In addition to Movius and Clark, Old World contributors include R. J. Braidwood on excavations of early agricultural villages in Iraq during the '40's and early '50's, and P. L. Shinnie on investigations of the Sudanese Iron Age that began in the mid-'60's and are still continuing. Finally, Willey chose to break the prevailing retrospective pattern with a somewhat more "prospective" paper from a younger contributor, C. C. Lamberg-Karlovsky, summarizing his recent excavations at a deep, stratified mound that was an important center of protohistoric trade in southeastern Iran and suggesting what other, related fieldwork is still to ensue from them.

Apart from Clark's and Movius's, the Old World papers exhibit much less uniformity of outlook than do the New World papers. Part of the difference may stem from greater diversity in training and background, including generally greater although varying degrees of exposure to the more "humanistic" approaches of history, art history, and philology. But it also reflects the enormously varying political and logistic conditions to which many Old World archeologists have had to adapt. Braidwood and Shinnie both allude to the problems of coping with the remains of prehistoric urban civilizations with problematical supply lines and limited technically qualified personnel in relation to the vast areas to be tested and the large numbers of untrained laborers seeking relief from agricultural underemployment. The path to responsible archeological accomplishment may take a different direction under these conditions. Braidwood rather reservedly evaluates American priorities as favoring "the career development of individuals rather than . . . long-range commitments to the completion of all responsibilities for a given site." Lamberg-Karlovsky's formulation reflects a similar ambivalence. Contrasting "site optimizing" and "problem optimizing" approaches, he describes himself as having "rejected the rigidities of both."

A different kind of connective theme arises from the linkage of Old and New World undertakings through a common objective and research strategy. Braidwood and MacNeish provide perhaps the best example to be found anywhere, both having pioneered in the development of interdisciplinary cooperation for the study of agricultural origins. Similarities abound in their accounts of the defects in their original conceptualizations of the problem, and of the slow, sometimes painful process by which teams of natural and social scientists become effective in advancing our understanding of it. Their gradually emergent awareness that regions were interdependent and complex, rather than fixed zones restrictively bounding ancient human activities and corresponding cultural variations, parallels similar shifts in the thought of Movius and Haag.

Only three papers comment at any length on the relationship of archeology to ethnology or sociocultural anthropology. Clark's use of ethnology was by way of library sources, relying on suggestive if hardly definitive cross-cultural comparisons that acquired greater cogency when they "were made within the same environment and when there was clear evidence of historical continuity between them." Lamberg-Karlovsky, noting the rapid rate of sedentarization and industrialization in Iran, cites the neglect of "ethnoarchaeological research" within his region as what may well turn out to be his "most enduring failure."

Willey's experience was different, no doubt in considerable part because of J. H. Steward's integral involvement in the planning of a multifaceted investigation of the contemporary as well as the ancient Virú Valley. He too, however, acknowledges that his work may be called "archaeologically self-contained," with insights into the organization of the canal irrigation regime, for example, having come to his attention only from ethnographic research published years after the conclusion of his own fieldwork. Steward's influence in the mid-'40's, in short, failed to lead Willey to genuinely interdisciplinary cooperation with sociocultural anthropologists. It did persuade him, to be sure, "to say something about the forms, settings, and spatial relationships of the sites themselves and what all this might imply about the societies which constructed and lived in them." But even that broadening of perspective may not have been obtained wholly without cost. "I must accuse myself," he writes in the preface, "of having been obsessed with the social dimensions of culture to the detriment of ecology."

Willey's paper is particularly insightful in its attempt to grapple with the changing climate of archeological thought. He does not merely record the successive appearance of new themes, retrospectively formulated from the vantage point of the present and hence inexplicable in their apparent distinctiveness and suddenness. Instead he probes for the tentative, frequently abortive movements that preceded them: "There was talk of 'functional interpretation' and of 'process,' although the distinction between the two never came in some of this exploratory archaeological writing. We wanted to 'recover' more of the past, to understand it better, to explain it; but just how we were going to do this was not explicit." Similarly, it is with a rich and revealing sense of irony that one reads of his pacing the stony surface remains of Virú and thinking he had been misled by Steward and dealt a marginal hand by his colleagues. For his work in Virú is of unique and enduring importance, in spite of the fact that awareness of the "centralizing, integrative potential" of a settlement pattern survey came later, if indeed he has fully accepted it now.

In spite of occasionally mordant overtones, "gaps" in coverage, and rather capriciously selected illustrations, there is a "centralizing, integrative potential" to this volume also.

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Populations of Man

The People of America. T. D. STEWART. Scribner, New York, 1973. x, 262 pp., illus. + plates. Cloth, $10; paper, $3.95. Peoples of the World Series.

The Pacific Islanders. WILLIAM HOWELLS. Scribner, New York, 1973. xviii, 300 pp., illus. + plates. Cloth, $12.50; paper, $4.95. Peoples of the World Series.

With *The People of America* and *The Pacific Islanders* Charles Scribner's Sons has launched a series of books tracing the ancestry and development of the human inhabitants of various geographic areas. The series is under the editorship of Sonia Cole, who has attempted to find authors competent to "turn a mass of scientific data and statistics into a readable and stimulating book of real value for serious students and at the same time appealing to non-specialists." The choice of Stewart and Howells sets a high standard for the series.

