"Working at the Ayalán site," coastal Ecuador. "Almost all large farms in that part of the world contain archaeological remains, but Ayalán proved to be particularly fertile. . . . In 1973 . . . we unearthed a number of large burial jars, each containing up to twenty-five skeletons." [From *Bones*]

anthropologist carry over to the study of ancient populations when these are represented by a preserved skeletal series in a mortuary deposit. Individual identification is seldom the issue in archeological contexts, but a demographic profile of an extinct group of people may emerge from the anthropologist's estimation of sex ratios, age distributions, rates of mortality and morbidity, nutritional and health status, and markers of traumatic and occupational stress. Schwartz ably demonstrates how through such investigations new data can become available on matters about which historical records and other archeological materials are silent.

The second half of Schwartz's book is less successful. It shifts to the history of the search for hominid fossils and how scientists have used them to interpret the course of human evolution. This historical effort is sketchy and contains some errors. The Heidelberg mandible was discovered in 1908, not 1915. *Dryopithecus* means "oak-ape," not "wood-ape." The Mousterian lithic tradition is characterized by retouched flakes, the prepared-core technique being a Levalloisian tradition, although Neandertals were familiar with both manufacturing methods at some localities. The theory that humans originated in Asia was not proposed for the first time by John Mitchell in 1744 but was a common thesis among Renaissance and Reformation scholars following biblical scholars who sought to locate the cradle of humanity, Eden, in Asia.

What the Bones Tell Us contains an index and a reference section, but the latter is not keyed to the text, and sources are precisely identified only for a few quotations from the writings of Charles Darwin and Thomas Huxley. Schwartz notes in the preface that he has "left clear-cut clues to the appropriate sources in the bibliography," but the reader will be frustrated by the absence of meticulous citation, particularly in cases where some of Schwartz's data are of uncertain origin. There are no illustrations in the book, the author prefacing the chapters with an explanation that "This book contains no artists' reconstructions of what the owner of a particular fossil tooth may have looked like, or how members of an extinct species or ancient civilization may have performed one ritual or another. Nor are there any photographs of Neandertal skulls, or those who study them, or any other items typically found in books of popular anthropology. Such illustrations rarely contribute anything fresh or original. In their stead I have done my best with verbal images." Thus, rather than provide a clearly labeled drawing of a human skull to designate the mastoid process, Schwartz tells the reader, "If you poke around your skull with your fingers, you will feel a substantial, downwardly tapering, bony projection that is partially hidden by your fleshy ear. You also can feel this projection if you place your fingers at the back edge of the vertical part of your lower jaw. If you still can't find it, turn your head to one side . . . and follow the thick, cordlike muscle bulging along your neck that goes from the top of the breastbone to just below your right ear. The large bump below your ear, to which this muscle attaches, is the bony projection I'm talking about. In anatomists' terminology it is called the mastoid process." Most readers will agree that one picture is worth more than 100 words in this case.

Given Schwartz's many years of laboratory and field research in both forensic anthropology and paleodemography (enterprises he designates "forensic osteology" and "osteoarcheology"), his book merits serious attention for the theoretical positions he takes on the relatedness of Neandertals to anatomically modern *Homo sapiens* and the phylogenetic affinity of humans to orangutans as inferred from both fossil evidence and molecular data and for his analysis of Huxley's understanding of the relatedness of humans and apes and reaction to Darwin's views on the origin of species and natural selection. Here are exciting and provocative issues that will stimulate discussion among both anthropologists and students who have taken courses in human evolution. *What the Bones Tell Us* and *Bones* may be regarded as valuable companion sources that will equip any reader with up-to-date descriptions of how science can be applied to police work and the legal aspects of human identification as well as how science continues to create new theories about human origins and evolution.

Kenneth A. R. Kennedy,
Section of Ecology and Systematics,
Division of Biological Sciences,
Cornell University,
Ithaca, NY 14853

The Wages of Contact

The Native Population of the Americas in 1492. WILLIAM M. DENEVAN, Ed. Second edition. University of Wisconsin Press, Madison, 1992. xliv, 353 pp., illus. $45; paper, $14.95.

Disease and Demography in the Americas. JOHN W. VERANO and DOUGLAS H. UBELAKER, Eds. Smithsonian Institution Press, Washington, DC, 1992. x, 294 pp., illus. $62. From a symposium, Washington, DC, Nov. 1989.

Disease, Depopulation, and Culture Change in Northwestern New Spain, 1518–1764. DANIEL T. REFF. University of Utah Press, Salt Lake City, 1991. ix, 330 pp., illus. $30.

The Columbian quincentenary observance has inspired a number of research efforts to determine the effects of the encounter between the Old and the New Worlds. Some of the most important questions that have guided researchers on this issue for much of the 20th century are: How many Native Americans were inhabiting the New World in 1492? How did the coming of Old World peoples with their new diseases alter New World populations? and Were the Americas a disease-free paradise prior to contact? The three volumes considered in this review provide some of the most current thinking on these problems.

