Cite as:

2001 D. Lubell. Late Pleistocene-Early Holocene Maghreb. In, P.N. Peregrine & M. Ember (eds.) Encyclopedia of Prehistory, Volume 1: Africa. New York: Kluwer Academic/Plenum Publishers, pp. 129-149.

Late Pleistocene–Early Holocene Maghreb

ABSOLUTE TIME PERIOD: >20,000–7500 B.P.

RELATIVE TIME PERIOD: Follows the Aterian and precedes both the Neolithic of Capsian tradition and the Southern Mediterranean Neolithic.

LOCATION: Northwest Africa from approximately 28° N on the west at the Atlantic to 36° N on the east at the Gulf of Gabès (modern Tunisia, Algeria, and Morocco) and as far east as Cyrenaica (22° E).

DIAGNOSTIC MATERIAL ATTRIBUTES: Stone tools made from flakes and blades, frequently microlithic, characterized by backing; microburin technique for the production of geometric forms; probably heat treatment of raw materials; and frequent use of red ocher to coat implements. Extensive use of bone (including human) for implements in some regional subtraditions, as well as bone, occasional marine shell, and ostrich eggshell ornaments and ostrich eggshell containers. Sites are open air and in caves or rock shelters and frequently contain large numbers of human burials.

REGIONAL SUBTRADITIONS: Iberomaurusian (including Eastern Iberomaurusian), Western tradition (Columnatian, Keremian, Elassolithic), Eastern tradition (Capsian, Southern Tunisian bladelet industry).

IMPORTANT SITES: Afalou bou Rhummel, Aïn Dokkara, Aïn Misteheyia, Columnata, Dra-Mta-El-Ma-El-Abiod, Haua Fteah, Kef Zoura D, Mechta el-Arbi, Medjez II, Ouchtata, Rabah, Relilai, Taforalt, Tamar Hat.

CULTURAL SUMMARY

Environment

Climate. From approximately 30,000–20,000 B.P., that is, before the Last Glacial Maximum (LGM; c. 20,000–18,000 B.P.), the region was relatively cool and arid with expanded steppe and decreased forest cover, probably indicative of mean annual precipitation of <500 mm per year over much of the area. These conditions appear to have continued through the LGM until c. 15,000–14,000 B.P., when increased frequencies of shrub and tree pollen in a number of marine and terrestrial samples indicate greater humidity. This initiated a trend that was not, however, consistent. During the cold and dry Younger Dryas in Europe (c. 10,800–10,200 B.P.), North Africa also experienced a relatively arid phase, evidenced in part by lowered water levels in Lake Chad. After 10,000 B.P., humidity increased again, and at this time the vegetation zones of the Sahara appear to have had limits similar to modern ones. Moist conditions continued, reaching a maximum between c. 9000–8000 B.P. This was followed by a short but severe arid phase (found worldwide) with dates for North Africa centered around c. 7500 B.P., and then by continued

increasing aridity from c. 6500–5500 B.P., but still more humid than at present.

Topography. The region is characterized today by a rapid north-south topographic transition: from the coastal plain to the Atlas mountains with elevations in excess of 2000 m above sea level, sometimes within less than 100 km; to interior plateaus with average elevations about 1000 m above sea level; then dropping rapidly, in some areas to below modern sea level, to the northern border of the Sahara.

During the LGM, the coastal plain was somewhat broader than today, significantly so in the Gulf of Gabès off the east coast of modern Tunisia. There may be inundated prehistoric sites, but none have so far been located. On the interior high plateaus, there is evidence for at least two periods of major erosion. Many Capsian sites, dated no earlier than 8500 B.P., sit unconformably on a widely observed erosional surface, sometimes called the Soltanian glacis, at one time dated to the LGM, although this is no longer certain. Many other sites have been destroyed by erosion that postdates c. 6500 B.P., and there are a few instances of minor and isolated earlier sites contained in erosional deposits dating to c. 11,000 B.P. It is clear that there have been relatively major land form changes during the past 18,000 years as slopes were eroded and basins filled with sediment.

Geology. Although there are some igneous and volcanic deposits (largely of Miocene age), the bedrock geology is composed primarily of limestones and sandstones laid down during the Jurassic (restricted to the western part), Mesozoic (primarily Cretaceous), and earlier Tertiary. Uplift, beginning in the Early Cretaceous, led to formation of the Atlas mountains. Mineral resources are restricted mostly to iron ore; coal is found in a limited number of localities; and oil and gas deposits are extensive, especially south of the Maghreb proper.

Quaternary deposits are extensive. They consist of numerous facies, varying from consolidated marine dunes along the Mediterranean coast to some early Quaternary volcanic deposits in the Middle Atlas of Morocco. In the main, Quaternary deposits are calcareous (sometimes with indurated or lateritic crusts) and found in either fluviatile or lacustrine depositional contexts. The soils formed on these substrates provided extremely productive land during and after the Roman colonization, but productivity has declined sharply in the last half of the 20th century because of monocrop agriculture, land mismanagement, and erosion. Very high quality flint, used for the manufacture of prehistoric stone tools, was and still is abundant in many areas, especially in the limestones that form ridges and escarpments on the high interior plateaus as well as along the coast.

Biota. Modern vegetation cover is Mediterranean maquis or woodland, the latter predominantly evergreen oak (*Quercus ilex*) and pine (*Pinus halepensis*) with some pistachio and other nut or fruit trees. This cover occurs where humidity permits—mostly at higher elevations. The interior plateaus are generally covered by semiarid steppe (*Artemisia*, *Stipa* or both). Depending on date and locale, vegetation cover in the past 20,000 years was much the same but generally more abundant, partly because degradation during the past 2000 years has been accelerated.

During cooler and more humid periods, forest cover expanded, and areas now suitable only for low-intensity grazing were savannas with a high biomass-carrying capacity. In these latter, there were abundant mammals including (in order of decreasing size) aurochs (*Bos primigenius*), hartebeest (*Alcelaphus buselaphus*), zebra (*Equus mauritanicus*), boar (*Sus scrofa*), gazelle (G. *dorcas* and G. *cuvieri*), jackal (*Canis aureus*), and lagomorphs (*Lepus capensis* and *Oryctolagus cuniculus*) as well as birds, rodents, fish, and several species of large edible land snails (especially *Helix aspersa*, H. *melanostoma*, *Otala* species, and *Leucochroa candissima*). Barbary sheep (*Ammotragus lervia*) were common in the coastal region, and given modern patterns we can probably assume that the Barbary ape (*Macaca sylvana*) was also present, despite the absence of evidence from archaeological deposits.

Settlements

Settlement System. Caves, rock shelters, and open-air locales were all used. During the Iberomaurusian (roughly 20,000–10,000 B.P. and more or less restricted to the coastal zone), large, deep caves appear to have been used more often than open-air locales, and, in at least one case (Tamar Hat), the stratigraphic sequence spans the entire duration of this subtradition. Human remains are common and at Taforalt (Morocco) and Afalou (Algeria) suggest cemeteries. Sites of this earlier period tend to be fairly widely separated in space. The younger sites of the Eastern and Western traditions are mostly located inland, and although commonly found in rock shelters (e.g., Relilai) and caves (e.g., Columnata, where there is also a cemetery), tend to be open air. These latter are mounds, ranging in size from a few to several hundred m^2 in area, composed of occupational debris including lithic and bone artifacts, faunal re-

mains, and large amounts of fire-cracked rock. The enormous quantities of whole and crushed land-snail shell found in many of these mounds led Francophone archaeologists to call them *escargotières*, whereas the dark gray color of the deposits that result from the large amounts of ash and charcoal has led the local Arabic-speaking population to call them *ramadiya*. Sites of these later subtraditions are often so numerous as to preclude any possibility that more than a few in any one area could have been occupied simultaneously.

Community Organization. There is little or no evidence for internal community organization other than the presence of hearths, concentrations of debris resulting from a variety of domestic activities, or both. Human burials, more often than not, appear to have been placed in these deposits rather than in separate areas.

Population, Health, and Disease. Francophone and anglophone physical anthropologists working in the first half of this century and up to the late 1960s have tended to distinguish physical types, often called races, among the numerous human remains found. More recent analyses suggest that this typological approach is based on flawed assumptions and that biological continuity is a more likely explanation—while not excluding the possibility of some genetic input from outside. Complete reanalysis of the major samples, combined with DNA extraction and analyses, would do much to resolve outstanding questions of population movements and relationships. The low incidence of recorded pathologies resulting from either infection or trauma suggests that these populations were quite healthy. Paleodemographic estimators suggest that both Iberomaurusian (Taforalt) and later (Columnata) populations were increasing rather than stable or declining.

