Post-Pleistocene Foragers

Guilá Naquitz. Archaic Foraging and Early Agriculture in Oaxaca, Mexico. KENT V. FLANNERY, Ed. Academic Press, Orlando, FL, 1986. xx, 538 pp., illus. $98.50. Studies in Archaeology.

Guilá Naquitz is a small rock-shelter in the Tlacolula arm of the Valley of Oaxaca, not far from the famous Zapotec ruins of Mitla. Although the area of occupation measures only about 8 by 11 meters, it has been made the subject of a monograph of over 500 pages of small print, with contributions by 21 specialists. Lest it be thought that this is a case of swatting a fly with a cluster bomb, let me say at the outset that not since Graham Clark's classic Star Carr report on an equally small Mesolithic site in Britain has so much information been extracted from such modest data.

The basic research problem as set forth by Flannery was "to develop a model that would not only deal with some of the underlying and more universal aspects of early domestication but also tie that process into the specific cultural pattern for the Valley of Oaxaca." The really big question is why the process leading to incipient agriculture should have occurred more or less simultaneously, between 10,000 and 5,000 B.C., at widely scattered spots around the globe.

As he has done before, Flannery adopts an ecosystem approach to the analysis of the preceramic components of Guilá Naquitz, one derived from cybernetics and not linked to linear-causal or "prime mover" models. The core of the model for end-Pleistocene Oaxaca is a small human population of foragers (rather than collectors, who would have been more sedentary) moving through the annual plant harvest year after year for centuries.

According to "acceptable" ^{14}C dates, the cave was occupied from 8900 to about 2000 B.C. The living floors of Guilá Naquitz represent a series of microband camps made by families of four to five persons who arrived in the Mitla area toward the end of the mesquite season (late August or early September) and who stayed in the rock-shelter until the end of the acorn harvest, presumably in late December. The preceramic Mitleños also harvested piñon nuts, prickly pear fruits and pads, and wild beans. Planted crops included squashes and the bottle gourd, which Flannery, following a suggestion of Donald Lathrap's, believes is the New World's oldest domesticate, albeit used exclusively as a container.

No *Zea* remains, either maize or teosinte, are securely associated with preceramic levels in the cave, but if primitive maize was being grown by 5000 B.C. in the Tehuacán Valley, about 150 kilometers to the northwest, it seems likely that the Mitleños were growing this plant at the same time. Flannery remains a proponent of the origin of maize from teosinte. He recognizes, however, that the archeological evidence for this hypothesis is weak; in fact, it largely rests upon the identification by James Schoenwetter of pollen grains in early preceramic levels of the nearby Cueva Blanca as teosinte (*Z. mexicana*). Final judgment will have to be deferred until the publication of the Cueva Blanca results in a separate volume. Until then, I see little reason to dismiss the pop-podcorn hypothesis of Paul C. Mangelsdorf as untenable.

The individual contributions to the analysis of environmental data (especially pollen), artifacts, and food remains are all of the highest caliber, but no justice can be done to them here. I can only raise a query about the late Eric Callen's analysis of the coprolite sample from Guilá Naquitz. Because these contained animal hair, insect parts, beetle larvae, and "other such items," he diagnosed them as animal rather than human. Insects and their larvae still form part of the Mesoamerican diet, and, though animal hairs do not, there is still the possibility that a few of these objects might be human feces.

A unique feature of this report is that the same excavation data—occupation floors and the distribution on them of artifacts and food remains—have been subjected to three independent analyses, using computers. C. S. Spencer and Flannery concentrated on spatial variation and found that the sexual division of labor was its most important source. R. Whallon undertook a dimensional analysis of variance by excavation squares; the visual results do not conflict with Spencer and Flannery's. R. G. Reynolds performed a multidimensional scaling of four living floors, by means of which he was able to isolate not only men's and women's processing areas but also pathways into and within the cave.

The final chapter, "A visit to the master," is like the finale to a great fireworks show, a pyrotechnic display of Flannery's intellectual virtuosity. Presented in the fictional form of a supposed pilgrimage to an archeologically savvy guru, it can be read both as a wonderful parody of Castaneda's Don Juan series and as Flannery's summation and interpretation of the Guilá Naquitz results. Although Flannery, following Ernst Mayr, eschews the search for laws like those of physics in the biological and human realms and cautions against single-cause theories, he does believe that end-Pleistocene climatic changes and population growth around the world led to a density-dependent shift in human behavior, especially since emigration and high mobility could no longer be solutions to problems. The result of these changing strategies was that people, including those of southern Mexico, began to interfere with the evolution of plant species, eventually achieving domestication.

This is must reading for all those interested in early moves toward an agricultural life.

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Paleobiology

Phanerozoic Diversity Patterns. Profiles in Macroevolution. JAMES W. VALENTINE, Ed. Princeton University Press, Princeton, NJ, and Pacific Division, American Association for the Advancement of Science, San Francisco, 1985 (distributor, Princeton University Press). x, 442 pp., illus. $50; paper, $15. Princeton Series in Geology and Paleontology. From a symposium, Santa Barbara, CA, June 1982.

Paleobiology, the study of evolutionary and biological aspects of the fossil record, continues to blossom and thrive. This book is an excellent survey of paleontological data and theory relating to large-scale patterns in the history of life (macroevolution). In the 1970's, paleobiologists sought to test whether speciation occurs by gradualism or by punctuated equilibria, but they discovered that most segments of the fossil record just are not well enough dated to tell the difference conclusively. The 1980's seem to be the decade of mass extinctions and global diversity. Even if speciation cannot be readily studied in the fossil record, at least the big patterns (megaevolution, as it was once called) can be made out.

This volume of 14 papers by a cross-section of the best North American workers in the field is based on a meeting held in 1982. Regrettably, then, it predates the "cyclicity of mass extinctions" debate, and a number of the ideas presented in it have by now been published elsewhere. Nevertheless, the book contains a great deal of meat for paleontologists and evolutionary biologists.