

trasting patterns of the "work ethic" and its institutionalization in these societies; the role of nationalist appeals and "civic integration" in modernization; interconnections between social stratification and political community in the modernization of Europe—and the misapplication of this historical model to present-day developing societies. By far the longest essay in the book, "Tradition and modernity reconsidered," is an extraordinary exercise in intellectual history, sociological critique (with assessments of the theories of such diverse scholars as Daniel Lerner, Robert Redfield, Clark Kerr, Lloyd Fallers, Neil Smelser, and Wilbert Moore), conceptual reformulation, and programmatic for the study of modernization. Here again Bendix invokes Weber's warning that "ideal types are not generalizations," questions over-easy convergence theory, and joins Robert Nisbet in attacking the systemic-functional idea of immanent change and the neglect of external factors by grand theory. The concluding essay, "Social and political changes in the twentieth century," a somewhat inappropriate paper for this volume, notes the limited applicability of 19th-century theories to ongoing changes; describes indicators of large-scale changes, including population growth, world urbanization, shifts in occupational structure, and the growing gap between rich and poor countries; sketches political alterations and traumatic events of the recent past; and comments briefly on unresolved current problems—the "crisis in legitimacy," autocracies in new nations, and the upsurge of racial minorities, youth, and women.

Readers of these essays will of course take issue with Bendix at some points; it could not be otherwise with such a wide-ranging work. Some may object to the considerable repetition, almost inevitable in a collection of papers written for different contexts. Others, especially advocates of expository *order*, may decry the author's discursive ventures, which are largely the product, I believe, of his erudition and venturesome mind. There is no index, but I was much more troubled by the location of the (indispensable) footnotes at the back of the book—surely a delinquency of the publisher. But these are trivial matters: this is a splendid volume.

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Archeological Inquiry into Social Organization

Reconstructing Prehistoric Pueblo Societies. A seminar, Santa Fe, New Mexico, April 1968. WILLIAM A. LONGACRE, Ed. University of New Mexico Press, Albuquerque, 1970. xii, 248 pp., illus. \$8.50. School of American Research Advanced Seminar Series.

This book is a collection of eight articles by as many authors plus comments by David F. Aberle. The concern of the seminar of which it is an outgrowth was "the methodology and theory for achieving strong inferences about the nature of social organization in extinct Puebloan societies."

The first of two background articles is by William Longacre, "A historical review." Longacre discusses the history of intellectual interest in Puebloan archeology. His article makes it clear that something is happening in Southwestern archeology representing a new orientation in method and theory. This theme is taken up explicitly by James Hill in the second background article, "Prehistoric social organization in the American Southwest: theory and method." Hill treats the paradigm of thought which he believes to have dominated the research of earlier and more traditional researchers. He not only counters each point with explicit logical analysis but offers many operational suggestions as to how to proceed in the context of the paradigm he advocates. The significance of this article goes far beyond its application to the area under discussion.

Following the background papers are three substantive articles, "An inquiry into prehistoric social organization in Chaco Canyon, New Mexico" by R. Gwinn Vivian, "Anasazi communities in the Red Rock Plateau, southeastern Utah" by William D. Lipe, and "Aspects of Tsegi Phase social organization: a trial reconstruction" by Jeffrey S. Dean. These share as a focus the "interpretation" of specific archeological materials. Vivian presents new data regarding the irrigation systems in Chaco Canyon and suggests that the contrast in settlement noted in the canyon represents "the operation of two different systems of social organization" (pp. 61, 78). This proposal is followed by an argument that the small "villages" represent localized lineages whereas the "town" sites were "dual-division residence units characterized by nonexogamous moieties with a bilocal residence pattern" (p. 81). Vivian offers no suggestion as to how

these two forms of "social organization" are related. I question whether they represent independent social systems living side by side, however. Inference from differences in the archeological record of differences in social organization, and in turn of ethnic or societal differences, only adds an intervening step to the traditionalist's approach, without circumventing its pitfalls.

The paper by Lipe provides a fine example of a researcher in the process of coping with the significance of observed variability in the archeological record. Lipe outlines observations made on the record for a particular time period and bounded area. He summarizes the points of contrast that serve as the basis for model building. What conditions could have existed in the past that would serve to explain the observations? His suggestions manifest a realistic understanding of the way human adaptations might be organized and in turn revealed archeologically.

The paper by Dean is a treatment of archeological materials in the context of questions regarding the form and composition of social segments and how they might be related to one another. Dean brings to this task his special interest in detailed chronological controls based on dendrochronological data. Such control is rare in archeological investigations. Dean's studies demonstrate the dynamic character of events that result in the "building" of an archeological site. This case should stand as a warning to those who tend to treat complex archeological sites as "one-period" sites representative of a "point in time."

Dean cautions that archeologists should not confuse change occurring as a result of selection with changes that "reflect the passage of time." One of the old assumptions of archeology is that change is inevitable and goes on in the absence of selective pressures. Reflection on the demonstrable differences in the amount of change evidenced by different classes of artifacts, as well as the differences among archeological sequences from different areas, suggests that some determinant variables are differently operative. The search for "nonadaptive" traits in biological anthropology has been a clear failure. The assumption that characteristics observed to change are meaningful only as a way of measuring the

passage of time may well turn out to be one of the most wasteful fallacies archeologists have committed.