Economy

Subsistence. Subsistence was based on hunting, snaring, and collecting a variety of animals and, presumably, collection of fruits, nuts, and other vegetable foods although there is almost no direct evidence for the plant component of the diet.

Wild Foods. For the Iberomaurusian, only one modern study (Tamar Hat) provides detailed evidence for the animal component of the diet. The major source of animal protein appears to have been Barbary sheep, with evidence for a variety of other animals including bovid, cervid, suid, equid, antelope, gazelle, Barbary ape, carnivore (probably not a food source), fish, and both marine and terrestrial mollusks. For the Capsian, which follows the Iberomaurusian but appears to be absent from most if not all the coastal region, the list is equally broad but rather different, reflecting the inland ecological conditions. Hartebeest, aurochs, wild boar, zebra, gazelle, hare, and rabbit are all well represented among the faunal remains, but the dominant visual component is the millions of land-snail shells, primarily from four species: *Helix aspersa*, H. *melanostoma*, *Otala* species, and *Leucochroa candissima*, in order of decreasing numbers. Despite their abundance, it is doubtful that land snails were the major source of animal protein in the diet. Limited data for Western tradition sites suggest a similar pattern.

Domestic Foods. There is no evidence for domesticated animals before the earliest Neolithic of Capsian tradition at Grotte Capéletti (Algeria) when domesticated ovicaprids suddenly appear. Hypotheses about the domestic status of Barbary sheep in the Iberomaurusian at Tamar Hat have been discounted. Direct evidence for the plant component of the diet is insufficient to assess the possibility of domesticated plants.

Industrial Arts. Stone and bone implements, the former used to manufacture the latter, are the only evidence we have. Wood was presumably also used, but none has survived. Stone tools were made of locally available high-quality flint, which was worked by percussion and pressure flaking; there is some evidence for heat treatment, and tools were sometimes coated with ocher, which may have been dissolved in solution as well as applied dry. Bone tools were made from both animal and human bone, and were sometimes decorated and also sometimes covered with red ocher. Ostrich eggshell was used to make beads and containers, the latter almost always decorated with incised geometric designs.

Utensils. Chipped stone artifacts consist of a wide variety of forms (over 100 defined types) manufactured from locally available flint by using a combination of direct and indirect percussion flaking as well as pressure flaking. Both flakes and blades were used as blanks, struck from, for the most part, single platform cores, which were sometimes heat treated to improve the fracture properties of the flint. Although there are larger artifacts (>10 cm maximum dimension), the majority are microlithic ≤5 cm) and made on blades or bladelets. Backed forms (those with one edge blunted by retouch) are common, as are (depending on the facies) end scrapers, burins, and geometric microliths, the last manufactured by using microburin technique. Most, if

not all, these implements would have been used as elements of composite tools.

Ornaments. The presence of ocher in many, if not all, sites has suggested to some researchers that body decoration was practiced. There is, of course, no direct evidence. In addition, there are numerous mollusk shells—terrestrial, freshwater, and marine—that were perforated or otherwise modified in ways suggesting suspension as pendants or necklaces or other jewelry (as well as a few rare instances of pebbles that may have been intentionally perforated). Removal (avulsion) of maxillary and/or mandibular central and sometimes even lateral incisors was common among Iberomaurusian groups and apparently more frequent for males than for females. This practice also occurred in Capsian groups but was neither so common nor so systematic.

Trade. The only evidence to suggest trade is the presence of worked marine gastropod shell (principally *Nassa gibbosula* and *Columbella rustica*) at Capsian sites far removed from the Mediterranean. In the succeeding Neolithic, there is clear evidence for outside contacts and importation of domestic animals (especially ovicaprids), raw material (obsidian), and manufactured items or the knowledge of how to make them (cardial-impressed ceramics).

Sociopolitical Organization

Social Organization. There is little, if any, evidence to inform us directly of the social organization. We can hypothesize, on the basis of site dimensions, depth of deposits, and to some extent the number of human burials recovered from single sites, that Iberomaurusian group sizes may have been fairly large and that at least some of the sites functioned as base camps or perhaps locales to which members of the same or descendant groups regularly returned. Capsian sites vary more widely in dimension, and none contains deposits indicating the same duration of usage although radiocarbon dating has shown that some sites were (re)used over periods of 2000–3000 years. The wide variation in site sizes suggests that some may have functioned as central places whereas others were more transitory encampments, but the degree to which this difference reflects social organization has as yet to be investigated.

Religion and Expressive Culture

Arts. Evidence for artistic expression in the Iberomaurusian is limited and on the basis of present evidence appears to be restricted to the use of ocher and the modification of mollusk shells for ornamentation. In the Capsian, use of ocher continued, ostrich eggshell was used for the manufacture of beads and heavily decorated containers, and shells of marine, fresh water, and terrestrial mollusks were all modified for suspension. In addition, there are a number of limestone slabs engraved with both representational scenes and abstract designs, as well as engraved, shaped, and sculpted pebbles—some clearly figurative and representational, others more difficult to interpret.

Death and Afterlife. Burial in both the Iberomaurusian and the Capsian was often primary, in a constructed grave (varieties appear to include dug pits, stone cairns, stone-lined depressions, or some combination), with the deceased in either flexed or extended position and frequently strewn with red ocher. In Capsian sites, there is also some evidence for secondary burial (i.e., of partially decomposed cadavers, re-collected bones, or both) but these are never ossuary burials. Sometimes portions of the skeleton were used presumably as ritual items (e.g., a mandible from Columnata and the "trophy skull" from Faid Souar) and also for the manufacture of implements.

Suggested Readings

Adams, Jonathan M., Hughes Faure, and QEN members, eds. (1997). *Review and Atlas of Palaeovegetation: Preliminary Land Ecosystem Maps of the World since the Last Glacial Maximum*. Oak Ridge: Oak Ridge National Laboratory, Tennessee.

Balout, Lionel (1955). *Préhistoire de l'Afrique du Nord: Essai de chronologie*. Paris: Arts et Métiers Graphiques.

Balout, Lionel (1958). *Algérie Préhistorique*. Paris: Arts et Métiers Graphiques.

Brahimi, Claude (1972). *Initiation de la Préhistoire de l'Algérie*. Algiers: Société Nationale d'Edition et de Diffusion.

Breitborde, L. B., ed. (1992). *Alonzo Pond and the 1930 Logan Museum Expedition to North Africa: The 1985 Beloit College Symposium*. Beloit, Wisc.: Museums of Beloit College.

Briggs, Lloyd Cabot (1955). *The Stone Age Races of Northwest Africa*. Cambridge, Mass.: Peabody Museum, Harvard University, Bulletin of the American School of Prehistoric Research No. 18.

Camps, Gabriel (1974). *Les Civilisations Préhistoriques de l'Afrique du Nord et du Sahara*. Paris: Doin.

Camps, Gabriel, and Henriette Camps-Fabrer (1972). "L'Épipaléolithique récent et le passage au Néolithique dans le Nord de l'Afrique." In *Die Anfänge des Neolithikums vom Orient bis Nordeuropa, 7: Westliches Mittelmeergebiet und Britische Inseln*, ed. J. Lüning. Vienna: Fundamenta, Reihe A, Bd. 3, 19–59.

Camps-Fabrer, Henriette (1966). *Matière et art mobilier dans la Préhistoire nord-africaine et saharienne*. Paris: Arts et Métiers Graphiques (Mémoire du C.R.A.P.E. No. 5).

Camps-Fabrer, Henriette (1975). *Un Gisement Capsien du faciès Sétifien: Medjez II, El-Eulma (Algérie)*. *Paris: Centre National de la Recherche Scientifique*.

Chamla, Marie-Claude (1979). "Le Peuplement de l'Afrique du Nord de l'Epipaléolithique à l'époque actuelle." *L'Anthropologie* 82: 385–430.

Close, Angela, and Fred Wendorf (1989). "North Africa at 18,000 B.P." In *The World at 18,000 B.P. Vol. 2: Low Latitudes*, ed. C. Gamble and O. Soffer. London: Unwin Hyman, 41–56.

Fontes, J. C., and F. Gasse (1989). "On the Ages of Humid Holocene and Late Pleistocene Phases in North Africa—Remarks on "Late Quaternary Climatic Reconstruction for the Maghreb (North Africa)" by P. Rognon." *Palaeogeography, Palaeoclimatology, Palaeoecology* 70: 393–398.

Hooghiemstra, Henry, H. Stalling, C. O. C. Agwu, an L. M. Dupont (1992). "Vegetational and Climatic Changes at the Northern Fringe of the Sahara 250,000–5000 Years B.P.: Evidence from 4 Marine Pollen Records Located between Portugal and the Canary Islands." *Review of Palaeobotany and Palynology* 74: 1–53.