As William Denevan noted in the preface to the first edition (1976) of *The Native*

Population of the Americas in 1492, "We are now in a period of marked disagreement about the size of former Indian populations, both regionally and for the hemisphere, with a strongly realized need for resolution based on better techniques and evidence. Relevant research is accelerating, with contributions from varied disciplines." The volumes reviewed here demonstrate the advances that have taken place since that statement was made.

The newly published second edition of Denevan's compilation provides an excellent summary of mid-1970s thinking on the population question, updated by the addition of a valuable review of recent research by Denevan. This volume will not be reviewed in detail here, since numerous reviews of the first edition have been published (see p. xvii of Denevan for a list), but it should be noted that the editor has lowered his own estimate of hemispheric population from 57,300,000 to 53,904,000.

Verano and Ubelaker's *Disease and Demography* is the most recent of the three volumes and is also the most extensive in coverage. It consists of 23 regional essays grouped into two major sections, one concerned with evidence of disease and the other with population size before and after contact. There are also an introduction and conclusion to the entire volume and a summary chapter by a leading researcher in the field (Aufderheide; Crosby) for each of the two main parts.

The notion that the Americas were a disease-free paradise prior to Old World contacts is ably dispelled in part 1 of the book. The presence of a treponemal infection in the New World will now be widely accepted, and the present work documents it in the Andes (Verano), the southeastern (Powell) and southwestern (Stodder and Martin) United States, Illinois (Milner), Ontario (Saunders, Ramsden, and Herring), and coastal North Carolina (Bogdan and Weaver). Both the paper by Powell and that by Bogdan and Weaver particularly argue that this treponemal infection was not venereal syphilis but an endemic nonvenereal form. Yet Powell argues that New World inhabitants may have been even more vulnerable to Old World venereal syphilis because of the presence of the nonvenereal strain. Bogdan and Weaver stress exactly the opposite, stating that there may not have been a postcontact epidemic of venereal syphilis because of the presence of the indigenous variety.

The other widely recognized disease that was present in the New World prior to contact with the Old World was tuberculosis. It has been identified in all the regions listed above for treponemal infection except coastal North Carolina. Other diseases may have been present, including arthritis (Ortner), those diseases caused by soil fungi and endogenous staphylococcal and streptococcal bacteria (Powell), and such viral infections as some forms of herpes, hepatitis, poliomyelitis, pertussis, rhinoviral and tick-borne fevers, rabies, sylvatic plague, tularemia, giardiasis, and amoebic dysentery (Stodder and Martin). Though the Old World was to contribute its diseases, the New World certainly was not the Garden of Eden some have depicted.

As for the effects of European disease on North American populations, few doubt the horrible outcome of the introduction of European disease to a Native American population that had no immunity, but the timing of depopulation and the mechanisms of spread are still hotly debated. Whereas some authors have stressed the likelihood of sweeping pandemics (particularly Henry Dobyns in various works and Cook and Upham in the present volume), others see no evidence of pandemics. Snow, Reff, and Thornton *et al.* particularly do not believe that smallpox spread as a pandemic across large regions of North America. As Ubelaker and Verano note in their conclusions, the essays in their volume "argue for considerable variability in the timing and effect of introduced disease in the New World."

The debate over population size in the Americas prior to the arrival of Europeans has raged for nearly a century. Ubelaker presents a good overview of the estimates, which range from early figures of just under 1 million to more recent calculations of 18 million for North America and from approximately 8.5 million to 100 million for the entire Western Hemisphere. The complexities of calculating population for the New World are nicely summarized by Woodrow Borah in the Denevan volume. Many assumptions are necessary to convert historical figures about military forces, tributaries, number of men, and the like to total population. Other problems plague archeological research. The best approach will be to focus on particular regions, as is done by several contributors to the Verano and Ubelaker volume.

In his monograph, Daniel Reff presents a carefully constructed regional study of the effects of European disease on northwestern New Spain. He begins by reviewing accounts of 16th-century Spanish explorers and carefully contrasts these early accounts with the more detailed Jesuit records of the 17th century. To the documentary evidence he adds the available archeological evidence. He posits a much greater population in the region at the time of initial Spanish contact than was formerly estimated. He cautions us that there is no evidence for widespread pandemics; each subregion within his study area has its own epidemic

"The New World–European encounter: Montezuma welcoming the army of Cortés outside Tenochtitlán, Mexico." [From *The Native Population of the Americas in 1492*; Theodore de Bry engraving (Las Casas, 1598), Edward E. Ayer Collection, Newberry Library]

history. Yet the results were the same—massive depopulation.

The trend in recent years has been to raise population estimates of many regions of the New World. In contrast, an interesting archeological study (reported on in Verano and Ubelaker) was conducted by Betty Meggers in the Amazon basin. Meggers concludes that early explorers' accounts of large populations in the region must be exaggerated; she sees little evidence of dense settlement along the Amazon. She suggests a population of not more than 2 million for Amazonia. As George Milner points out in his contribution to Verano and Ubelaker, only archeology will give us new evidence to narrow the considerable range of population estimates for the New World.

