

institutions from the laws of motion—that all established institutions tend to continue in a straight line until acted upon by outside forces.

The second reason for believing that universities may really be in a stage of transition—that is, in the process of becoming something other than what they have been—is that there are problems now emerging with which universities as traditionally organized can no longer deal. These transcend areas which state universities are primarily intended to serve, and they exceed the resources and go beyond the educational responsibilities of private universities. These are such matters as the administration of international educational programs, the administration of a Los Alamos or an Oak Ridge, or the administration of the 34-universities consortium, to which Perkins refers, that is necessary to assume responsibility for a 200-Gev accelerator. When universities operate in such capacities, there is good reason to believe that they are acting less as universities than as an arm of the federal government. The best proof of this is that, if universities under federal leadership did not assume such responsibilities, the federal government would be compelled to organize such agencies for itself—to the great detriment of the universities. In short, there are serious questions whether universities, organized in the units we have known, will not so change that a later generation will wonder about the meaning of such phrases as “institutional integrity.” The same questions might reasonably be raised about functions as well as organization. As long as universities were primarily guided by the interests of those who wanted to be *taught* and by the self-determined interests of scholars, their activities were largely confined to the campus and were self directed. When, however, the activities of the university are guided by those whom knowledge can *serve*, their clientele is enormously broadened and their activities are differently determined.

Dean Charles S. Schlichter at the University of Wisconsin, a generation ago, used to say: “Our society is becoming one vast school.” He was a major prophet. In a society that is one vast school, it is quite likely that universities will change even more than President Perkins has anticipated.

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## Biochemistry

**Newer Methods of Nutritional Biochemistry**, vol. 2 (Academic Press, New York, 1965. 354 pp., \$18.50), edited by Anthony A. Albanese, is the second volume in what may be a series offered by Academic Press. It is difficult to review books in which the chapters are often concerned with widely divergent topics and the authors not only write with different styles but with different objectives. I like this second volume better than the first. Volume 2 contains several really excellent chapters. The one on energy metabolism in man and animals, by Passmore and Draper, not only brings together basic physiological information in this field but presents the information in a style that makes for enjoyable reading. An excellent section by Sprince on “abnormal metabolites” of amino acid origin and one by Chiancone on enzymes of the tryptophan to nicotinic acid pathway review and interpret the literature in the fields covered and, in addition, provide valuable information on methodology. These chapters should be used as models by authors who write for this series. The section on growth and pituitary hormones appears to have been handicapped by too much material for presentation in the space available. Lack of space also seems to have been a problem in the chapter on folic acid, biotin, and pantothenic acid. However, the section on folic acid is first rate. There are good chapters on body composition and the determination of the fat soluble vitamins. Even with my own very broad definition of the field of nutritional biochemistry, I find it difficult to justify the presence in this book of a thorough review of methods for measuring the activity of anabolic steroids.

The chapter on the utilization of essential amino acids by man is primarily an evaluation of a large number of nitrogen balance studies in people fed varying sources of protein nitrogen. It strengthens my feeling that the value of nitrogen balance studies in man are often over-rated and my feeling of relief that I have not had to do such studies. A section on calcium and phosphorus metabolism is also included.

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## Documents on Modern Physics

Hong-Yee Chiu, of the Goddard Institute for Space Studies, is the leading authority in the field that he summarizes in **Neutrino Astrophysics** (Gordon and Breach, New York, 1965. 115 pp. Paper, \$2.50; cloth, \$5). His work in the application of particle physics to astronomy has had strong implications for studies of stellar structure, nuclear reactions in stars, physics of neutron stars, and for the interpretation of the Hertzsprung-Russell diagram, so it is no surprise to find that he devotes a chapter or more to each of these subjects in the present book. There are also brief discussions of general relativity and cosmology and appendices that deal with stellar rotation and stellar temperature determinations. The author's sense of history does leave something to be desired, since he reports the discovery of Sirius B as having been made at Yerkes Observatory in 1893 (p. 16), whereas in fact Alvan Clark made this famous discovery in 1862, several decades before the construction of the great observatory at Williams Bay, and further the famous Messier Catalogue is wrongly attributed to the 17th century (p. 95). However, the theoretical content of the book predominates, and it constitutes an excellent introduction to modern topics in stellar physics, which, as such, is recommended to graduate students and senior scientists alike.

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## Textbook of Systematic Botany

Why is it desirable to have another book on systematic botany for Indian students? It is stated on the back of Subhash Chandra Datta's book, **A Handbook of Systematic Botany** (Asia Publishing House; Taplinger, New York, 1966. 451 pp., \$9.50), that so far the teaching of systematic botany has been a difficult task because most of the books have been written by foreign authors and do not deal with Indian plants. I hope that this statement is the publisher's idea rather than the author's opinion, for good books are already available in India; and if I were back in the Punjab teaching this subject, this is not the book that I would ask my students to buy, although I would want to have