Jolly, D., S. P. Harrison, B. Damnati, and R. Bonnefille (1998). "Simulated Climate and Biomes of Africa during the Late Quaternary: Comparison with Pollen and Lake Data." *Quaternary Science Reviews* 17: 629–657.

Lubell, David (1984). "Paleoenvironments and Epipaleolithic Economies in the Maghreb (ca. 20,000 to 5000 B.P.)." In *From Hunters to Farmers: Considerations of the Causes and Consequences of Food Production in Africa*, ed. J. D. Clark and S. Brandt. Berkeley and Los Angeles: University of California Press, 41–56.

Lubell, David, F. A. Hassan, A. Gautier, and J.-L. Ballais (1976). "The Capsian *escargotières*." *Science* 191: 910–920.

Lubell, David, P. Sheppard, and M. Jackes (1984). "Continuity in the Epipaleolithic of Northern Africa with Emphasis on the Maghreb." In *Advances in World Archaeology, Vol. 3*, ed. F. Wendorf and A. Close. Orlando, Fla.: Academic Press, 143–191.

Lubell, David, P. Sheppard, and A. Gilman (1992). "The Maghreb." In *Chronologies in Old World Archaeology*, 3rd edn, ed. R. W. Ehrich. Chicago: University of Chicago Press, 305–308 (Vol. 1) and 257–267 (Vol. 2).

McBurney, Charles B. M. (1960). *The Stone Age of Northern Africa*. Harmondsworth: Penguin.

Pond, Alonzo W., L. Chapuis, A. S. Romer, and F. C. Baker (1938). *Prehistoric Habitation Sites in the Sahara and North Africa*. Beloit, Wisc.: Logan Museum Bulletin No. 5.

Quézel, P. (1978). "Analysis of the Flora of Mediterranean and Saharan Africa." *Annals of the Missouri Botanical Garden* 65: 479–534.

Roche, Jean (1963). *L'Epipaléolithique Marocaine*. Lisbon: Fondation Calouste Gulbenkian.

Roche, Jean (1972). "Les Cultures épipaléolithiques du Maroc." In *Die Anfänge des Neolithikums vom Orient bis Nordeuropa*, 7: *Westliches Mittelmeergebiet und Britische Inseln*, ed. J. Lüning. Vienna: Fundamenta, Reihe A, Bd. 3, 1–18.

Rognon, Pierre (1987). "Late Quaternary Climatic Reconstruction for the Maghreb (North Africa)." *Palaeogeography, Palaeoclimatology, Palaeoecology* 58: 11–34.

Roubet, Colette (1979). *Economie pastorale préagricole en Algérie Orientale: Le Néolithique de Tradition Capsienne*. Paris: Centre National de la Recherche Scientifique.

Sheppard, Peter J. (1987). *The Capsian of North Africa: Stylistic Variation in Stone Tool Assemblages*. Oxford: British Archaeological Reports, International Series 353.

Sheppard, Peter, and D. Lubell (1990). "Early Holocene Maghreb Prehistory: An Evolutionary Approach." *Sahara* 3: 63–69.

Tixier, Jacques (1963). *Typologie de l'Epipaléolithique du Maghreb*. Paris: Arts et Métiers Graphiques (Mémoire du C.R.A.P.E. No. 2).

Tixier, Jacques (1967). "Procédés d'analyse et questions de terminologie concernant l'étude des ensembles industriels du Paléolithique récent et de l'Épipaléolithique dans l'Afrique du Nord-Ouest." In *Background to Evolution in Africa*, ed. W. W. Bishop and J. D. Clark. Chicago: University of Chicago Press, 771–820.

Vaufrey, Raymond (1955). *Préhistoire de l'Afrique, T. 1: Maghreb*. Paris: Masson.

Vernet, Robert (1995). *Climats anciens du Nord de l'Afrique*. Paris: L'Harmattan.

SUBTRADITIONS

Capsian

TIME PERIOD: 10,000–7500 B.P.

LOCATION: Northwest Africa from approximately 28° N on the west at the Atlantic to 36° N on the east at the Gulf of Gabès (modern Tunisia, Algeria, and Morocco) and, with an intervening area devoid of any evidence, and as far east as Cyrenaica (22° E).

DIAGNOSTIC MATERIAL ATTRIBUTES: Stone tool industry with two major variants: Typical Capsian characterized by nonmicrolithic and microlithic flake and blade tools, with high frequencies of backed implements, burins, and end scrapers; Upper Capsian with abundant and varied geometric microliths, backed bladelets, and notched or denticulated pieces. A wide variety of bone tools (especially awls and needles) is found as well as shell beads (both marine and ostrich) and decorated bone and shell (including ostrich shell containers). Sites are either open air or in caves and rock shelters, and the deposits are characteristically dark gray (because of abundant charcoal, ash, and fire-cracked rock) with enormous numbers of land-snail shells.

CULTURAL SUMMARY

Environment

During the cold and dry Younger Dryas in Europe (c. 10,800–10,200 B.P.), North Africa experienced a relatively arid phase, evidenced in part by lowered water levels in Lake Chad. After 10,000 B.P., humidity increased again, and at this time the vegetation zones of the Sahara appear to have had limits similar to modern ones. Moist conditions continued, reaching a maximum between c. 9000 and 8000 B.P. This was followed by a short but severe arid phase (found worldwide) with dates for North Africa centered around c. 7500 B.P., and then by

continued increasing aridity from c. 6500–5500 B.P., but still more humid than at present (Adams et al. 1997; Vernet 1995, both with extensive bibliographies).

For the Capsian specifically, analyses of charcoal (Couvert 1972, 1975, 1976, 1977; Renault-Miskovsky 1985) and faunal remains (Bouchud 1975; Lubell 1984; Lubell et al. 1975, 1976, 1982–1983, 1984; Morel 1974; Pond et al. 1938) from archaeological deposits, in addition to pollen and other data (Farrand et al. 1982; Lamb et al. 1989, 1995; Ritchie 1984), provide a relatively good idea of climatic and ecological conditions. Vegetation cover was open woodland savanna, probably not too different in many respects from modern East African environments, with Mediterranean forests and maquis at higher elevations and/or where humidity was higher. An abrupt, short-lived period of climatic instability (Alley et al. 1997) at about the same time as the establishment of *Quercus* forests (Marret and Turon 1994) is correlated with a change in Capsian technology, which we believe has been identified at several sites (Lubell et al. 1984: 182–184; Sheppard 1987; Sheppard and Lubell 1990; and unpublished data for Aïn Misteheyia and Kef Zoura D).

Settlements

Capsian sites are usually found inland from the modern littoral, especially on the high interior plateaus of Algeria west and south of Constantine and in Tunisia near Gafsa—ancient Capsa from which this industry takes its name (Lubell et al. 1984: Fig. 3.1). The density of sites is very high (noted by Balout 1955: 397 and Vaufrey 1955: 234, but see especially Grébénart 1976 and Lubell et al. 1976: Fig. 1), and they are often located near springs or passes. Although sites do occur in caves and rock shelters, they are more common as open-air mounds, which vary in size from a few to several hundred m^2 and in depth from less than 1 m to well over 3 m. The common component of almost all Capsian sites is the enormous numbers of whole and crushed land-snail shells, which has led Francophone archaeologists to call the sites *escargotières*, while local Arabic speakers refer to them as *ramadiya* because of the dark gray color of the ash-rich deposits that suggested to some Francophone archaeologists that they should perhaps be called *cendrières* (Gobert 1937; Morel 1974: 299). Other than hearths and burial cairns, no clear structures have ever been identified in these sites, despite careful modern excavations at Aïn Misteheyia, Dra-Mta-El-Ma-El-Abiod, Kef Zoura D, Medjez II, and Relilai (however, see Tixier et al. 1976). Our understanding of the structure of the deposits and the manner of their accumulation remains much as Pond described it (Pond et al. 1938: 109):

> A group of refuse heaps welded into a single mound ... composed of snail shells, camp fire ashes, hearth stones, animal bones and tools of bone and flint. It often contains human skeletons. Many present saucer-shaped depressions and hard-packed areas which seem to have been habitation floors. On many of these "floors" hearths or fire places, areas of burned stone, and deep beds of ashes are found.

This characterization is echoed by Francophone archaeologists:

> Un magma de lentilles de rejets qui ont été accumulées dans un désordre total et que les remaniements, la pluie et le vent, le tassement naturel ont, selon l'heureuse expression de L. Balout (1955, p. 392), «moulé en un ensemble». Les coupures stratigraphiques naturelles que constituent, par exemple, un lit de coquilles écrasées par le piétinement ou une mince couche de sable soufflé par le vent du Sud, y sont rares et toujours discontinues; la stratigraphie artificielle elle-même n'offre pas de garantie absolue (Morel 1974: 300).