The People of America is not a book

about the migrations of ethnic groups to America in modern times. Its subject is the physical anthropology of how, when, where, and why the New World (North, Central, and South America) was populated. It combines geography, geology, paleoanthropology, and medicine to describe how early man adapted to the various climatic and geographic conditions.

The book begins with a discussion of the effect of glaciation on man entering the New World from Asia and presents evidence for entry into Alaska for dates before and after 20,000 B.C. In this context Stewart discusses such factors as cold-screening of disease (the Eskimo, when they remain isolated, are relatively free from colds and infectious diseases) and ecological challenges to man's adaptability. By 1492, the date of the earliest European contact that really had an impact on European and American culture, man had spread over the entire Western Hemisphere. From the earliest contact there have been many theories and misconceptions about the origins of the American Indians. Stewart presents a thorough discussion of these. Anthropologists have for years estimated and guessed at the size of the Indian population at the time of contact, and many will be pleased to see Stewart's chapter on the subject, in which he includes vital information on such diverse matters as tuberculosis, syphilis, intestinal parasites, food, and blood-group patterns and discusses their possible effect on population size.

The book is historical in approach. This is best seen in the use Stewart makes of the early explorers' descriptions of their encounters with the living Indians of both the high civilizations (Inca, Maya, Aztec) and the lower cultures, from which he considers the remaining Indians in the United States and Central and South America to be descended. The following passage from the section on human sacrifice demonstrates his skill at weaving these descriptions into his story:

> As an example of the numbers of war captives sacrificed on special occasions, the dedication of a new temple at Tenochtitlan in 1487 may be cited. According to the sixteenth-century historian Diego Duran . . . , sacrifices were made simultaneously from four advancing lines of captives. From Duran's description of the lines, Cook estimates that each was about two miles long. Altogether the lines could have contained upwards of 15,000 individuals.

From a summary of some of the fossil human skeletons from the New World, Stewart also traces the development of anthropology, especially physical anthropology, in the Americas. This is a readable book, and most graduate students will find it indispensable when reviewing for their examinations.

The Pacific Islanders attempts to do the same thing for Oceania that Stewart's book does for the Americas. Because the history of man in the Pacific is in general much shorter than in the New World, Howells spends more time discussing the living populations of the Pacific. He attempts to "unravel the Pacific past" from what appears to date to be the earliest appearance of man in Australia, at about 30,000 B.C., through the settlement of Indonesia, Melanesia, Micronesia, and Polynesia, where man may have arrived as late as 1000 years ago.

Geographically, Oceania is a world of islands ranging from the continent of Australia to the tiny atolls in Micronesia. The people who inhabit this vast area vary as much in physical type and culture as the area does in geography. From a general discussion of these matters Howells proceeds to a more detailed analysis of the inhabitants from the outer differences of color, size, and shape and the inner differences of enzymes, ear wax, and erythrocytes and then to a discussion of the language differences. He uses his knowledge of multivariate analysis to obtain scientifically meaningful interpretations from the vast quantity of data printed in widely diverse publications. He devotes chapters to Australia and Tasmania, Melanesia and Indonesia, and Polynesia and Micronesia. The book offers the most extensive review of Oceania this reviewer has seen.

Both books are liberally referenced. It is unfortunate that the most recent in-depth study of early people of Hawaii, by Charles E. Snow (*Early Hawaiians: An Initial Study of Skeletal Remains from Mokopu, Oahu*, University of Kentucky Press), published posthumously this spring, appeared too late to be included in Howells's list of references. I mention it here to bring the record up to date. For anyone interested in a well-written account of the inhabitants of the New World or Oceania, I strongly recommend both of these books.

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Macromolecules

Biopolymers. ALAN G. WALTON and JOHN BLACKWELL. With a contribution by Stephen H. Carr. Academic Press, New York, 1973. x, 604 pp., illus. $35. Molecular Biology.

Because biopolymers, or biological macromolecules, are of interest to an increasing community this publication will be welcomed by both researchers and students. The discussions of specific techniques used in the study of biopolymers cannot, by the nature of the book, give sufficient detail to enable the reader to appreciate the techniques fully, but they do give an admirable general survey. The utilization of these tools in specific systems is well presented, although there is an unevenness in the amount of detail presented for various physical techniques.

The chapters on structural units and conformation give an excellent overview. They are, however, marred by some inaccuracies. For example, the authors write that there is no branching of chains in proteins (p. 2) and that there are no know *cis* bonds (p. 23). At times the authors present selected evidence rather than both sides of a controversy. For example, they state (citing Krimm *et al.*) that the conformation of the ionized species of poly-L-glutamic acid and poly-L-lysine is a left-handed helix, when there is equally convincing evidence, not presented, that these polymers are in the random configuration. The chapter on x-ray diffraction goes into greater depth than the accounts of other techniques. The coverage is thorough and the material well presented, but work from the Cleveland area is chosen too frequently, without historical justification, for the selection of references.

One of the best chapters is that on morphology. This subject is generally a neglected one, and here it is very well presented. Infrared, Raman, and electronic spectra are well covered and a balanced view is presented. The newly developed technique of skeletal conformation band assignment in the far infrared is omitted. The authors are not au courant on polynucleotide structure. It is stated (p. 280) that the 2-OH of the sugar ring in polynucleotides stabilizes ribo and not deoxyribo structures through hydrogen bonding. This hypothesis has been disproved by the demonstration that it is the altered puckering of the sugar moiety that is responsible for the difference in sta-