Book Reviews

The University Today

There is a well-established tradition in academic circles in the United States that the presidents of some distinguished universities are invited to use the rostrums of other distinguished universities as sounding boards for their views on education. If the president of Harvard has matters of importance on his mind, it is better to say them at, perhaps, Columbia or for the president of California to speak from Harvard. This has great advantages. The prophet abroad gets more attention, the utterances are always prepared with care for a wide audience, and the speaker can always be sure that what he says elsewhere will be more carefully listened to than if he had spoken at home.

The lectures by Cornell's President James A. Perkins, in the Stafford Little Series at Princeton, are in this well-established tradition. After two and one-half years at Cornell, Perkins has reached the point where it is only natural, indeed a public obligation as president of a major American university, for him to state his views on some of the major problems that face higher education today. And because of the nature of some of his views, for example, on the role of administration versus faculty leadership in universities, it may be just as well for him that he stated them publicly in Princeton rather than in Ithaca.

In these carefully prepared lectures, which are now published under the title **The University in Transition** (Princeton University Press, Princeton, N.J., 1966. 100 pp., $2.95), Perkins addresses himself to the three major interests of the university—the discovery, the transmission, and the application of knowledge (in the modern university these interests are translated as teaching, research, and public service). After a brief historical review, he plunges at once into the discussion of problems which the modern university faces and which derive principally from the tremendous increase in its teaching and research activities, and from the intervention of outside factors and forces, particularly the federal government. On the whole, he concludes that these developments have not changed the nature or the missions of the modern university, but that, in fact, they "provide it with its enormous powers and its enormous problems."

Perhaps all of the problems to which these lectures address themselves can be comprehended in a single summary: Are universities in danger of losing their identity? Perkins discusses the problem under two major concepts—the struggle to keep an internal coherence or sense of unity, and the problem of maintaining the university's identity as a part of a larger context of educational, social, and political organizations, organizations that are increasingly involved in the production, as well as the utilization, of specialized knowledge.

There is no denying the threats posed to the maintenance of traditional university organization and procedure by huge enrollments, diversified research, and increased participation in public affairs. Size makes central direction more difficult; specialization limits communication and erodes a sense of institutional unity, and outside sources of support weaken internal loyalties. Conflict grows among the competing claims of teaching, research, and public service. These are problems with which all university presidents are familiar. Perkins sees them as not impossible of solution by reason of some "natural restraints" which may result in a leveling off of enrollment pressures, in the necessity for universities to choose areas of specialization in research, and by the confinement in the area of public service of university contributions to "knowledge, not operating skills."

His third lecture, "From Autonomy to Systems," most vividly portrays what is happening to the modern university. This is brought out by showing the increasing importance of associations of different kinds which universities are forming or into which they are being absorbed. These range from organizations to which universities become legally subordinate, as in such statewide systems as California and Ohio, to professional organizations, such as the International Association of Universities, which exist primarily to promote the exchange of views and information about university affairs. In between these groups are regional associations, accrediting associations, and cooperative groups. The growth of these organizations all adds up to an interesting example of universities as isolated cells developing connective tissue that has an inhibiting effect on their freedom, however valuable the emerging organism may be.

There can be no doubt of Perkins's attachment to universities as he knows them, and as they now exist. It is even possible to get an impression from his lectures that he hopes it is society, not universities, which is in transition, and that universities will emerge from this period, like hardy plants after a storm, bedraggled but fundamentally the same. There are, however, some serious doubts about whether this will be true or whether, to change the figure of speech, the new geological age we are entering will not require new forms, possibly recognizable but different in their characteristics.

Perhaps the first question is this: If universities are really in transition, what are the forces compelling the change from what they have been to what they will become? Here there can be a basic difference of opinion about the role that universities have played in social change. To what extent are universities prime movers? To what extent are they responsible for the fermenting conditions that now encompass them as well as all other aspects of our social life?

Perkins gives them high marks as innovating institutions, but there is good reason for raising some doubts, both historically and currently. There is much evidence that the preoccupations of universities are forced on them more frequently than they are self-generated. One has only to turn to the force of federal leadership over the past decade, in everything from the training of teachers to the selection of university research interests, to see how much of current university activity has been generated outside the walls, for the most part by the necessities of national defense. It is open to question whether universities are more exempt than other

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. Schlicter 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 Hertzprung-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