Despite these difficulties (which appear to apply only to the open-air middens and not to those in caves or rock shelters), occupational surfaces have been defined in at least one Capsian site and the stratigraphy reconstructed by using a variety of geoarchaeological methods (Lubell et al. 1976).

Economy

First defined by de Morgan (1910), the Capsian is traditionally divided into two variants initially based almost exclusively on characteristics of the stone tool assemblages: Typical Capsian (*Capsien typique*) and Upper Capsian (*Capsien supérieur*). Although thought at one time to represent an evolutionary sequence (Typical to Upper; cf. Vaufrey 1936), radiocarbon dating of well-controlled stratigraphic sequences has demonstrated that the two variants are often contemporary (Camps 1968; 1974; Grébénart 1976; Lubell 1992; Lubell et al. 1984), leading to a reinterpretation of the traditional sequence (Sheppard and Lubell 1990).

Typical Capsian is characterized by abruptly backed tools made on macrolithic flakes and blades, abundant truncation burins (over 25% of retouched tools on average), end scrapers, and a significant proportion (±20%) of backed bladelets but very few (10%) geometric microlithics although microburin technique is always present (see Camps 1974; Inizan 1976; Lubell et al. 1986; Sheppard 1987; Tixier 1963, 1976). Bone

tools are present but in limited variety (Camps-Fabrer 1966).

Upper Capsian is characterized by abundant and varied geometric microliths and numerous forms of backed bladelets although the larger tools of the Typical Capsian are present in regions of abundant raw material. Bladelets were probably manufactured by using pressure (Tixier 1976), but the suggestion (Inizan et al. 1976) that heat treatment was used cannot be confirmed (Sheppard and Pavlish 1983).

Burins tend to be less common than in the Typical Capsian but there is considerable variability in this (cf. Grébénart 1976; Lubell et al. 1984: 153). Variability within Upper Capsian stone tool assemblages has led Camps (1974) to propose three phases (Early, Middle, and Recent) found in five regional facies (Tebessa, Setif, Central, Tiaret, and Southern). These are in addition to a series of other, more-or-less contemporary, regional variants (Southern Tunisian Bladelet Industry, Columnatian, Elassolithic, Keremian, Eastern Oranian, and Libyco-Capsian—see Lubell et al. 1984: 154–157, for brief definitions and essential references).

This variability is reviewed in detail by Lubell et al. (1984: 177ff.; see also Sheppard and Lubell 1990), who proposed on the basis of multiple variables (archaeological, chronological, osteological, paleoenvironmental) that the most parsimonious division is into a Western tradition (incorporating Columnatian, Keremian, and Elassolithic) and an Eastern tradition (Typical and Upper Capsian and perhaps some of the later Iberomaurusian from this region).

The Capsian subsistence pattern has been the subject of investigation by several interdisciplinary teams beginning with the Logan Museum Expeditions in the 1920s and 1930s (Lubell 1992; Pond et al. 1928, 1938). Research in the Télidjène Basin south of Tebessa in Eastern Algeria (Lubell et al. 1975, 1976, 1982–1983), at Medjez II near Setif (Camps-Fabrer 1975), and at Dra-Mta-El-Ma-El-Abiod on the Algerian side of the border but near Gafsa in Tunisia (Morel 1974, 1977, 1978, 1980, 1981) has provided sufficient data for a partial reconstruction (a general overview is given by Camps and Morel 1982). Investigations at the partly contemporary Neolithic of Capsian tradition site called Grotte Capéletti in the Aurès (Roubet 1979) provide additional information.

Despite their frequency in site deposits, we know that the five major species of land snails found (*Helix aspersa*, H. *melanostoma*, *Leucochroa candissima*, *Helicella setifensis*, *Otala* species), all of which still occur in the region today, were not the major source of animal protein in the diet. That protein source was a number of vertebrates ranging in size from very large to very small and including aurochs (*Bos primigenius*), hartebeest (*Alcelaphus buselaphus*), zebra (*Equus mauritanicus*), mouflon (*Ammotragus lervia*), gazelle (*Gazella dorcas*, G. *cuvieri*), and lagomorphs (*Lepus capensis*, *Oryctolagus cuniculus*). Reptiles, amphibians, and birds are present, as are gerbil (*Jaculus orientalis*, *Meriones shawi*), hedgehog (*Aetechinus algirus*), and jackal (*Canis aureus*), but none of these can be assumed to have been used as food. Whether the eggs of ostrich (*Struthio camelus*) were used for food as well as raw material for containers and ornaments is unknown. There is no direct evidence for the vegetal component in the diet, other than the charred bulbs of *Allium* species found in the collections at the Logan Museum (Lubell et al. 1976: 919). Analyses of charcoal from archaeological deposits (Couvert 1972, 1975, 1976, 1977) suggest that nuts (pine, pistachio, oak) and perhaps some fruits (carob, juniper) would have been available on a seasonal basis depending on local environmental conditions.

Although there is no absolute certainty, the available data do suggest that most (if not all) Capsian sites represent seasonal rather than year-round occupations. The arguments for and against are reviewed in a number of publications (Lubell 1984; Lubell et al. 1975, 1976, 1982–1983; Morel 1977, 1978, 1980, 1981).

The people responsible for Capsian sites and material culture were anatomically modern *Homo sapiens* and have been referred by Chamla (1978) to two types, each of which has two subtypes: Mechta-Afalou (Typical Capsian and Mechtoid), and Protomediterranean (Types I and II). Both are said to be present at Medjez II. It is argued by some (e.g., Ferembach 1985), that Capsian populations were immigrants from the east who replaced the earlier populations responsible for the Iberomaurusian. These interpretations of the osteological data have been challenged by Lubell et al. (1984: 158–165), who argued for population continuity based on analyses of both metrical and nonmetrical cranial and postcranial characteristics in addition to characteristics of the lithic industries and data on subsistence. Their view is corroborated by more recent work on dentition (Irish 1998) as well as analyses of skeletal series from the central Sahara (Dutour 1989: 222ff.).

Religion and Expressive Culture

Other than mortuary practices that imply some belief in an afterlife (cf. Haverkort and Lubell 1999), there is no direct evidence for religion or religious practices. Decorative art is extensive at Capsian sites (Camps-Fabrer 1966) as is the use of ocher on both

human remains and stone tools (Beyries and Inizan 1982; Camps-Fabrer 1960; Gobert 1950; Inizan 1976). The latter were often modified, either for utilitarian or nonutilitarian purposes (e.g. Camps-Fabrer 1966; Vallois 1971). Evulsion of the central incisors was practiced just as it had been in the Iberomaurusian, but was perhaps restricted to females in Capsian populations (Lubell et al. 1984: 160).

References

Alley, R. B., P. A. Mayewski, T. Sowers, M. Stuiver, K. C. Taylor, and P. U. Clark (1997). "Holocene Climatic Instability: A Prominent, Widespread Event 8200 Years Ago." *Geology* 25(6): 483–486.

Adams, Jonathan M., Hughes Faure, and QEN members, eds. (1997). *Review and Atlas of Palaeovegetation*: *Preliminary Land Ecosystem Maps of the World since the Last Glacial Maximum*. Oak Ridge: Oak Ridge National Laboratory, Tennessee.

Beyries, Sylvie, and Inizan, Marie-Louise (1982). "Typologie, ocre, fonction." *Studia Praehistorica Belgica* 2: 313–322.

Bouchud, J. (1975). "La Faune." In *Un Gisement Capsien de faciès Sétifen*: *Medjez II*, *El Eulma* (*Algérie*), *ed. H. Camps-Fabrer*. *Paris: CNRS, 377–394*.

Camps, G. (1968). "Le Capsien supérieur: État de la question." In *La Préhistoire*: *Problèmes et Tendances*, ed. Paris: CNRS, 87–101.

Camps, Gabriel (1974). *Les Civilisations Préhistoriques de l'Afrique du Nord et du Sahara*. Paris: Doin.

Camps, Gabriel, and Jean Morel (1982). "Recherches sur l'alimentation en Afrique du Nord durant les temps épipaléolithiques." *Société d'Études et de Recherches Préhistoriques Les Eyzies*, *Bulletin* 32: 37–49.

Camps-Fabrer, Henriette (1960). "Parures des temps préhistoriques en Afrique du Nord." *Libyca* 8: 9–221.

Camps-Fabrer, Henriette (1966). *Matière et art mobilier dans la Préhistoire nord-africaine et saharienne*. Paris: Arts et Métiers Graphiques (Mémoire du C.R.A.P.E. No. 5).

Camps-Fabrer, Henriette (1975). *Un Gisement capsien du faciès Sétifen*: *Medjez II*, *El-Eulma* (*Algérie*). *Paris: Centre National de la Recherche Scientifique*.

