Book Reviews

Anthropological Essays

Annual Review of Anthropology. Vol. 1. BERNARD J. SIEGEL, ALAN R. BEALS, and STEPHEN A. TYLER, Eds. Annual Reviews, Palo Alto, Calif., 1972. xii, 452 pp., illus. $10.

Instead of having, as formerly, biennial reviews devoted to the broad and traditional topics of anthropology (physical anthropology, social organization, psychological anthropology, and so on) the editors of the *Biennial Review of Anthropology* have gone to an annual format. As a member of an extinct breed (I wrote the last article on social organization in the auld style) I can state without prejudice that the annual is a great improvement. Instead of long blunderbuss essays that attempt to make prose sense out of laundry lists of literature, we have smaller-scale essays on the state of the art in those areas where something significant or interesting is going on.

The contributions on physical anthropology in this volume clearly reveal that the field, though maintaining its traditional interest in fossil man (in an article by Bernard Campbell), is now concerned with problems of epistemology and conceptualization. It is developing strong links to demography (Paul Baker and William T. Saunders) and to ecological studies of living populations (D. F. Roberts and J. C. Bear).

Archeology is represented by three essays, one on settlement patterns (Jeffrey Parsons), one on dating methods (Joseph Michels), and one on ecological relationships (Ezra Zubrow). Zubrow raises the interesting question whether there has been a genuine revolution in archeological thinking which has diffused to the corners of the profession, and he concludes with an examination of the literature. "If a new paradigm exists (which I personally believe), one may only conclude that it has not permeated the discipline sufficiently to have a major literary influence."

In social anthropology two themes dominate: strategic analysis and linguistic models of cultural behavior. In transcultural strategic theory the more ecologically minded look at the adaptive strategies of whole populations to their environment, while the more socially minded tend to a gaming tradition and see political coalitions and domestic groups as engaged in the adjudication of competing interests. Highly quantified results are not available generally yet, according to these reviews, but there is much promise in this regard. Two essays, one on environment, subsistence, and ecology (Karl Heider) and one on social strategies and social relationships (Norman E. and Dorothea S. Whitten), are presented. Cognitive anthropology is represented by four essays (or five if you count the wide-ranging review of structuralism by Pierre Maranda). First, an article on ethnoscience by Oswald Werner suggests that our design for "getting into the head of the informant" may never be realized, but that if it is we may well find that our notion that different cultures work on different logics is false and that formal logic as now developed will serve for native thought patterns. A thoughtful essay by Harold Scheffler deals with the problem of what we are studying when we are studying kinship semantics—an important question since social anthropologists spend a lot of time studying it. There are two more general essays, one by Mridula Durbin reviewing the applications of linguistic models (for example, emic-etic, componential, distinctive-feature, and transformational-generative models) to anthropology and another by Michael Silverstein encompassing the most recent history of those aspects of linguistic theory which are most relevant to anthropologists. Two other articles are included: one by Karl Teeter on the most recent data on the classification of North American Indian languages, and one by Robert Carmack, who discusses definitions, methods, aims, and recent developments in ethnohistory.

The volume is prefaced by an essay by Conrad Arensberg, who points out that the discovery that all anthropology (and sociology) is divided into three parts (the study of action rules, rules of thinking, and rules of adaptation in anthropology; consensus, conflict, and exchange theories in sociology) is not altogether recent. Arensberg harks back to his own early work with Chapple and their associates, and brings us up to date on some developments in the formal study of interaction sequences, which is now capable of incorporating ideas, transactions with the environment, and symbols and of providing an empirical base for the study of social systems.

Altogether this is a successful volume, and manages to convey in a clearer fashion than before the scope of thinking in American anthropology.

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Protozoan

Blepharisma. The Biology of a Light-Sensitive Protozoan. ARTHUR C. GIESE. With the collaboration of Shōichirō Suzuki, Robert A. Jenkins, Henry I. Hirshfield, Irwin R. Isquith, and Ann M. DiLorenzo. Stanford University Press, Stanford, Calif., 1973. xiv, 366 pp., illus. $17.50.

Comparable in many respects to Vance Tartar's earlier treatise on *Stentor,* Giese's new work on *Blepharisma* successfully presents, in nonpedantic fashion, a comprehensive survey of both the literature and current thought regarding this light-sensitive ciliated protozoan. *Blepharisma* has long been a favorite organism for laboratory experimentation because of its large size, slow movement, and widespread distribution. Currently its remarkable regenerative powers are undergoing extensive scrutiny. Also of considerable interest to researchers is the presence of a distinctive light-sensitive pigment, which has proven to be of no recognizable value even though it may be lethal to organisms subjected to high-intensity light.

Reflecting the fact that a significant amount of the work reviewed in this volume was originally performed by Giese and his research team are some excellent guidelines to experimental methodology. This, in itself, will greatly enhance the value of this book for both students and serious investigators.

Particularly useful to the nonspecialist reader will be the comprehensive glossary. In addition, the index is cross-referenced and appears to be comprehensive.

