Other papers in this session dealt with problems of soil erosion and hydrology in the Lake Chad basin.

The fourth session, "Medical and Biological Sciences," included 14 papers indicative of regional problems and how they are being attacked. For instance, a short communication "Scope for the Use of Radioisotopes in Tropical Haematology" by A. E. Boyo, University of Lagos, Nigeria, highlights some of the areas of tropical haematology in which the use of radioisotopic techniques are likely to advance basic understanding of the behavior and effects of anemias and contribute importantly to clinical management of these diseases. Other titles include "Contribution to the Study of Protein Deficiency: Use of Radioisotope Techniques," "Application of Radioisotope Techniques to the Study of Endemic Goitre of Idjwi Island," "Techniques for Measuring Zinc in Bone," and a survey paper on "Uses of Radioactive Isotopes and Radiation Sources in Biological Studies in U.A.R."

Other sessions that were included in this rather interesting meeting were on "Reactors," "Training," "Physical Sciences," and "Chemical Sciences." Probably of great interest to an American Nuclear Society audience would be papers on the role of research reactors in developing countries, and several such papers are included.

Twenty-one papers in the physical and chemical sciences include research results of studies in Mossbauer spectrometry, nuclear chemistry, and radiochemistry. One survey paper entitled "Activities of the Middle Eastern Regional Radioisotope Centre for the Arab Countries," by I. B. Hazzaa, includes a discussion of programs in hydrology, agriculture, entomology, and medicine and is perhaps somewhat out of place in the "Physical Sciences" Session but is certainly worth reading.

To summarize, I feel that these proceedings are of interest for the perspective provided with regard to the current state of technology in the African nations and the promise held for applications of atomic energy to help in their development. Particularly impressive was the activity in the Congo.

Perhaps foremost was that this was a meeting in Africa of African nations aimed at solving African problems. For many attendees the variety of subject matter and the level of presentation of those papers that were of a survey nature provided a good introduction to the field.

Finally, for anyone interested in nuclear science in Africa, I also heartily recommend a recent article by Glenn T. Seaborg in *Science*, Vol. 169, p. 554, August 7, 1970, on his recent trip to Africa, entitled "A Scientific Safari to Africa."

David M. Richman has been with the USAEC's Division of Research since 1960. His responsibilities include basic nuclear and chemical engineering research and separation chemistry research programs at Ames, ANL, BNL, and ORNL, as well as the support of university research in these areas. He is also involved in the Division of Research program for the production and distribution of the transplutonium elements for research. In his role as a physical science research administrator, Mr. Richman has a deep concern for bridging the gap between basic research and development.

Title Radiation Sensitivity of Toxins and Animal Poisons

Editor Monica Krippner

Publisher International Atomic Energy Agency, Vienna, Austria, 1970

Pages 118

Price $4.00

Reviewer Albert L. Picchioni

This book is a compilation of 11 research papers presented at a panel meeting held by the International Atomic Energy Agency in Bangkok on May 19-22, 1969, on the radiosensitivity of toxins and animal venoms. The authors of these papers reviewed the basic problems of radiation sensitivity of toxins and venoms under various irradiation conditions, and discussed the applications of ionizing radiation and nuclear techniques to isotopic labeling and preparation of toxins and venoms. Some of the specific topics covered are the use of irradiation for inactivation of botulinal toxins in food; the use of irradiation as an instrument for studying fundamental properties of toxins of microbiological origin; the nature of radiation damage to the antigenic potentialities of proteins; a technique of labeling snake venom with radioactive isotopes as a tool to study the biological effects of pure venom components; and current concepts concerning the biochemistry, chemical structure, and methods of purification of cobra venom and results of studies involving structure-activity relationships and immunochemical studies of this snake venom. Also presented is an excellent review of aflatoxins with special reference to physiochemical properties, biological effects including carcinogenic properties, and the results of recent studies on the radiosensitivity of Aflatoxin B_1.

This compilation of papers on toxins of bacterial and plant origin should be of great interest and value to anyone concerned with the toxicologic aspects of toxins as well as the relationship of toxins in various aspects of food and feed production and conservation.

A. L. Picchioni (BS, University of Montana, 1943; MS, PhD, Purdue University 1948-52) is professor of Pharmacology, College of Pharmacy at the University of Arizona. He is also director of the Arizona Poisoning Control Information Center at the University of Arizona. He is working in the field of Toxicology dealing with the mechanism of action of antidotes in the treatment of poisoning.

Title Atomic Energy

Author Matthew Gaines

Publisher Grosset & Dunlap, 1970

Pages 159

Price $3.95

Reviewer Raymond L. Murray

It is refreshing these days to see a new semipopular book that expresses enthusiasm about the applications of nuclear energy for the benefit of society. In this little book,

Matthew Gaines has absorbed a great deal of pertinent information and made a generally representative selection of survey material. A negligible amount of mathematics is used, and few numbers are cited. Thus the reader may fail to realize the full importance of the nuclear energy resource. However, the text is quite readable and usually correct. The multicolored diagrams of reactions, equipment, buildings, and various scenes are the highlights of the book, and, for originality and visual impact, put to shame most technical textbooks.

The major sections are "Atoms," carrying the reader quickly from basic particles to fission; "Reactors," including types, fuel enrichment, and fuel processing; "Reactors at Work," with emphasis on international aspects and propulsion on the sea and in space; "Radioisotopes," with a citation of applications in many fields; "Living with Radioactivity," mentioning biological effects and protective measures; "Thermonuclear Fusion," a rather detailed study of reactions and machines; "Particle Accelerators," in which each major type is characterized; and, finally, brief sections "Peaceful Uses of Nuclear Explosions," "International Organizations," and "Key Events in the History of the Atom."

In seeking to simplify and condense, the author will have left the reader puzzled on occasion: such important concepts as the chain reaction and the relation of the fission process to heat energy are too briefly stated; "reactivity" (p. 27) is undefined; fuel does not necessarily burn more rapidly in a fast reactor than in a thermal reactor; many rather technical chemical and nuclear terms are employed freely without definition; "enriched" is used long before it is defined, and so on. For the reader with very little technical background, such defects will not be noted, and there is a wealth of information that he can absorb.

The book unfortunately tends to refer to British equipment and processes much more frequently than the American counterparts, and the reader will not gain a true impression of our accomplishments to date. The reviewer could not detect much of a "British accent" and wonders if the author is an expatriate.

Although the purpose of the book is not stated, it would appear to be useful for high schools, technical institutes, and introductory undergraduate college courses. The layman with interest in technical matters would also profit from reading it, and it is worthy of distribution to some detractors of nuclear energy who like to cite books as automatically authoritative sources of truth.

Raymond L. Murray is a Burlington Professor of Physics and Head of the Department of Nuclear Engineering at North Carolina State University. He has written several books; the most recent, 1970, is Physics: Concepts and Consequences *(with G. C. Cobb). He is an ANS Fellow, and currently serves on the ANS Board of Directors. He was the recipient of the 1970 Arthur Holly Compton Award.*

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(Signed) Rosemary Harvey, Circulation Manager