Couvert, M. (1972). "Variations Paléoclimatiques en Algérie: Traduction climatiques des informations paléobotaniques fournies par les charbons des gisements préhistoriques, note préliminaire." *Libyca* 20: 45–48.

Couvert, M. (1975). "La Flore." In *Un Gisement Capsien de faciès Sétifen*: *Medjez II*, *El Eulma* (*Algérie*), ed. H. Camps-Fabrer. Paris: CNRS, 395–411.

Couvert, M. (1976). "Traduction des eléments de la flore Préhistorique en facteurs climatiques." *Libyca* 24: 9–20.

Couvert, M. (1977). *Atlas d'anatomie des charbons de foyers Préhistoriques Afrique du Nord Tempérée*. Algiers: Mémoires du CRAPE 26.

Dutour, Olivier (1989). *Hommes fossiles du Sahara*: *Peuplements Holocènes du Mali Septentrional*. Paris: C.N.R.S.

Farrand, W. R., C. H. Stearns, and H. E. Jackson (1982). "Environmental Setting of Capsian and Related Occupations in the High Plains of Northeastern Algeria." *Abstract*, *Geological Society of America Annual Meeting*.

Ferembach, D. (1985). "On the Origin of the Iberomaurusians: A New Hypothesis." *Journal of Human Evolution* 14: 393–397.

Gobert, E. G. (1937). "Les Escargotières: Le Mot et la chose." *Revue Africaine* 81: 631–645.

Gobert, E. G. (1950). "Sur un rite capsien du rouge." *Bulletin de la Société des Sciences Naturelles de Tunisie* 3: 18–23.

Grébénart, Danilo (1976). *Le Capsien des régions de Tébessa et d'Ouled-Djellal*, *Algérie*: *Contribution à son étude*. Aix-en-Provence: Études méditerranéennes 1, Éditions de l'Université de Provence.

Haverkort, Caroline, and David Lubell (1999). "Cutmarks on Capsian Human Remains: Implications for Maghreb Holocene Social Organization and Palaeoeconomy." *International Journal of Osteoarchaeology* 9(3): 147–169.

Inizan, Marie-Louise (1976). "Nouvelle Étude d'industries lithiques du Capsien (Collection Raymond Vaufrey, Institut de Paléontologie Humaine, Paris)." Ph.D. diss., Université de Paris X, Paris.

Inizan, Marie-Louise (1976). "Outils lithiques Capsiens ocrés." *L'Anthropologie* 80: 39–64.

Inizan, Marie-Louise, Hélène Roche, and Jacques Tixier (1975–1976). "Avantages d'un traitement thermique pour la taille des roches siliceuses." *Quaternaria* 19: 1–18.

Irish, J. D. (1998). "Diachronic and Synchronic Dental Trait Affinities of Late and Post-Pleistocene Peoples from North Africa." *Homo* 49(2): 138–155.

Lamb, H. F., U. Eicher, and V. R. Switsur (1989). "An 18,000-Year Record of Vegetation, Lake-Level and Climatic Change from Tigalmamine, Middle Atlas, Morocco." *Journal of Biogeography* 16: 65–74.

Lamb, H. F., F. Gasse, A. Benkaddour, N. El Hamouti, S. van der Kaars, W. T. Perkins, N. J. Pearce, and C. N. Roberts (1995). "Relation between Century-Scale Holocene Arid Intervals in Tropical and Temperate Zones." *Nature* 373: 134–137.

Lubell, David (1984). "Paleoenvironments and Epipaleolithic Economies in the Maghreb (ca. 20,000 to 5000 B.P.)." In *From Hunters to Farmers*: *Considerations of the Causes and Consequences of Food Production in Africa*, ed. J. D. Clark and S. Brandt. Berkeley and Los Angeles: University of California Press, 41–56.

Lubell, David (1992). "Following Alonzo's Trail: Paleoeconomic Research in Algeria since 1930." In *Alonzo Pond and the 1930 Logan Museum Expedition to North Africa*: *The 1985 Beloit College Symposium*, ed. L. B. Breitborde. Beloit, Wisc.: Museums of Beloit College, 49–57.

Lubell, David, J.-L. Ballais, A. Gautier, F. A. Hassan, A. Close, C. Chippindale, J. Elmendorf, and G. Aumassip (1975). "Prehistoric Cultural Ecology of Capsian *escargotières*: Preliminary Results of an Interdisciplinary Investigation in the Chéria-Télidjène Region." *Libyca* 23: 43–121.

Lubell, David, F. A. Hassan, A. Gautier, and J.-L. Ballais (1976). "The Capsian escargotières." *Science* 191: 910–920.

Lubell, David, A. Gautier, E. T. Leventhal, M. Thompson, H. P. Schwarcz, and M. Skinner (1982–1983). "Prehistoric Cultural Ecology of Capsian *escargotières*, Part 2: Report on Investigations Conducted during 1976 in the Bahiret Télidjène, Tebessa Wilaya, Algeria." *Libyca* 32–33: 59–142.

Lubell, David, P. Sheppard, and M. Jackes (1984). "Continuity in the Epipaleolithic of Northern Africa with Emphasis on the Maghreb." In *Advances in World Archaeology, Vol. 3*, ed. F. Wendorf and A. Close. Orlando, Fla.: Academic Press, 143–191.

Marret, Fabienne, and Jean-Louis Turon (1994). "Paleohydrology and Paleoclimatology off Northwest Africa during the Last Glacial-Interglacial Transition and the Holocene: Palynological Evidences." *Marine Geology* 118: 107–117.

Morel, Jean (1974). "La Faune de l'Escargotière de Dra-Mta-El-Ma-El-Abiod (Sud-Algérien): Ce qu'elle nous apprend de l'alimentation

et des conditions de vie des populations du Capsien Supérieur." *L'Anthropologie* 78(2): 299–320.
Morel, Jean (1977). "Les Capsiens De la région de Tebessa: Sédentaires ou nomades." *Libyca* 25: 157–162.
Morel, Jean (1978). "Les Sources d'alimentation des Epipaléolithiques de Tamar Hat et le problème des origines et la domestication en Afrique du Nord." *Bulletin du Musée d'Anthropologie Préhistorique de Monaco* 22: 73–78.
Morel, Jean (1980). "Sur Certaines Aspects de la vie des populations Capsiennes." *Bulletin du Musée d'Anthropologie Préhistorique de Monaco* 29: 89–102.
Morel, Jean (1981). "Nouvelles Réflexions sur l'alimentation et le mode de vie des Capsiens de Dra-Mta-el-Ma-el-Abiod dans la région de Tébessa (Est-Algérien)." In *Préhistoire Africaine*: *Mélanges offerts au Doyen L. Balout*, ed. C. Roubet, H.-J. Hugot, and G. Souville. Paris: A.D.P.F., 189–194.
Pond, Alonzo W., L. Chapuis, A. S. Romer and F. C. Baker (1938). *Prehistoric Habitation Sites in the Sahara and North Africa*. Beloit, Wisc.: Logan Museum Bulletin No. 5.
Renault-Miskovsky, Josette (1985). "L'Environnement végétal des sites préhistoriques Algériens données actuelles de la paléobotanique." *L'Anthropologie* 89(3): 307–318.
Ritchie, J. C. (1984). "Analyse pollinique de sédiments Holocènes supérieurs des hauts plateaux du Maghreb Oriental." *Pollen et Spores* 26: 489–496.
Roubet, Colette (1979). *Économie pastorale préagricole en Algérie Orientale*: *Le Néolithique de Tradition Capsienne*. Paris: Centre National de la Recherche Scientifique.
Sheppard, Peter J. (1987). *The Capsian of North Africa*: *Stylistic Variation in Stone Tool Assemblages*. Oxford: British Archaeological Reports, International Series 353.
Sheppard, Peter, and Lawrence Pavlish (1983). "The Use of Thermoluminescence (TL) in an Investigation of Heat Treatment in the Epipalaeolithic of North Africa." In *Proceedings of the 22nd Symposium on Archaeometry*, ed. A. Aspinall and S. Warren. Bradford: 145–149.
Sheppard, Peter, and D. Lubell (1990). "Early Holocene Maghreb Prehistory: An Evolutionary Approach." *Sahara* 3: 63–69.
Tixier, Jacques (1963). *Typologie de l'Epipaléolithique du Maghreb*. Paris: Arts et Métiers Graphiques (Mémoire du C.R.A.P.E.No. 2).
Tixier, Jacques (1976). "L'Industrie lithique Capsienne de l'Aïn Dokkara (Région de Tébessa, Algérie)." *Libyca* 24: 21–54.
Tixier, Jacques, Francis Marmier, and Guy Trécolle (1976). *Le Campement Préhistorique de Bordj Mellala*, *Ouargla*, *Algérie*. Paris: Éditions de Cercle de Recherches et d'Études Préhistoriques.
Vaufrey, R. (1936). "Stratigraphie capsienne." *Swiatowit* 16: 15–34.
Vernet, Robert (1995). *Climats anciens du Nord de l'Afrique*. Paris: L'Harmattan.
Vallois, H.-V. (1971). "Le Crâne-trophée capsien de Faid Souar II: Algérie (Fouilles Laplace, 1954)." *L'Anthropologie* 75: 191–220 & 397–414.

