

much to argue with in details of data and of interpretation and in some more general matters. Certainly not all of us accept as much population replacement with the advent of each new cultural entity as is implied, and many of us do not accept all of the ethnic identifications which are made. Yet this is a top-notch job by writers thoroughly familiar with the historic and prehistoric material. As such, it may be strongly recommended to the audience for which it was written.

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Soils for the Archaeologist. I. W. Cornwall. Macmillan, New York, 1958. 230 pp. Illus. \$7.50.

This book is a pioneer undertaking. It fills a need long felt in archeology. One supposes that the archeologist, whose principal concern is the extraction of information from the soil, would have a thorough grounding in the subject of soils. This is apparently not the case. Many reports refer to soils only in vague terms or omit discussions of soils altogether.

The author of this book, I. W. Cornwall of the department of environmental archaeology, Institute of Archaeology, London University, brings to us the benefit of nearly ten years of field and laboratory experience in "learning how to extract relevant information from soils and archaeological deposits."

The chapters include: (part I) "Archaeological deposits"; (part II) "Weathering and soils"; (part III) "Techniques of soil-investigation"; and (part IV) "Interpretation and examples." There is an appendix.

Two approaches are inherent in soil studies for the archeologist. One is the identification of artificial or man-disturbed soils. The other is the identification and study of ancient natural soils (paleopedology). Of intrinsically greater importance, the latter approach may give clues to the environments of ancient cultures.

The book is intended "to take the 'magic' out of soil investigations." Its purpose is also to show what sedimentary petrology and soil science can do towards explaining the phenomena which many archeologists meet daily in their excavations. Certainly, if archeology is to progress, the material surrounding the artifact and represented by various symbols in profile drawings must be handled as carefully and analyzed as well as the artifacts themselves. It has been customary to call in the soil specialist for an analysis if the means are available. Cornwall describes how one can find the answers to some questions with the aid of rudimentary equipment and basic knowl-

edge. It may be argued that the demands made upon the field archeologist in his study of the cultural remains are quite enough to keep him busy. Still he should have some background information concerning what lies behind soil studies and some knowledge of how such studies may help him in the broader analysis of man's past. Moreover, in this regard, he should at least know how to collect soil samples so that they may be studied. He should be in a position to discuss his problems intelligently with the soil scientist. Cooperation may be of little help unless direction to the problem is given.

Cornwall's earlier book, *Bones for the Archaeologist*, has been mildly criticized for its emphasis upon the Old World and its limited applicability to the problems of the New World. His present work deals with a more universal subject, although it, too, is understandably directed to Old World readers (there is only one reference to the work of an American in soil studies). It may be said that in concerning himself with a shorter time span of prehistory than some of his European colleagues, the American archeologist at home may find some of the soil studies inapplicable. However, as is implied, not all Old World archeologists deal with ancient time periods either.

In all, this is a very stimulating book and deserves to be looked into by the field archeologist, whatever his problem in soils.

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Social Mechanisms. Studies in sociological theory. Georg Karlsson. Free Press, Glencoe, Ill., 1958. 156 pp. \$5.

The author is concerned with social mechanisms—models which cover only a part of a total social process. He differs from Herbert Simon, who builds models for either rational or socially influenced behavior, by insisting that the model builder simultaneously provide for both rational and irrational determinants. Under three headings—social diffusion, group choice, and interaction—he presents existent theoretical models and selected empirical findings. His criticism of earlier work is blunt and direct when a better model is known to him (see his comment on Stouffer on migration, page 64). But in the suggestions for the improvement of models given at the end of the three main sections of the book the speculations appear *ad hoc* and disjointed, and one wishes that either greater use of nonquantitative social theory or more explicitly stated mathematical criteria had guided the criticism.

The author's contribution, in addition to his function as a reviewer, is a system

of accounting equations (page 134). These equations assume the availability in matrix form of probabilities assigned to matters like the future acts of other individuals. As we have come to know from the analysis of chess moves, the speed of growth of alternative sequences of action is very great. It therefore stretches our optimism to believe that the many-faceted social process will be easily tamed by probabilistic approaches. It would properly be difficult to convince behavioral scientists that Karlsson's approach is the most direct route to deeper understanding of the regularities of social behavior, but whoever among them chooses to teach or write on social applications of mathematical models will wish to study and refer to this handsomely printed volume, both for its pioneering classification of earlier studies and for the reports of recent European work.

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Insect Migration. C. B. Williams. Macmillan, New York, 1958. xiii + 235 pp. Illus. + plates. \$6.

This handsomely illustrated volume, the latest of the "New Naturalist" series, deals largely with the migration of butterflies and moths. The migration of locusts, dragonflies, ladybird beetles, hover flies and other insects is discussed in varying detail, but the lifelong interest of the author in the Lepidoptera is reflected through the entire book.

Williams defines migration as "continued movement in a more or less definite direction, in which both movement and direction are under the control of the animal concerned." Some other authors restrict the term *migration* to two-way movements.

The book is divided into four parts: introduction, evidence, problems, and methods. The first section gives a general introduction to insect migration and a brief history of the phenomenon. The second is devoted to anecdotal reporting of migrations. The third section—the largest—discusses the origin of migration, possible mechanisms of migrant orientation, the return flight, the relation of population density to migration, and similar problems.

Although it is not at present possible to offer solutions to most of the mysteries of insect migration, Williams presents much thought-provoking data. However, the discussion of the evolution of the migratory habit is unfortunately brief. For instance, the book contains little mention of the regular daily movements of certain butterflies, which might well illustrate "primitive" migratory behavior.