These three volumes contain some of the very best scholarship on pre-Columbian populations and disease and the effects of Old World disease on New World peoples. It is refreshing to see so many scholars with diverse backgrounds working on common problems. These volumes bring together demographers, archeologists, physical anthropologists, pathologists, geographers, ethnohistorians, sociologists, and historians, each with a different perspective. The results are significant, but, as with any scientific endeavor, the final word is yet to be written.

Marvin T. Smith
Department of Sociology and Anthropology, University of South Alabama, Mobile, AL 36688

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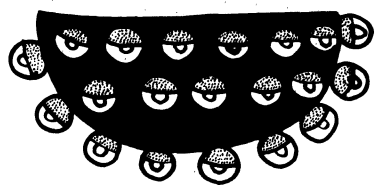
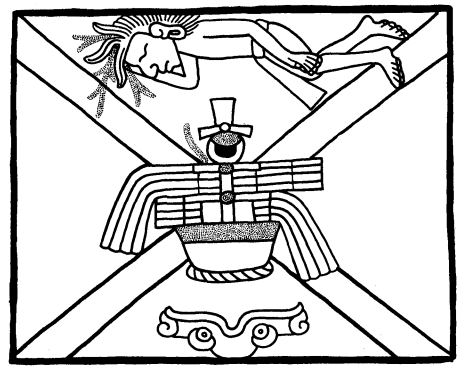
Mesoamerican Pantheon

The Gods and Symbols of Ancient Mexico and the Maya. An Illustrated Dictionary of Mesoamerican Religion. MARY MILLER and KARL TAUBE. Thames and Hudson, New York, 1993 (distributor, Norton, New York). 216 pp., illus. $34.95.

Casual visitors to the fantastically rich mythological landscape of Mesoamerica will soon find themselves without bearings: the names of supernatural beings occur in bewildering variety, and the diversity of cosmological and ritual concepts reflects the ethnic variety of the culture area. Thank heaven—or heavens, if we are to invoke the Mesoamerican notion of multiple cosmic layers—that Mary Miller and Karl Taube have decided to write this book. *The Gods and Symbols of Ancient Mexico and the Maya* offers a unique compendium of terms and their explanations, ranging from examples in the later, Aztec religious system to earlier, Classic Maya



"The Aztec sign for the starry night, Codex Mendoza, 16th c." [From *The Gods and Symbols of Ancient Mexico and the Maya*]



"A cave sign, a bowl with brooms and *copal*, and the body of a probable executed criminal placed with crossroads, Codex Laud, Late Postclassic period. In Mesoamerican thought, crossroads were widely considered to be dangerous places that provided access to the Underworld." [From *The Gods and Symbols of Ancient Mexico and the Maya*]

beliefs, which have come increasingly into focus as the decipherment of Maya glyphs continues apace. The erudition here is unmatched, at least as it regards religion, by any other comprehensive book on Mesoamerica.

Much of the volume consists of an alphabetical listing of terms and concepts, so that, for example, "Cocijo," a label for a supernatural from the Zapotec culture that is associated with lightning and rain, appears on the same page as a reference to "Coatepec," an important location in Aztec mythology. The reader searching for a single, flowing explication of Mesoamerican religion has come to the wrong book—this is a work of reference that should be coupled with some of the standard textbooks on Mesoamerica. Nonetheless, the introductory chapter offers one of the tidiest and most concise treatments yet written of religious symbolism in the region. Emphases include the shamanistic element of sacred iconography as well as the elaborate metaphors that likened, say, maize and humans; Miller and Taube make the point that these metaphors do not always have rigid or exclusive referents but form part of a shifting poetic vocabulary. Other patterns, such as those of structural replication and the use of divine charters for state policies, also receive their due.

As usual for Thames and Hudson, the

"A monkey scribe dancing with a mirror, detail from a Late Classic Maya vase. The monkey scribes appearing in Classic Maya iconography are now known to be early forms of Hun Batz and Hun Chuen of the *Popol Vuh*" or "council book," the "most important surviving sacred book of the Quiché Maya." [From *The Gods and Symbols of Ancient Mexico and the Maya*]

book displays high standards of design and production, something sadly lacking in the products of many university presses these days. The many fine illustrations, nowhere overreduced or muddied by coarse screening, are grouped in the outside columns of right-hand pages, yielding a book that is well illustrated but not cluttered. More important than its overall look, however, is the fact that *Gods and Symbols* offers something that is at once old and new. In contrast to the current vogue of emphasizing cultural diversity rather than religious commonalities in Mesoamerica, Miller and Taube weave throughout this full, cultural dictionary the conviction that scholars should not narrow their focus but should instead amplify it, through controlled comparisons between Aztec and Maya and between Mixtec concepts and those of Central Mexico. In this they build on the legacy of Eduard Seler, who set a formidable standard of knowledge that only a few modern specialists can match. With this work Miller and Taube provide both a Baedeker to the uninitiated and, on a more scholarly level, compelling testimony in favor of shared religious features in ancient Mesoamerica. If I have one criticism it is that readers might have enjoyed more discussion of controversy and dispute, particularly in the introductory essay or in the otherwise useful appendix describing sources and the history of research. Such spice would have enlivened further an already tasty mix.

Stephen Houston
Department of Anthropology, Vanderbilt University, Nashville, TN 37235