Iberomaurusian

TIME PERIOD: >20,000–10,000 B.P.

LOCATION: Northwest Africa from approximately 28° N on the west at the Atlantic to 36° N on the east at the Gulf of Gabès (modern Tunisia, Algeria, and Morocco) and, with an intervening area devoid of any evidence, as far east as Cyrenaica (22° E).

DIAGNOSTIC MATERIAL ATTRIBUTES: Microlithic stone tool industry characterized by high (40%) frequencies of backed bladelets in a variety of forms. Sites are concentrated along the present North African littoral, often in caves, and in several instances with large numbers of human burials.

CULTURAL SUMMARY

Environment

In the earlier part of this subtradition, just before and following the Last Glacial Maximum (LGM), climate was cooler by as much as 3–4 °C in some areas and at least as arid as today. Vegetation zones and sea levels were lower and ocean temperatures cooler. Rising temperatures and increasing precipitation (including northward movement of the equatorial monsoon) following the LGM led to increased forest cover at higher elevations and increased grassland savanna elsewhere (see Close and Wendorf 1989; Gilbertson and Hunt 1996; Lubell 1984; Vernet 1995; Wengler and Vernet 1992—all with extensive bibliographies).

Settlements

Sites are concentrated along the modern Maghreb littoral (e.g., Brahimi 1970), although there is some (limited) evidence for later occupations further inland (see Lubell et al. 1984: Fig. 3.1; Close and Wendorf 1989: Fig. 2.1; map following p. 144 in Brahimi 1970). There are no known Iberomaurusian sites along the Tunisian coast, but the Eastern Iberomaurusian variant is known from two sites in Cyrenaica (Libya)—Haua Fteah (McBurney 1967; Close 1986) and Hagfet et Terra (McBurney and Hey 1955)—so that it is probable that the intervening region was occupied, perhaps in areas now inundated. Major sites tend to be in caves as is the case for Haua Fteah and Tamar Hat (Close 1980–81; Saxon et al. 1974), and those in the Maghreb proper often contain large numbers of human skeletons: Taforalt (Ferembach et al. 1962; Roche 1963), Columnata (Brahimi 1972, with references to earlier work; Cadenat 1957; Chamla et al. 1970), Afalou-bou-Rhummel (Arambourg et al. 1934; Chamla et al. 1970; Hachi 1996, 1997). Open-air sites are also known, especially later ones located inland from the coast (e.g., near Bou-Saâda; Lubell et al. 1984: Fig. 3.1) but perhaps also

earlier sites such as the Horizon Collignon (see Close and Wendorf 1989: 44).

Economy

The Iberomaurusian is defined on the basis of stone tool characteristics (Brahimi 1972, 1976; Camps 1974: 57; Close 1977; Pallary 1909; Tixier 1967): a microlithic industry with high frequencies of a variety of forms of backed bladelets, usually formed by obverse (ventral to dorsal) retouch, which is sometimes extremely fine (Ouchtata retouch). Microburin technique is always present, but geometric microliths are not; when found, they tend to be segments. End scrapers on flakes are common (up to 9.5%), while burins are extremely rare.

A wide range of raw materials was used, including flint, limestone, sandstone, quartzite, and various igneous rocks, reflecting the location of sites along the littoral and the availability of raw materials there. Cores tend to be small and with a single platform and are unlike the fluted (*cannelé*) cores found in later Capsian assemblages. Raw materials other than flint were in general used for a minor, but consistently present, large tool component. As in the succeeding Capsian, ocher is associated with stone tools and "is linked to technical operations and craft activities" (Ighilahriz 1996: 77).

Bone tools are present but of limited variety, unlike the later Capsian (Camps-Fabrer 1966).

Variability in Iberomaurusian assemblages has been explained as arising from both time and space factors (see Lubell et al. 1984: 150), with the traditional view (Camps 1974: 72ff.) being a series of developmental stages: Early, Classic, and Evolved. Analyses of the dated stratigraphic sequences at Tamar Hat (Close 1977; 1980–81) and Taforalt (Roche 1972, 1976) suggest that long-term stability rather than change may mark the Iberomaurusian and that contemporary geographical variability may be important. This view is discussed in detail by Lubell et al. (1984: 171–185) and also by Close and Wendorf (1989) who make a convincing case for McBurney's (1967) attribution of the materials from Haua Fteah to an eastern variant of the Iberomaurusian.

Subsistence was based on a hunting–foraging economy in which both terrestrial and some limited marine resources figured. Among the latter, the Barbary sheep (*Ammotragus lervia*) was so common at Tamar Hat (the only Iberomaurusian site for which reliable modern data are available) that Saxon (1976; Saxon et al. 1974) argued it should be considered domesticated, but this has not been accepted (Klein & Scott 1986; Lubell 1984: 48–49; Morel 1978). Other large herbivores reported from Iberomaurusian sites include hartebeest (*Alcelaphus buselaphus*) and zebra (*Equus mauritanicus*), whereas land snails are common at many sites although not perhaps so abundant as at later Capsian ones (Camps and Morel 1982). Marine fauna (both fish and shellfish) is present but not numerous—at least in known sites. Close and Wendorf (1989: 47) suggested this may be due to season of occupation and inundation of sites.

The people responsible for Iberomaurusian sites and material culture were anatomically modern *Homo sapiens* and have been referred to two types: a more robust Mechta-Afalou and a more gracile Mechtoid (see Chamla 1978, for review of the traditional formulation), both said to be distinct from later Capsian populations, which, it is argued by some (e.g., Ferembach 1985), represent immigrants from the east. This view has been challenged by Lubell et al. (1984: 158–165) who argued for population continuity (see also Irish 1998; Groves and Thorne 1999), a scenario implicit but unstated in other analyses (e.g., Dutour 1989: 222ff.).

Religion and Expressive Culture

Camps-Fabrer (1966: 504) maintained that art was unknown in the Iberomaurusian, but this view must be revised. The single ceramic fragment found at Tamar Hat in a level dated to c. 20,200 B.P. (Saxon et al. 1974: 67) and said to resemble a fragment of much later figurines from the Levant appeared anomalous, but no longer. New research at Afalou (Hachi 1996, 1997) has recovered two "zoomorphic statuettes in baked clay," dated to at least 11,000 B.P., which appear from the published photographs and descriptions to be the heads of bovids of some kind. This find requires a substantial revision of previous scenarios. Furthermore, the discovery at Afalou of another series of human skeletons, in what seems to be precisely the same sort of ossuary as the one published by Arambourg et al. (1934: 19–23), requires reassessment of mortuary practices. Large numbers of burials (often dismembered, sometimes with ocher) at several other sites, as well as the practice of evulsion of the upper central incisors (at puberty? perhaps more often for males than for females?—cf. Lubell et al. 1984: 160), suggest both a belief in an afterlife and strong group identification. The occurrence of portable art and elaborate mortuary practices at Afalou, as well as other factors, led Hachi (1996: 75) to call for re-examination of the question of Iberomaurusian-Capsian continuity, raised by Lubell et al. (1984) and Close (1986) in different contexts.

References

Arambourg, C., M. Boule, H. Vallois, and R. Verneau (1934). *Les Grottes Paléolithiques des Beni-Segoual* (*Algérie*). Paris: Archives de l'Institut de Paléontologie humaine, Mémoire 13.

Brahimi, C. (1970). L'Ibéromaurusien littoral de la région d'Alger. Paris: Arts et Métiers Graphiques (Mémoire du C.R.A.P.E. No. 13).

Brahimi, Claude (1972). "Deux Campagnes de fouilles à Columnata (1969–1971)." *Libyca* 20: 49–101.

Brahimi, Claude (1976). "L'Iberomaurusien: État actuel de la question." In *VIIe Session Congrès Panafricain de Préhistoire et Étude du Quaternaire*, *Addis-Abéba 1971*, ed. B. Abebe, J. Chavaillon, and J. E. G. Sutton. Addis Ababa: Provisional Military Government of Socialist Ethiopia, Ministry of Culture, 51–54.

Cadenat, P. (1957). "Fouilles à Columnata: Campagnes 1956 et 1957: La Nécropole." *Libyca* 5: 49–81.

