North African Prehistory

The Sahara and the Nile. Quaternary Environments and Prehistoric Occupation in Northern Africa. MARTIN A. J. WILLIAMS and HUGUES FAURE, Eds. Balkema, Rotterdam, 1980 (U.S. distributor, Merrimack Book Service, Salem, N.J.). xvi, 608 pp., illus. + plates. $49.50.

Prehistory of the Eastern Sahara. FRED WENDORF and ROMUALD SCHILD. Academic Press, New York, 1980. xviii, 414 pp., illus. $65. Studies in Archaeology.

The "world's greatest desert" and the "world's longest river" have been the subjects of geographical, geological, and archeological study for a century or more, but only in the last decade or so have we begun to get a handle on the detailed changes in the physical and biological environments that occurred there during the last few million years. Still there remain big gaps in spatial and temporal coverage of this vast area that must be filled before some of the important questions can be answered. The authors of these two volumes have made major strides in filling those gaps on many levels, but they are among the first to point out what remains to be done.

Not only do the vastness of the Sahara and the length of the Nile make them important and intriguing to the natural scientist, they are of prime interest because of their position astride the intertropical convergence zone. The Nile delta and the northern Sahara are dominated by warm, dry summers, cool, moist winters, and westerly winds, whereas the southern margin, the Sahel, and the Nile headwaters are always warm, but the rainy season is summer and the winds are easterlies. Thus the Sahara is split into two contrasting regimes that, in terms of Quaternary climatic events, are linked to northern-latitude ice sheets, on the one hand, and to intertropical humid–dry cycles, on the other. From these facts stem the problems of paleoclimatic interpretation and temporal correlation of Quaternary events.

The Sahara and the Nile is an extremely important collection of studies on this multifaceted area. It is well organized and timely and speaks with authority, constituting a very valuable source of information for specialist and generalist alike. The volume is divided into three parts, on the Sahara, the Nile, and prehistoric occupations. The list of contributors reads like a who's who in Quaternary studies in Africa, at least for north and east Africa. The papers are written in either French or English, each with an extensive abstract in the other language, a fact that reflects the current contributions being made by French and anglophone (British, American, and Australian) scientists. Moreover, certain French authors have written in English, which will make their contributions more widely available. While some articles are concise summaries of the "state of the art," others are lengthy, detailed reports of very recent research. All the papers include valuable bibliographies, and the book has extensive indexes of subjects, place names, and authors cited. Most of the papers are well illustrated.

Several papers (for example those by M. Mainguet *et al.*, A. B. Smith, and M. R. Talbot) deal with the origin of the Sahara and its repeated shrinkage and expansion in recent geologic time. In mid-Tertiary time the area now known as the Sahara shifted from a humid to its present arid regime, and at the same time southern Africa underwent an exactly opposite climatic shift. In the Sahel stabilized dunes witness the former expansion of the southern fringe of the Sahara, and extensive river deposits of the Niger document periods of more regular and more abundant rainfall in the past. Several authors underscore the unstable character of the Saharan-Sahelian climate on several scales—that of the whole Quaternary, that of the 100,000-year "glacial" cycle, and finally that of the historic period, including the 1968–1973 Sahelian drought. The lesson to be learned here is that humans have not created the desert or its expansions, but that they must learn to live with the fickle climatic regime of such a region.

As I have mentioned, the origin of the Sahara and its Quaternary fluctuations are covered in detail, but modern conditions are not ignored. S. E. Nicholson provides abundant detail on historic climatic change and S. E. Smith reviews the culture of nomadic peoples in the western Sahel as an ethnological analogue of prehistoric adaptations that must have taken place during similar climatic changes in the same area.

