leges. The colleges training recipients of the Newcomb Cleveland Prize and the Theobald Smith Award are: Earlham, Gettysburg, Kalamazoo, Richmond, and Wheaton. And only one liberal arts college, Wesleyan, appears on both the AAAS and ACS lists of leaders.

On the other hand, several universities appear on both lists of leaders of these two large scientific organizations. Harvard ranks first in the number of presidents on both the AAAS (10) and the ACS who selected it for their undergraduate training (*3*). Yale ranks second in the number of bachelor degrees awarded AAAS presidents (4), and third in the number of ACS presidents.

Harvard has awarded more earned doctorates to AAAS presidents (7). Princeton ranks second in this distinction with five.

Holders of the AAAS Cleveland Prize and the Theobald Smith Award showed a preference for Johns Hopkins (6), Chicago (4), and New York University (3), in this order, for their doctorates.

The AAAS Program-Directory of the St. Louis 119th Meeting has been used for the roll of AAAS leaders. Biographical data have been obtained from *American Men of Science* and *Who's Who in America.* The *College Blue Book,* 6th Edition, has been employed to determine the liberal arts status of the colleges.

JOHN R. SAMPEY
JANE SAMPEY

Furman University
Greenville, South Carolina

References

1. SAMPEY, J. R. *Science,* **116**, 309 (1952).
2. SAMPEY, J. R., and SAMPEY, J. *J. Chem. Education.* In press.
3. SAMPEY, J. R., and SAMPEY, J. In press.

CORRECTION: In the paper by Haley and Rhodes that appeared on page 139, SCIENCE, February 6, there is reference to the compound Win-2299. This compound is known chemically as 2-diethyl-aminoethyl cyclopentylhydroxy-2-thienylacetate hydrochloride.

T. J. HALEY

Atomic Energy Project
University of California
West Los Angeles, California

Book Reviews

Isotopic Tracers in Biochemistry and Physiology. Jacob Sacks. New York–London: McGraw-Hill, 1953. 383 pp. Illus. $8.50.

The emphasis in this book is on the increasing knowledge and understanding resulting from the use of isotopes in biochemistry and physiology and not upon the actual techniques of their use. That isotopes are powerful tools is not to be doubted, and the author properly emphasizes their power by his selection of subjects and by his organization of material. He emphasizes, too, that the results obtained using isotopes must never ignore results obtained by "ordinary" (nonisotopic) techniques, but that the two must be fitted together.

After sixty pages devoted to brief accounts of the elements of nuclear physics, measuring techniques, and other background material, the author turns his attention to various fields of biochemistry and physiology in which isotopes have been used to establish new facts or elucidate mechanisms. The subjects covered in separate chapters include metabolism of carbohydrates, of lipids, of proteins and amino acids, of nucleic acids, purines and pyrimidines, of mineral elements, and of phosphorylated compounds, migrations of ions, iodine metabolism and the thyroid, and photosynthesis. The author's treatment in each case is in terms of broad outline rather than experimental detail although details are considered where they bear on interpretation. A selected bibliography accompanies each chapter, and the book includes subject and author indexes.

Some of the discussions seem likely to confuse rather than clarify. The discussion of citric acid and its orientation on an enzyme comes very close to saying that two stereoisomers of citric acid exist. It is the lack of asymmetry in citric acid which makes the Ogston three point attachment useful. Asymmetry arises through the interaction of substrate (citric acid) and enzyme.

As a consequence of the approach adopted by the author, this book will have its greatest value for those who bring a working knowledge of the general subjects to its reading. It serves to emphasize what can and what cannot be done with isotopes as experimental tools and should help in the assimilation of the mass of new material obtained by use of isotopes into the sciences to which this tool is applied.

MILTON LEVY

Department of Chemistry
New York University College of Medicine