ber of typographical and other errors (for example, incorrectly capitalized species names and misspelled proper names) in the text.

These criticisms should not detract from this volume's indisputable usefulness as a major reference work on African prehistory. The wide variety of topics, the tables that summarize current opinions on stratigraphic chronology, the maps that outline climates, distribution of mammals, vegetation and fossil sites, the informal (and occasionally unfortunate) comments of respected field workers on the relative values of data presented, the difficulties inherent in problems yet to be solved, the obvious transition to a biological approach in human paleontological and archeological thinking and techniques —these are the things that will make this volume a sought-after reference by students of African prehistory, and of human evolution in general.

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Experimental Studies

Bargaining Behavior. Lawrence E. Fouraker and Sidney Siegel. McGraw-Hill, New York, 1963. x + 309 pp. Illus. $8.95.

This volume represents the fruits of an unusually productive collaboration between an economist (Lawrence Fouraker) and a psychologist (the late Sidney Siegel). It reports on a series of laboratory experiments designed to test the empirical implications of several economic models concerned with bargaining outcomes in two- and three-party transactions. The experiments are neatly done, reflecting the laboratory skills of the experimental social psychologist, and they throw light on several models of economic conflict, reflecting the theoretical sophistication of the economist.

The first series of experiments is concerned with bilateral monopoly. Here, the basic experimental format involves two college students who are told that they are participating in a study of economic decisions. The students are in separate cubicles, and they are told that they will not get to know each other during or after the experiment. One student is assigned the role of "seller"; he selects a *price* which is announced to the other student, "the buyer," who then selects a *quantity* to buy. Each student is given a table (the row headings are "prices," the column headings are "quantities") which specifies the profit or the loss that results from the selection of a given price by the seller and a given quantity by the buyer. In one experimental treatment, called "Incomplete Information," the table given to the student contains information only about his own profit or loss; in another, called "Complete Information," the table contains information about the other's as well as his own profit or loss. A second experimental variation is concerned with whether the buyer-seller transaction was limited to a single transaction or was repeated. A third variation has the "prominent solution" of equal profits to both parties favor either the Bowley equilibrium solution or the Paretian optima solution. The Bowley solution assumes that each player is motivated to maximize his individual profit without regard to whether it helps or harms the other and that each realizes that the other's motivations are purely self-centered; the Paretian optima assumes that the players are out to maximize joint profit. The results, not surprisingly, support the Bowley solution, indicating that when subjects have little or no basis for social motives toward one another, they will act on the basis of immediate self-interest.

The second series of experiments is concerned with economic conflict among two or three sellers. In one set of experiments, each of the subjects (all of whom are "sellers") has to decide what quantity to produce, his profits or losses being determined by two factors—how much he produces and how much the other sellers produce. In another set, each subject has to decide at what price to sell his merchandise, his profit or loss being determined by the relation of his price to the other sellers' prices. Several economic models are compared: the Cournot and Bertrand models, which assume that the subjects act as individual maximizers; the Paretian optima model, which assumes that they act cooperatively; and a rivalistic model, which assumes that they try to outdo one another. The results indicate clearly that the economic models are incomplete: subjects will act individualistically, cooperatively, *or* competitively depending upon the experimental variations to which they are exposed. Man is not inflexibly self-centered, cooperative, or antagonistic; differing circumstances elicit different responses.

The major flaw in this book is its title, which promises more than a research monograph. The title suggests a discussion of the varied aspects of bargaining behavior and an adequate review of other related research, but the book contains none of these. It is a report of some fine experimental studies of bargaining which merit serious attention.

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Sociology's Flexner Report

The Education of Sociologists in the United States. Elbridge Sibley. Russell Sage Foundation, New York, 1963. 218 pp. $3.50.

Elbridge Sibley, like Flexner, Conant, and other critics of American education, undoubtedly intended to stir up the lions, and, judging from the roars one hears among sociologists, he has succeeded quite well. However, the reader of his Charles Addams-like portrait of American graduate education in sociology should approach the report properly armed with Bernard Berelson's observation that criticism is endemic in the world of graduate education and that a fairly high level of dissatisfaction is, and ought to be, expected, no matter what is being done. He should also be prepared to discount Sibley's conclusions in the light of the standard perceptual error by which we upgrade our predecessors, downgrade our contemporaries, and view our successors as taking the discipline canineward.