Camps, Gabriel (1974). *Les Civilisations Préhistoriques de l'Afrique du Nord et du Sahara*. Paris: Doin.

Camps, Gabriel, and Jean Morel (1982). "Recherches sur l'alimentation en Afrique du Nord durant les temps épipaléolithiques." *Société d'Études et de Recherches Préhistoriques Les Eyzies*, *Bulletin* 32: 37–49.

Camps-Fabrer, Henriette (1966). *Matière et art mobilier dans la Préhistoire nord-africaine et saharienne*. Paris: Arts et Métiers Graphiques (Mémoire du C.R.A.P.E. No. 5).

Chamla, Marie-Claude (1978). "Le Peuplement de l'Afrique du Nord de l'Épipaléolithique à l'époque actuelle." *L'Anthropologie* 82: 385–430.

Chamla, Marie-Claude, Jean-Noel Biraben, and Jean Dastugue (1970). Les Hommes Epipaléolithiques de Columnata (Algérie occidentale): *Étude anthropologique*. Paris: Arts et Métiers Graphiques (Mémoire du C.R.A.P.E. No. 15).

Close, Angela (1977). *The Identification of Style in Lithic Artefacts from North-East Africa*. Cairo: Mémoires de l'Institut d'Egypte 61, l'Institut d'Egypte.

Close, Angela (1980–81). "The Iberomaurusian Sequence at Tamar Hat." *Libyca* 28–29: 69–104.

Close, Angela (1986). "The Place of the Haua Fteah in the Late Palaeolithic of North Africa." In *Stone Age Prehistory*: *Studies in Memory of Charles McBurney*, ed. G. N. Bailey and P. Callow. Cambridge: Cambridge University Press, 169–180.

Close, Angela, and Fred Wendorf (1989). "North Africa at 18,000 B.P." In *The World at 18,000* B.P., *Vol. 2. Low Latitudes*, ed. C. Gamble and O. Soffer. London: Unwin Hyman, 41–56.

Dutour, Olivier (1989). *Hommes fossiles du Sahara*: *Peuplements Holocènes du Mali Septentrional*. Paris: C.N.R.S.

Ferembach, Denise, Dastugue, J., and Poitrat-Targowla, M.-J. (1962). La Nécropole *Epipaléolithique de Taforalt* (*Maroc Oriental*): *Étude des squelettes humains*. Rabat: Edita Casablanca.

Ferembach, D. (1985). "On the Origin of the Iberomaurusians: A New Hypothesis." *Journal of Human Evolution* 14: 393–397.

Gilbertson, D. D., and C. O. Hunt, with a contribution by P. A. Smithson (1996). "Quaternary Geomorphology and Palaeoecology." In *Farming the Desert*, *The UNESCO Libyan Valleys Archaeological Survey*, *Vol. 1*: *Synthesis*, ed. G. Barker. Paris, Tripoli, and London: UNESCO Publishing, Department of Antiquities (Tripoli) and Society for Libyan Studies, 49–82.

Groves, Colin P., and A. Thorne (1999). "The Terminal Pleistocene and Early Holocene Populations of Northern Africa." *Homo* 50(3): 249–262.

Hachi, Slimane (1996). "L'Ibéromaurusian, découverte des fouilles d'Afalou (Bédjaîa, Algérie)." *L'Anthropologie* 100(1): 55–76.

Hachi, Slimane (1997). "Résultats des fouilles récentes d'Afalou Bou Rmel (Bédjaîa, Algérie)." In *El Món Mediterrani despres del Pleniglacial* (*18,000–12,000* B.P.), ed. J.M. Fullola and N. Soler. Girona: Museu d'Arqueologia de Catalunya—Girona, 77–92.

Ighilahriz, Farid (1996). L'Ocre dans l'industrie lithique de l'Ibéromaurusian d'Afalou-bou-Rhummel (Algérie)." *L'Anthropologie* 100(1): 77–87.

Irish, J. D. (1998). "Diachronic and Synchronic Dental Trait Affinities of Late and Post-Pleistocene Peoples from North Africa." *Homo* 49(2): 138–155.

Klein, R. G., and K. Scott (1986). "Re-analysis of Faunal Assemblages from the Haua Fteah and Other Late Quaternary Archaeological Sites in Cyrenaican Libyca." *Journal of Archaeological Science* 13: 515–542.

Lubell, David (1984). "Paleoenvironments and Epipaleolithic Economies in the Maghreb (ca. 20,000 to 5000 B.P.)." In *From Hunters to Farmers*: *Considerations of the Causes and Consequences of Food Production in Africa*, ed. J. D. Clark and S. Brandt. Berkeley and Los Angeles: University of California Press, 41–56.

Lubell, David, P. Sheppard, and M. Jackes (1984). "Continuity in the Epipaleolithic of Northern Africa with Emphasis on the Maghreb." In *Advances in World Archaeology*, *Vol. 3*, ed. F. Wendorf and A. Close. Orlando, Fla: Academic Press, 143–191.

McBurney, Charles B. M. (1967). Haua Fteah (Cyrenaica) and the Stone Age of the South East Mediterranean. Cambridge: Cambridge University Press.

McBurney, C. B. M., and R. W. Hey (1955). *Prehistory and Pleistocene Geology in Cyrenaican Libyca*. Cambridge: Cambridge University Press.

Morel, Jean (1978). "Les Sources d'alimentation des épipaléolithiques de Tamar Hat et le problème des origines de la domestication en Afrique du Nord." *Bulletin du Musée d'Anthropologie Préhistorique de Monaco* 22: 72–78.

Pallary, Paul (1909). *Instructions pour la recherche préhistoriques dans le Nord-Ouest de l'Afrique*. Algiers: Mémoires de la Société Historique Algérienne No. 3.

Roche, Jean (1963). *L'Epipaléolithique Marocaine*. Lisbon: Fondation Calouste Gulbenkian.

Roche, Jean (1972). "Les Cultures épipaléolithiques du Maroc." In *Die Anfänge des Neolithikums vom Orient bis Nordeuropa*, *7*: *Westliches Mittelmeergebiet und Britische Inseln*, ed. J.Lüning, Vienna: Fundamenta, Reihe A, Bd. 3, 1–18.

Roche, Jean (1976). "Cadre chronologique de l'Epipaléolithique Marocaine." In *Chronologie et synchronisme dans la Préhistoire circum-Méditerranéenne*, ed. G. Camps. Nice: Prétirage, Colloque II, IX Congrès, Union International des Sciences Préhistoriques et Protohistoriques, 153–167.

Saxon, Earl, A. E. Close, C. Cluzel, V. Morse, and N. J. Shackleton (1974). "Results of Recent Investigations at Tamar Hat." *Libyca* 22: 49–91.

Saxon, Earl (1976). "The Evolution of Domestication: A Reappraisal of the Near Eastern and North African Evidence." In *Origine de l'élévage et de la domestication*, ed. E. S. Higgs. Nice: Prétirage, Colloque XX, IX Congrès, Union International des Sciences Préhistoriques et Protohistoriques, 180–226.

Tixier, Jacques (1967). "Procédés d'analyse et questions de terminologie concernant l'étude des ensembles industriels du Paléolithique récent et de l'Épipaléolithique dans l'Afrique du Nord-Ouest." In *Background to Evolution in Africa*, ed. W. W. Bishop and J. D. Clark. Chicago: University of Chicago Press, 771–820.

Vernet, Robert (1995). *Climats anciens du Nord de l'Afrique*. Paris: L'Harmattan.

Wengler, L., and J.L Vernet (1992). "Vegetation, Sedimentary Deposits and Climates during the Late Pleistocene and Holocene

in Eastern Morocco.'' *Palaeogeography, Palaeoclimatology, Palaeoecology* 94: 141–167.

SITES

Afalou-bou-Rhummel

TIME PERIOD: 15,000–11,000 B.P.

LOCATION: On the Algerian coast, midway between Bedjaia and Jijel (36°29′ N, 3°00′ E).

DESCRIPTIVE SUMMARY

Local Environment

The Afalou rock shelter is located about 30 km east of Bedjaia. It is cut into the dolomitic limestone of the Adrar Djemaa N'Sia at 40 m above sea level. The local climate is Mediterranean, but the slopes around and behind the site are nearly denuded, and the exposed coastal plain here is nonexistent (Hachi 1996: Fig. 1).

Physical Features

The north-facing shelter is about 12 m from back to front and at least 20 m across at the drip line. A first series of excavations by Arambourg from 1928 to 1930 (Arambourg et al. 1934) exposed archaeological deposits to a depth of 7.5 m resting on a sterile clay substrate. Re-excavation of the site by Hachi in 1983 and 1984 (1996, 1997) exposed approximately 1.5 m total depth of clayey to sandy clay sediments containing five archaeological layers, beginning well below the level of fill present when Arambourg worked at the site (Hachi 1996: Fig. 3).

Cultural Aspects

Hachi (1996: 56) obtained four carbon 14 determinations that place Afalou in the upper third of the known time span for the Iberomaurusian, or roughly between 15,000–11,000 B.P. Changes in the lithic assemblage from bottom (Couche V) to top (Couche I) seem to indicate in situ change rather than external influence —much the same interpretation that has been placed on the much longer sequence from the nearby site of Tamar Hat (Close 1980–1981).

The major interest for this site lies in the human skeletal remains and the evidence for art. Arambourg (Arambourg et al. 1934; Vallois 1952) found what is probably best described as an ossuary in which ''les ossements étaient mélangés pêle-mêle, le plus souvent sans connexions entre eux'' (Arambourg et al. 1934: 19). Six skeletons could be considered somewhat complete, and one of these was in the lowest level (Arambourg's level III), in association with the skull of an infant. The remainder (48 individuals in total, of which the majority were isolated crania) were all found in Level I in ''une sorte de charnier'' (Arambourg et al. 1934: 83). Arambourg interpreted the Level I remains as having been dropped down the chimney of the shelter from above.

Hachi (1996) found yet another group of skeletons (at least eight individuals) in a crevice (*anfractuosité*) almost devoid of sediment. Once again, the bones were mixed up, with few anatomical connections, but as this crevice is far from the chimney, Hachi interpreted it as a burial chamber in which individuals were interred tightly flexed, with later burials leading to disturbance of earlier ones.

Hachi also found two fragmentary ceramic figurines that appear to be representations of bovids, thus providing support for Saxon's (Saxon et al. 1974) find of a similar fragment at Tamar Hat but in deposits that must be about 10,000 years older than those at Afalou. Hachi also found a number of ground stone objects including disks (one with incised lines) and grinding stones on which there are traces of red ocher. Red ocher is common at the site and is found on a wide range of stone tools (Ighilarhriz 1996). Both Hachi and Ighilarhriz considered that the evidence from Afalou points toward continuity between the Iberomaurusian and the Capsian, a point made earlier on the basis of other evidence by Lubell et al. (1984) and Close (1986).

References

Arambourg, C., M. Boule, H. Vallois, and R. Verneau (1934). *Les Grottes Paléolithiques des Beni-Segoual (Algérie)*. Paris: Archives de l'Institut de Paléontologie humaine, Mémoire 13.

Chamla, Marie-Claude (1978). ''Le Peuplement de l'Afrique du Nord de l'Épipaléolithique à l'époque actuelle.'' *L'Anthropologie* 82: 385–430.

Close, Angela (1980–81). ''The Iberomaurusian Sequence at Tamar Hat.'' *Libyca* 28–29: 69–104.

Close, Angela (1986). ''The Place of the Haua Fteah in the Late Palaeolithic of North Africa.'' In *Stone Age Prehistory: Studies in Memory of Charles McBurney*, ed. G. N. Bailey and P. Callow. Cambridge: Cambridge University Press, 169–180.

Hachi, Slimane (1996). ''L'Ibéromaurusian, découverte des fouilles d'Afalou (Bédjaîa, Algérie).'' *L'Anthropologie* 100(1): 55–76.

Hachi, Slimane (1997). ''Résultats des fouilles récentes d'Afalou Bou Rmel (Bédjaîa, Algérie).'' In *El Món Mediterrani Despres del Plenigla-cial (18,000–12,000 B.P.)*, ed. J. M. Fullola and N. Soler. Girona: Museu d'Arqueologia de Catalunya—Girona, 77–92.

Ighilahriz, Farid (1996). "L'Ocre dans l'industrie lithique de l'Ibéromaurusian d'Afalou-bou-Rhummel (Algérie)." *L'Anthropologie* 77–87.

Lubell, David, P. Sheppard, and M. Jackes (1984). "Continuity in the Epipaleolithic of Northern Africa with Emphasis on the Maghreb." In *Advances in World Archaeology*, *Vol. 3*, ed. F. Wendorf and A. Close. Orlando, Fla.: Academic Press, 143–191.

Saxon, Earl C., A. E. Close, C. Cluzel, V. Morse, and N. J. Shackleton (1974). "Results of Recent Investigations at Tamar Hat." *Libyca* 22: 49–91.

Vallois, Henri V. (1952). *Diagrammes sagittaux et mensurations individuals des hommes fossiles dans Afalou-Bou-Rhummel*. Algiers: Travaux du Laboratoire d'Anthropologie et d'Archéologie Préhistoriques du Musée de Bardo No. 5.

Aïn Misteheyia

TIME PERIOD: c. 9800–7300 B.P.

LOCATION: At about 1,100 m above sea level in the Télidjène Basin, south of Cheria, Tebessa Wilaya, Algeria (7°45′ 54″E, 35°11′ 39″N).

DESCRIPTIVE SUMMARY

Local Environment

The region has a semiarid Mediterranean climate with cool, wet winters and hot, dry summers. The average annual precipitation is 340 mm per year. The mean annual temperature is 15° C, with a monthly mean for January of 5–6° C. The modern vegetation consists of a degraded steppe composed predominantly of shrubs and grasses such as sagebrush (*Artemisia herba alba*) and alfa grass (*Stipa tenacissima*). Where moisture permits along perennial watercourses or near springs, there are poplar (*Populus alba*), willow (*Salix alba*), tamarix (T. *africana*), oleander (*Nerium oleander*), rushes *Peganum harmala*), and various thistles. On those slopes where soil remains, there are occasional stands of pine (*Pinus halepensis*), oak (*Quercus ilex*), and juniper (*Juniperus phoenicea*).

Physical Features

The Télidjène basin is a southwest-northeast–trending breached anticline (28 by 8 km). The basin rim is formed of Eocene limestone and is cut by a number of high-angle normal faults. The floor of the basin is underlaid primarily by soft, greenish shales (Upper Cretaceous–Paleocene), interrupted near the center of the basin by a hill of lower Cretaceous sandstone; to the west of this hill is an area of diapiric intrusions of Triassic evaporites. Aïn Misteheyia is located on the footslope of the northern escarpment, slightly above the confluence of two wadis, and near the spring from which the site takes its name (apparently misidentified as Aïn Messaia by earlier investigators, this is Site 36 in the gazeteer compiled by Grébénart 1976: 51–52, who noted the possibility that it was a rare example of a stratified *escargotière*).

Cultural Aspects

Aïn Misteheyia is a relatively small *escargotière*, roughly circular in area, with a diameter of about 40 m and a depth of about 1.5 m (Lubell et al. 1975, 1976, 1982–1983). Despite the shallow depth, it contains a record of 3000 years—a result of deflation and compaction with loss of visible stratigraphy. A series of geoarchaeological techniques was used to reconstruct the stratigraphic sequence, which shows a change in technology and an adjustment to the subsistence adaptation at c. 8000 B.P., which can be correlated with a widespread episode of climatic instability in North Africa (Alley et al. 1997). At Aïn Misteheyia, Medjez II, and Kef Zoura D, this change is seen in an increase in microlithic tools, a decrease in the size and kind of vertebrates and land snails consumed, and perhaps a change in rates of deposition (see references cited above and discussion in Lubell et al. 1984). At Aïn Misteheyia and Medjez II, this does not appear to equate with a change from Typical to Upper Capsian, as distinct from the situation at Kef Zoura D and the neighboring site of Relilai (Grébénart 1976: 139–203).

References

Alley, R. B., P. A. Mayewski, T. Sowers, M. Stuiver, K. C. Taylor, and P. U. Clark (1997). "Holocene Climatic Instability: A Prominent, Widespread Event 8200 Years Ago." *Geology* 25(6): 483–486.

Grébénart, Danilo (1976). *Le Capsien des régions de Tébessa et d'Ouled-Djellal, Algérie: Contribution à son étude*. Aix-en-Provence: Études méditerranéennes 1, Éditions de l'Université de Provence.

Lubell, David, J.-L. Ballais, A. Gautier, F. A. Hassan, A. Close, C. Chippindale, J. Elmendorf, and G. Aumassip (1975). "Prehistoric Cultural Ecology of Capsian *escargotières*: Preliminary Results of an Interdisciplinary Investigation in the Chéria-Télidjène Region." *Libyca* 23: 43–121.

Lubell, David, F. A. Hassan, A. Gautier, and J.-L. Ballais (1976). "The Capsian *escargotières*." *Science* 191: 910–920.

Lubell, David, A. Gautier, E. T. Leventhal, M. Thompson, H. P. Schwarcz, and M. