cal rearrangement. There are not enough simple examples to provide orientation and the complex problems discussed involve so many superimposed effects that it is hard to disentangle them. Perhaps the authors are here too close to their subject; several sections refer to the work of the first author who has made important contributions. The "real gas" of the title is one undergoing many complex processes, and the authors pull no punches in discussing it.

In view of the vast amount of theoretical physics, chemistry, and engineering which the authors have been required to master in the preparation of this book, it is not surprising to find some errors and misstatements. Examples of these are: an incorrect definition of the associated Legendre function (p. 13), incorrect statements about the term symbol (p. 29) and the parity (p. 35) of a many-electron atom, an incorrect definition of quantum statistics (p. 59), confusion between inverse and reverse encounters (p. 137), and confusion between the distance of closest approach and the impact parameter of a collision (p. 280). I noted very few misprints in the many equations, and the typography and printing are excellent. This book will have a significant influence on the curriculum of graduate engineering departments, and it will be widely read by physicists, chemists, and engineers in industrial and government laboratories.

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The Pawnee Culture

The Lost Universe. Gene Weltfish. Basic Books, New York, 1965. xxii + 506 pp. $12.50.

In 1875 the last Pawnee Indians left their aboriginal homeland in Nebraska and joined their previously migrated relatives in Oklahoma. The 1910 census listed 633 persons left of a tribe that had numbered close to 12,000 during the 1830's (p. 4). A viable, integrated culture had ceased to exist—a universe was lost.

Gene Weltfish has sought to rediscover this universe. Beginning in 1928, she has studied the language and used it to gather myths, tales, and the life experiences of informants who had known the old culture and the people who had maintained it. This material has been cross-checked by field observations and expanded with information from archeology, history, and ethnography into this quite detailed portrayal of Pawnee life during the course of a hypothetical year, 1867. Details of hunting, planting, ceremony, and ritual, as well as of tools, techniques, ideas, and behavior, form the warp on which she weaves the ordinary events of life to produce the fabric of Pawnee culture.

Weltfish intends this to be more than another good ethnography. She has studied Pawnee culture carefully and finds within it lessons for today. The Pawnee maintained an ordered society without any individual exercising power over another. No one gave orders. Theirs was a democracy without coercion, of consensus rather than majority rule. The Pawnee case, then, can be a possible source of solutions to modern problems.

> The Pawnee way is one of thousands of ways of life that mankind has developed. . . . A study of its ways and social interactions help us to throw into sharp relief our most widely accepted hypotheses on the nature of "the basic human character" and to test whether some of these assumptions are in reality universal human nature or rather limited modes of learned behavior that we have developed for needs that are now becoming obsolete (p. 12).

This thesis is examined in the introductory remarks and in a final chapter. The author briefly and thoughtfully explores the implications of her Pawnee study as these relate to family, home, and work in the face of the population explosion and increasing automation. The need, as she sees it, is for a reassessment of our evaluation of work, for a shift from a mercantilist to a humanist society, and for a modification of settlement patterns that will allow for better human relations. She offers a thought-provoking plan for "family oriented housing" that would provide urban apartment dwellers a physical milieu within which meaningful social interaction could develop. Whether or not these ideas provide the answers, the Pawnee culture, as presented in this volume, bears examination as we attempt to order our own way of life.

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European Biochemical Societies

Structure and Activity of Enzymes. A symposium (London), March 1964. T. W. Goodwin, J. I. Harris, and B. S. Hartley, Eds. Academic Press, New York, 1964. viii + 190 pp. Illus. $6.

In March 1964 the first meeting of the Federation of European Biochemical Societies was held in London. The 23 papers presented on what must have been a busy day in the middle of this meeting are collected in this small volume. The editors and publishers have done a good job of preparing a well-organized and carefully printed book in a reasonable period of time after the meeting, compared to many symposium reports; but one still wonders why, with the help of modern technology, such a volume cannot be published within two or three months after a meeting.

The organizers wisely limited the topics to a detailed consideration of three proteins—ribonuclease, chymotrypsin, and hemoglobin—and a discussion of active sites. The inclusion of hemoglobin in a symposium on enzymes was based on the useful principle that if not much is known about a subject, such as enzymes, it is desirable to consider something else about which more is known. This was a particularly good decision in this case, because the structure, dissociation into subunits, cooperative effects in the oxygen dissociation curve, and changes in structure and acid dissociation constants upon reaction with "substrate" (oxygen) of hemoglobin are all topics of great current interest in enzymology.

The most interesting and useful papers are those that summarize and interpret the important available data on a particular enzyme or protein. The first paper, a summary (by Richards) of present knowledge about ribonuclease, is an excellent example. Mathias, Deavin, and Rabin present kinetic data on this enzyme, which was obtained in their laboratory and is largely already published. Brief reports of amino acid sequence work on chymotrypsinogen and chymotrypsin are presented by Keil and Šorm, and by Hartley. Oosterbaan and Cohen give a short but useful summary of the considerable amount of information that is now available on the amino acid sequences near the active sites of the "serine" and "sulfhydryl"