The late Quaternary history of the lower Nile (K. W. Butzer) and of its headwaters (M. A. J. Williams and D. Adamson) is reviewed in detail. Here complications stem not only from the contrast between temperate delta and tropical headwaters, but also from contrasting geological controls. Williams points out that the lower Nile, up to the First Cataract, has been largely under the eustatic influence of changing Mediterranean sea levels since mid-Tertiary time, whereas upstream the fluvial regime has varied as a complex function of tectonic control and volcanic activity, as well as of climatic changes. Although complicated, the fluvial sequence along the Nile forms a bridge between tropical and temperate latitudes that holds great promise for sorting out the relations of shifting climates of the Quaternary, especially the "pluvial" question.

Turning to the second book, *Prehistory of the Eastern Sahara*, we find some important gaps being filled, at least for one part of the Sahara. This volume deals with the most desertic, the driest and least hospitable, part of the Sahara, but the area was not always that way. One reads of lake beds, flowing wadis, and big springs and relatively abundant vegetation and large mammals in an area that receives less than 0.5 millimeter of rainfall per year at present and where almost no one ventures in modern times.

Wendorf, Schild, and colleagues continue to gather information on this part of the world, where they have already made major contributions to our knowledge. Wendorf and Schild's *Prehistory of the Nile Valley* (Academic Press, 1976) and before that Wendorf's *The Prehistory of Nubia* (Fort Burgwin Research Center and Southern Methodist University Press, 1968) documented archeological manifestations and Quaternary history of the lower and middle Nile Valley. Lots of water has flowed down the Nile, as far as Quaternary history is concerned, since those salvage efforts reported in the 1968 volume. In an earlier review (*Am. Anthropol.* **79**, 965 [1977]) I pointed out that the 1976 book was essentially a progress report on information gathered by Wendorf and colleagues in the decade since the Nubian studies.

The first 220 pages of the present volume, much like its 1976 predecessor, document abundantly the archeological finds and their geologic contexts. The book is replete with maps, plans of artifact scatters, drawings of artifacts, and so on. It goes much farther than its predecessor, however, in the direction of interpretation and integration of these data, and understandably so because the data are becoming abundant enough for the evaluation of certain previously un-

testable hypotheses. Numerous comparisons and contrasts are made with all the Sahara and its Sahelian and Maghrebian borderlands with respect to cultural evolution and environmental changes.

Six years of expeditions (1972–1977) are reported on here; in general, each year was devoted to a different area of the "Western Desert," roughly the southwestern quarter of the country of Egypt. The introductory parts of chapters 1 through 5 are very readable accounts of logistics and life in this uninhabitable area. Everything must be brought along by the expedition: food, water, vehicle fuel, and fodder for the animals that will be eaten by the human members of the party. Stories of events that are quite amusing, at least in retrospect, punctuate these accounts and provide a vivid picture of expeditionary life. These include stories of a cobra in a tent during a sandstorm, the selection of the noisiest ducks for dinner, and a publicity plug for Volkswagen 181's for desert travel.

The two central chapters of the book deal with paleoenvironment and prehistoric exploitation of the Western Desert, mainly in late Quaternary ("Late Acheulian" to "Neolithic") time. It is amazing to read of relatively humid climates, with estimated annual rainfall of 100 to 300 millimeters, in this now almost totally dry country. The relatively humid, but still no better than semiarid, phases are labeled by their archeological content: pre-late Acheulian, Acheulian, Middle Paleolithic, and Holocene. Absolute dating is available only for the Holocene wet phase, and the "geochemical" problem of radiocarbon analyses is mentioned repeatedly and discussed specifically in chapter 7 by Haas and Haynes. Some Middle Paleolithic sites and presumed contemporaneous pluvial manifestations elsewhere (Chad and Saoura basins, for example) have yielded finite dates in the 30,000- to 40,000-year range. All finite ages in this range are rejected, however, and the Middle Paleolithic can be dated only as having occurred more than 40,000 years ago.

A series of appendixes by specialists completes the book. Geological evidence is presented throughout the preceding chapters, but an appendix by R. Said on Quaternary sediments of the Western Desert and another by C. V. Haynes on evidence of pluvial climates in the Nabta area are of particular value for the geologic reader. A. Gautier lists and describes the vertebrate and invertebrate faunas recovered in the area. Other appendixes deal with ceramics, artifact styles, vegetation, a human mandible, inter- and intrasite spatial analysis, and scanning electron microscopy of cereal grains from various areas in the Western Desert.

