For example, irrational numbers are represented by infinite continued fractions and vice versa.) They also enable a direct and accurate approximation to be made to the numbers they represent, but since they are particularly ill adapted to computational uses, their main application has been in mathematical problems of approximation, and of the measure theory of numbers. In recent years, however, the approximative techniques, generalized in some cases to functions, have found physical applications in problems of circuit synthesis (to mention only one example). This little book by Khinchin is written with the author's characteristic directness, perspicuity, and insight, and serves as an ideal intro-