written for laymen by that intrepid explorer and photographer, Haroun Tazieff. As stated on the book's jacket, Tazieff is "probably the most daredevil geologist alive today." He is indeed a modern Empedocles, and he conveys to the reader much of the thrill, esthetic pleasure, and feeling of awe that he himself feels in watching volcanoes erupt. But his narrative is haphazard, more entertaining than instructive, more descriptive than analytical, and the translation does not read as smoothly as it should. There are 64 illustrations, most of them spectacular, including 12 color plates and several reproductions of old engravings; these constitute the most valuable part of the book. Unfortunately, however, the illustrations are not adequately described, and they bear no relation whatever to the adjacent text. Maps and diagrams are conspicuous by their absence.

Volcanoes in Action by Lynn and Gray Poole is intended for youngsters, aged 9 to 13. Among this audience, it will appeal more to those who like exciting stories than to those who look for answers; it dwells too much on accounts of dramatic eruptions and too little on their causes. The illustrations are excellent, but it should be noted that one is wrongly labeled an eruption of Mount Katmai (Alaska), a volcano which, contrary to many published accounts, did not erupt in 1912 and which has not been photographed in eruption since that date! Inaccurate statements and incorrect explanations mar the text. It is wrong, for example, to say that the famous eruption of Krakatoa in 1883 was a steam explosion caused by the heating of downward-seeping seawater, or to say that the glowing avalanches which raced down the Valley of Ten Thousand Smokes in 1912 were caused by fumaroles that "belched forth watery sand" which "trickled across the Valley floor." Bright youngsters will wonder if volcanoes can be simply divided into three types—the "explosive or blast-out" type, the "tame or oozing" type, and the "intermediate" type. And they may ask if volcanic formations built from falling bombs, cinders, and dust are called *cinder cones*, whereas other cones, "made of both cinders and lava flows, are known as *big cones*." They should not be misled by errors of this kind.

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IAEA Symposium, 1961

Tritium in the Physical and Biological Sciences. vols. 1 and 2. Proceedings of the Symposium on the Detection Use of Tritium in the Physical and Biological Sciences. International Atomic Energy Agency, Vienna, 1962 (order from National Agency for International Publications, New York). vol. 1, 369 pp., $7; vol. 2, 438 pp., $8. Paper. Illus.

These volumes suffer, like most symposia, from the common problem of late publication. Many of the papers presented at the symposium, which was held in early May 1961, have been presented, and in some cases published, elsewhere since and are therefore now well known. Exciting experiments, such as those by J. H. Taylor on the timing of DNA synthesis in the chromosome, have already been widely publicized. The value of this symposium, as in all cases of valuable symposia, is two-fold: (i) it brought together scientific personnel from diverse fields to discuss their own work and to hear about that of others, and (ii) publication of the volume places the papers in an unusual and valuable juxtaposition. In these volumes the relationship of the use, distribution, and counting techniques for tritium is related by the actual act of correlating the collection of papers with those on the biological uses and the biomedical effects of tritium. The advantages of such a symposium and of the subsequent publication of its papers are far too often overlooked. Growth of the physical and biological sciences, has at times, been inhibited by their increasingly artificial separation.

Two of the most interesting of the many papers presented at this symposium are (i) the study by Speirs and his associates and (ii) the study by Pelling. The Speirs paper reports the use of tritium to investigate inflammatory cells; the formation of plasma cells by inflammatory mononuclear cells and the migration of inflammatory cells back into the lymphatic and blood vascular systems as the inflammation subsides is discussed. In addition to these interesting findings, Speirs and his associates present most lucidly the techniques used for autoradiography and, in an appendix to their paper, a list of the difficulties commonly encountered in autoradiography as well as remedies for these difficulties. The study by Pelling is on DNA, RNA, and protein synthesis in the giant chromosomes of the midge, *Chironomus*. In this presentation Pelling demonstrates by the simultaneous use of tritiated uridine and thymidine that RNA and DNA synthesis may take place concurrently in the chromosome. Pelling searches for replicating chromosomes, and then, as an index of RNA synthesis, he examines the nucleolus and Balbiani rings which synthesize much more RNA than DNA and which are only slightly labeled with tritiated thymidine. In this work, as in much recent work, asynchronous DNA synthesis in the bands of the giant chromosomes is indicated.

The two volumes include many papers and subsequent discussions which are of interest to anyone now using or considering the use of tritium in physical or biological research.

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Vistas of Science Series

Challenge of the Universe. J. Allen Hynek and Norman D. Anderson. Scholastic Book Services, New York, 1962. 144 pp. Illus. Paper, $0.50.

This attractive, pocket-size paperback is one in the "Vistas of Science" series conceived by the National Science Teachers Association to present current and accurate scientific information to junior and senior high school students and to the general public. Facts and ideas are presented in a stimulating fashion: this is not just another book. For example: "It is virtually impossible . . . that our particular star should be the only one to have planets with physical and chemical conditions able to support life. It would be like saying that out of trillions and trillions of cats, only your pet cat has kittens."

Difficult topics, such as the celestial sphere, orbits, Kepler's laws, and relativity, are presented in easily understood language, and the three-dimensional illustrations by Helmut Wimmer are well done and most helpful. In the final section, "Projects and experiments," Norman Anderson describes building and using simplified versions of a theodolite, a sundial-shadow stick, a globe sundial, and a spectroscope. This section is the best thing of its