Of prime importance for many readers are the questions of plant and animal domestication in the entire Saharan area, and these questions are treated in some detail in both of these volumes. Neolithic peoples with domesticated cattle and cereals were widely distributed throughout and around the Sahara during the Holocene wet phase, but what were their origins? In *The Sahara and the Nile* J. D. Clark concludes that the earliest African sites with domesticates are in the Sahara but that there are only two or three of them. A. B. Smith points out that, although animal domestication originated with sheep and goats in the Middle East, the idea may have been applied to cattle first in Africa. The evidence for domesticated cattle in the archeological record, however, is still too sparse to be convincing, perhaps, as Wendorf and Schild suggest, because Neolithic cattle in Africa were used as modern cattle are, primarily for milk and blood, and not butchered for their meat. Thus, few bones would appear in archeological sites.

For the Sahel, A. B. L. Stemler (in *The Sahara and the Nile*) sees the sequence of cattle domestication leading to increased human population, in turn encouraging utilization of wild, native African cereals (*Pennisetum, Sorghum*) to support the augmented population. Ultimately, times of drought would lead to cultivation of those local plants more or less simultaneously in a number of Sahelian loci.

With respect to domestication of wheat and barley, on the other hand, the recently reported discovery by Wendorf and colleagues of grains of barley and einkorn wheat on the Nile as early as 18,000 years ago raises a number of interesting questions. The evidence is reviewed in chapter 8 of *Prehistory of the Eastern Sahara*, where Wendorf and Schild reject their earlier hypothesis of intensive gathering of wild grains and embrace the idea that these cereals were cultivated. One of the perplexing aspects of this discovery is that domesticated grains disappear from the Nile Valley somewhat less than 18,000 years ago, only to reappear in abundance right at the beginning of the Holocene wet phase in the Western Desert, but not in the Nile Valley. Perhaps, the authors point out, it is largely a matter of lack of evidence, because the low water level and very restricted floodplain along the Nile after 18,000 years ago was followed around 12,500 years ago by unusually high Nile flood levels. On the other hand, the explosion of grain domestication in the desert after 10,000 years ago runs in opposition to Childe's "oasis theory" for the origin of plant domestication. At that time the climate was becoming more favorable and human populations were expanding into new territory, not being crowded into shrinking oases. Wendorf and Schild close their remarks on domestication with the speculation that the wild ancestors of wheat and barley must have existed along the Mediterranean fringe of Egypt, in the Sinai, or in the Near East because the climate of southern Egypt was not favorable. These cereals were introduced to the middle Nile by people who had domesticated them elsewhere earlier than 18,000 years ago. This argument leads to the hypothesis that pre-Neolithic but grain-using cultures, such as the Kebaran and Natufian of the Near East, may already have been dependent on cultivated grains, rather than the inverse hypothesis that the use of wild grain by those peoples led to domestication of cereals.

These two volumes taken together provide a wealth of information on the Sahara, its encircling lands, and its major river. In them one can follow the evolution and fluctuations of the desert itself from mid-Tertiary times, as well as human adaptations from late Quaternary to historic times. They will be essential and rewarding sources for any serious student of the Sahara or of the Nile Valley.

WILLIAM R. FARRAND
Department of Geological Sciences, University of Michigan, Ann Arbor 48109

On the Course of Society

Soviet and Western Anthropology. Papers from a conference, Burg Wartenstein, Austria, 1976. ERNEST GELLNER, Ed. Columbia University Press, New York, 1980. xxvi, 286 pp. $37.50.

Marxist social science, including Marxist anthropology, has many mansions in its house, but the Soviet anthropologists whose essays appear in *Soviet and Western Anthropology* are committed to views of both history and science that are sharply different from those held by most Western anthropologists. The Soviet anthropologists base their research and analysis on a view of human behavior rooted in the Marxist philoso-