The last three articles share a common interest in the specifications of observations and generalizations from nonarcheological data as a baseline for evaluation or stimulating model building for archeological data or procedure. These are "The Postmigration culture: a base for archaeological inference" by Douglas W. Schwartz, "Explanation as an afterthought and as a goal" by Paul S. Martin, and "Making inferences from the present to the past" by Edward P. Dozier.

Schwartz surveys cases of migration among sedentary agricultural groups. He seeks "cross-cultural regularities" which might characterize motives for movement as well as forms unique to "postmigration culture." He seeks to specify the characteristics of archeological material that are referable to a community recently migrated. The logic is isomorphic with that of earlier arguments by Hill regarding the identification of storage rooms in pueblos. These are important concerns; they are, however, directed toward the specification of criteria for inclusion of a specific case under a categorical heading (migrations, storage rooms). This is not hypothesis testing in the sense of the specification of patterns of co-variation of two or more variables.

Martin's paper is a review of the other articles but it is more than a review, it is a constructive criticism made with a sound understanding of scientific method and epistemology. Many of the criticisms I have offered are touched upon by Martin.

Dozier's paper outlines six premises which he proposes should guide the choice of analogues for inference from archeological remains. This is an approach previously outlined by Ascher. In my view it presupposes an inductivist strategy and particularistic point of view. The strategies suggested by Dozier will not lead in the direction of theory and the generation of timeless and spaceless, lawlike propositions.

The book is concluded by a series of well-reasoned comments, constructive criticisms, and suggestions by David Aberle which exemplify the kind of feedback archeologists need from their nonarcheological colleagues in anthropology.

I think it is important to point out what this book is not. It is not an attempt to present a cross section of the interests being pursued by the "new

archeologists." It is, rather, a book exemplifying some new archeologists addressing themselves to the problem of social organization.

In my opinion the papers by Vivian and Dozier are out of place. The most controversial and provocative paper is by Hill. The most reflective and insightful papers are by Martin and Aberle. Lipe and Dean provide us with the best examples of ongoing inquiry into problems in Southwestern paleosociology.

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Plants and Their Pollinators

Insect Pollination of Crops. JOHN B. FREE. Academic Press, New York, 1970. xii, 544 pp., illus. \$21.

Until about 30 years ago most farmers depended upon native bees or feral honeybees for crop pollination. Today, the widespread adoption of organic pesticides, self-sterile plant varieties, and large single-crop plantings has had a drastic and adverse effect upon insect pollination of crops. Those who have committed such ecological rape in order to reap the rewards of agricultural technology must now turn to pollination biologists for advice on the manipulation of pollinators.

This book is a summary of current knowledge of crop pollinators and pollination. The author has divided the text into two parts. The first (120 pp.) is devoted to a discussion of the behavior and management of various insect pollinators, and the second (310 pp.) to a family-by-family discussion of crops needing insect pollination. For each crop, the author discusses floral morphology, anther dehiscence, stigma receptivity, nectar production, pollinating insects, and varietal differences in pollination requirements. The sequence of plant families in the second part follows that devised by Bentham and Hooker and still used in most British Commonwealth herbaria, but for obscure reasons the Rosaceae are placed between the Moraceae and Liliaceae.

This volume is more than a compilation of the work of others. The author has used his own extensive research experience (60 of his publications are cited) in reviewing the literature. Some of his critical lapses betray certain deficiencies, however. For example, on

page 266 he refers to "bees of the families Xylocopidae, Ceratinidae and Apidae." Although many readers may view such classification as obsolete, such matters are largely subjective. But the very next sentence refers to "the small wasp *Ceratina bispinosa*." This and similar errors cause me to wonder how much the author knows of bees.

The literature on crop pollination is scattered because the subject includes many facets of both "pure" and "applied" botany and entomology (not to mention bird and bat pollination). In preparing this volume the author has performed the unenviable yet invaluable task of critically reviewing a mountain of literature. Sixty-two pages are devoted to a list of approximately 1500 references. The utility of the work is further enhanced by the 37 pages of separate indices to author, plant species, and subject matter. However, a random check revealed numerous inexplicable omissions (for example the bee family Halictidae) from the indices.

Commendably, the author is consistent in his use of the metric system and compassionate in his inclusion of a table of conversion factors for those who think in terms of acres instead of hectares. Nevertheless, it seems unnecessary to give clover seed yields as "0.4-0.6 hl/ha" when the conversion table fails to mention hectoliters and when "40-60 l/ha" would serve as well.

I have but one caveat for those who will refer to this work. Both insects and plants are so much affected by such variables as climate, soil type, predators, parasites, and diseases that management practices successful in one locality are often disastrous in another. Although the author frequently mentions these complications, he does not sufficiently emphasize the importance of reevaluating the efficacy of management procedures when they are being introduced into new areas.

Considering the premium price of their books, Academic Press might have used a binding less susceptible to water damage. Inferior binding notwithstanding, this book belongs on the reference shelf of pollination researchers, apiculturalists, and farmers alike. A second edition is inevitable and could profitably include information on the protection of pollinators from pesticides and on pollinators as vectors of plant disease.

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