

a native Christian movement. Albert Tritt, a former shaman, experienced conversion to Christianity in a blinding flash of light and a swoon. Tritt set himself to master the language and the message of the Bible. He took both literally. In his King James' English, young women were "damsels" and "virgins." And, among other monuments to his Deity, Tritt persuaded his followers to prepare a straight-line, 20-foot-wide cut through the timber toward Fort Yukon. For, as the Bible commands, "Prepare ye the way of the Lord, make straight in the desert a highway for our God" (Isaiah 40:3).

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Biochemical Pharmacology

Volume 1 of **Progress in Biochemical Pharmacology: First International Symposium on Radiosensitizers and Radioprotective Drugs** (Butterworth, Washington, D.C., 1965. 760 pp., \$28.50), edited by R. Paoletti and R. Vertua, is a well-edited volume, with name and subject indexes. The volume, which shows the importance progressively acquired, since 1949, of the problem of chemical radioprotection or sensitization, is based on a symposium organized by the European Society for Biochemical Pharmacology and held in Milan, Italy, in May 1964.

This field interests both fundamental science, because it provides facts for interpretation of radiation effects at the molecular and cellular levels, and applied science, because there are possible applications in radiotherapy, astronautics, and the protection of civilian or military populations.

The 90 contributed papers are organized in the following sections:

(i) Introductions by E. B. Chain and Belloni; (ii) Effects on lower organisms (bacteria, isolated cells, and seeds); (iii) Irradiation of chemical systems; (iv) Effects on mammalian organisms *in vitro* and *in vivo*; (v) Effects on experimental tumors; (vi) Chemical sensitization; (vii) Chemical protection (mainly on mammals *in toto*); the most important section, with 27 contributions; (viii) Biological means of protection; and (ix) Clinical investigations.

The level of the contributions is generally good, sometimes high. I was par-

ticularly impressed by the following papers: The review, by J. S. Mitchell (Cambridge, England) of clinical and laboratory studies of radiosensitizers in radiotherapy; the clever contributions, by P. Alexander, C. J. Dean, and J. T. Lett, on the repair processes during and after irradiation, on the sensitization of bacteria and lymphoma cells by an -SH blocking agent and 5-bromodeoxyuridine; the observations from three European laboratories confirming in very different technical conditions the favorable effect of the administration, *after irradiation*, of highly polymerized nucleic acids or nucleoproteins; and the contributions of the Norwegian physical chemists (Eldjarn, Pihl, Sanner) on the chemistry and effects of thiols and disulfides. The variety of substances and biological material used in the studies on chemical radioprotection and the feasibility of combining, for treatment of cancers, the so-called radiomimetic substances with the ionizing radiations should be emphasized.

I do not hesitate to recommend this book to those students or research people who already have a certain knowledge of the problem. They will find a good survey of the general spirit and the basic hypotheses prevailing in eastern as well as western Europe; only nine authors from the United States contributed to the volume.

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Biochemistry

In **Biochemical Energetics and Kinetics** (Saunders, Philadelphia, 1965. 122 pp., \$3.75), A. R. Patton proposes to supplement biochemistry textbooks, especially their "rather large gaps in the mathematical derivations."

The author alludes first to "much that cannot be explained, in equations or in words . . . that thread of silent knowledge which always runs through the tapestry of science." What eludes me is an explanation of how the editors of a reputable publisher passed this concoction of mathematical nonsense, logical lacunae, missed opportunities, non sequiturs, inept metaphors, and outright solecisms, amid which the equations struggle vainly.

Patton begins with "Velocity includes

direction in space and is known as a vector quantity," and on the next page "subdivides" the motions of particles into vectors with "coordinates" on the *x*-, *y*-, and *z*-axes; this is his treatment of vectors. A definite integral is evaluated, after which the author tells us that the integration constant must be zero on physical grounds. He refers to "the kinetic energy of acceleration of a particle."

The same level is maintained throughout; and the book is concluded with an appendix on calculus, in which "rate" is identified with "differential," integration is explained by analogy with experts piecing together the debris of a plane after it has exploded in midair, and partial differentiation is illuminated by reference to a student with two jobs: "On job *x* he is paid at an hourly rate du/dx , etc." It seems unlikely that this appendix will teach calculus to students whom the author does not trust to cancel terms of opposite sign in an algebraic sum.

It is frustrating, with so little space, to choose among the examples that illustrate my points. For instance, there is the explanation of "half-life" with a sexy version of the Zeno paradox of Achilles—boy approaches girl—which concludes tragically: "According to the half-life theory (!), they would never touch." And there is the triumphant demonstration, after steady-state concentrations in a kinetic system have been found by setting the time derivatives equal to zero, that the steady-state values really are constant!

The level of comprehension exhibited in this book is deplorable. For the level of the pedagogy, words fail me.

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Prehistory

Prehistoric Societies (Knopf, New York, 1965. 356 pp., \$6.95), by Graham Clark and Stuart Piggott, is an excellent and up-to-date introduction to the study of human prehistory on a worldwide basis. Any reader, whether student or layman, will find the survey of the problems met and overcome by prehistoric man informative and exciting reading. He will be impressed by the contemporary quality of relationships between ancient man and his problems as seen in his attempts to adjust to