Sibley paints a dismal, funereal picture, indeed. The average caliber of the nation's graduate students of sociology, he reports, is unimpressive. Standards in graduate departments of sociology are generally lax. The objectives of graduate programs are ambiguous. Admission standards are too low. The process of professional socialization is often slow and difficult. There is an exceptionally great disparity between what is taught as sociology in most colleges and what is required of a professional sociologist. There is a low level of theoretical sophistication and lack of necessary competence in mathematics. Statistical

training is meager and unsatisfactory. It is possible for a student to reach a late stage of graduate study without being challenged to any strenuous intellectual exertion. There is general methodological weakness. Large amounts of time are spent unprofitably in assorted and often redundant lecture courses. Rare is the student who enjoys a well-guided, progressive sequence of research experience. It takes nearly 10 years for a student to progress from the bachelor's degree to a Ph.D. in sociology. The opportunities for postdoctoral study and internship are extremely limited. Many graduate students are less interested in learning to be scholars and scientists than in learning how to earn a living in the nonacademic world. In fact, these strictures prompt one to suggest that the book might more accurately have been titled "The Noneducation of Nonsociologists."

These criticisms are undoubtedly well founded and cannot be ignored. Yet Sibley would be the first to admit that they tell only the more gruesome side of the story. As director of the Social Science Research Council's fellowship programs, he has personally participated in the identification and encouragement of many brilliant, outstanding sociologists.

Despite this report, there are ample grounds for remaining sanguine about the future of sociology. Sibley's book itself attests to the vigor of a discipline that seeks to face up to its limitations and to explore avenues of self-improvement. In sociology, as in other fields, the pygmies who stand on the shoulders of giants acquire themselves, with the passage of time, more gigantic proportions.

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Agricultural Economics

Transforming Traditional Agriculture. Theodore W. Schultz. Yale University Press, New Haven, Conn., 1964. xiv + 212 pp. $6.

In this book, T. W. Schultz investigates one of the most significant and complex economic problems of our time—that of transforming the niggardly agricultures of low-income countries into productive vehicles for economic growth. Some of his findings are likely to have an important influence on future discussions of growth problems and policies in underdeveloped nations.

In the opening chapters, Schultz identifies and describes the problem, formulates a conceptual model of traditional agriculture, and challenges a number of widely held beliefs about agriculture in low income countries. He does not accept the view that substantial income gains can be had by achieving a more efficient allocation and use of existing agricultural resources. On the basis of evidence obtained from studies of agricultural communities in Guatemala and India, he concludes that traditional agriculture is quite efficient in producing income from available resources.

Undoubtedly, the potential gains from tightening allocative efficiency are not large in comparison with those from other sources of income growth. Moreover, it provides, at best, only a one-shot addition to income. But Schultz may have overstated the case somewhat. More evidence is needed. Comparing average implicit prices with market prices on a sample of farms does not necessarily offer a rigorous test because of possible variation among farms.

Schultz also questions the belief that the marginal output contribution of the labor force in low-income countries is zero. Some economists have claimed that as much as 25 percent of the agricultural labor force could be reallocated to nonagricultural activities without reducing agricultural production. In testing this proposition, Schultz presents estimates of the output effects of the reduction in the agricultural work force in India during the influenza epidemic of 1918 and 1919. The Indian experience and other fragmentary evidence leads him to the conclusion that the marginal output contribution of labor in traditional agriculture is positive even though small. A marginal contribution greater than zero is consistent with a positive opportunity cost in terms of leisure, begging, and nonagricultural work activities. But further analysis of what happens to the natural increase in labor force under conditions of traditional agriculture might prove enlightening.

Probably the most significant ideas in the entire book are those related to the investment process. Unquestionably, investment is the key to the transformation of traditional agriculture. But what kinds of investment? In answering this question, Schultz plows new ground. After analyzing the sources of permanent income streams and the evidence provided by the studies made in Guatemala and India, he concludes that increasing the stock of reproducible inputs which currently characterize traditional agriculture will add little to real income (output). The reason is that the return on investment in traditional agricultural inputs is low.

This differs from the widely held view that the stock of reproducible capital in low income countries is small and that the return on investment is therefore high. A small stock of reproducible capital, however, will not make for a high return, if the demand is small. The demand will be small if the marginal contributions of additions to the stock are meager. With a low return on investment in traditional inputs, the incentive to save is weak, and this restrains the formation of new agricultural capital. But what about the influence of income and population on capital formation? These variables are conspicuously absent from Schultz's analysis.

As he sees it, the transformation of traditional agriculture requires mainly investment in human resources and in modern forms of material inputs. This means devoting resources to improving the knowledge, skills, health, and similar aspects of the life of farm people and to developing and producing more productive types of fertilizers, seeds, breeding stock, and the like, as well as the knowledge of how to use these new capital inputs. For the most part, these inputs have to be developed because few modern agricultural factors available in high-income economies are appropriate for the conditions of traditional agriculture. And this requires investment in agricultural experiment stations with a full array of scientists and needed equipment.

Schultz has much to say about organizing agriculture for economic growth. He argues that absentee arrangements are generally inefficient because of the disassociation of incentives, information, and control, that the belief in the economies of the gigantic farm is not supported by evidence, and that there is no