Although the bulk of the writing for this book is attributed to Giese, accounts of several specialized topics have had joint authorship. These are as follows: cell division, conjugation, and cell regeneration (Suzuki); electron microscopy (Jenkins); and evolution and taxonomy (Hirshfield, Isquith, and DiLorenzo).

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Turbulence

Buoyancy Effects in Fluids. J. S. TURNER. Cambridge University Press, New York, 1973. xvi, 368 pp., illus. $29.50. Cambridge Monographs on Mechanics and Applied Mathematics.

Perhaps the most outstanding problem in oceanic and atmospheric fluid dynamics is the parameterization of the average effects of the small-scale motions (turbulence, clouds, waves) on the larger scales (synoptic or general circulation). In the free atmosphere we know that the normal cloud is the key process. In the "free" ocean the analogous process is unknown to us, and we are compelled to use a kind of make-believe Fourier-Fick law to parameterize the small-scale turbulence in theories of the thermocline. Convection in clouds, as well as the large-scale rotational effects, is justifiably beyond the scope of Turner's book, but oceanographers will welcome it because of its emphasis on turbulence in a stratified fluid and because of recent developments in measuring oceanic turbulence.

The book begins with laminar flow in a stratified fluid, and proceeds to the subjects of nonlinear interaction of internal gravity waves and shear flow instability. A fine collection of photographs helps to unite laboratory measurements, field observations, and the much-solicited interdisciplinary reader. The almost traditional subject of the atmospheric boundary layer introduces the reader to the main theme of the book. Considerable space is then devoted to free convection, including the case of an isolated heat source, the fundamental parallel plate convection problem, and the relatively new subject of "double diffusion." Experimental and theoretical studies are effectively related to local observations, such as regularly spaced temperature-salinity layers and clear air turbulence.

Aside from the unifying geophysical theme, the various chapters of the book are really surveys of subdisciplines and therefore require a working knowledge of part of the extensive bibliography. To tie the results together the author has had to employ an overly condensed and pragmatic presentation of the similarity laws, and it would be unfortunate if those interested in the fundamental problems were put off thereby. A little more discussion of the tentative insights that have been won from these laws, especially in those problems with well-set boundary conditions, would have been useful. On the other hand the penultimate chapter, on the grid-induced mixing across a density interface, is so fascinatingly complex that we must be content with any quantitative rationalization of the data. The interpretative problem that arises here is, of course, not different in kind from that which arises when local turbulence measurements are made in the air and sea. In both cases we must wait for a deeper understanding of the relatively simple forms of turbulence.

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Immunology

Transplantation Antigens. Markers of Biological Individuality. BARRY D. KAHAN and RALPH A. REISFELD, Eds. Academic Press, New York, 1972. xxvi, 536 pp., illus. $26.50. Immunology series.

The substances known as transplantation antigens are distributed on the surfaces of all or most cells of all species and are of interest not only because of their role in transplantation and tumor immunology but also because the genetic loci controlling them are closely associated with genes affecting other important biological phenomena such as immune responsiveness and susceptibility to disease states such as leukemia. Moreover, the loci involved, HL-A in man and H-2 in mouse, provide examples of the most highly polymorphic systems known. In this book Kahan and Reisfeld have drawn together in a logical arrangement a series of papers from most of the distinguished workers in the field to present a complete and authoritative review of these interesting glycoproteins.

The first section of the book contains several excellent papers on the phylogeny and development of transplantation antigens, and includes descriptions of the cellular localization of these substances. In addition, there are a concise review of the HL-A system of man and several papers on the significance of cross reaction between the antigens of different species, particularly between man and primates. There is no adequate genetic description, in this section or later, of the H-2 locus of the mouse, such as has been provided for HL-A. The H-2 system is given relatively little attention in the book as a whole, even though a large volume of genetic and chemical information has accumulated about it. Where H-2 is discussed, there are several errors. For instance, H-2 specificities are referred to by letter and not numerically, as is now the custom; the H-2 locus is stated to be on the 9th chromosome (it is the 9th linkage group and 17th chromosome); the description of the H-2 locus states that an inbred mouse may have one to three private H-2K specificities (each mouse has only one private H-2K specificity and H-2D specificity). However, use of the excellent reference list will rectify these.

The second section deals with the extraction, purification, and chemical characterization of transplantation antigens. The different methods using pressure homogenization, sonication, hypertonic salt, proteolytic enzymes, and detergents are presented. A biochemist reviewing these pages may wonder at this extensive review of such a variety of methods used to solubilize the transplantation antigens, but this problem has been the major hindrance to progress in this field over the last decade. Current knowledge of the structure of these glycoproteins (molecular weight approximately 35,000) is adequately presented, with the evidence that the alloantigenic activity resides in the protein rather than in carbohydrate fragment—a problem that has finally reached some sort of solution. Missing from this section, however, is the definitive structure of the carbohydrate fragment of the glycoprotein, which has recently been described for H-2 alloantigens. The use of detergents, which is currently enjoying renewed popularity, is dealt with only briefly.

Section 3 describes the biological properties of solubilized antigens and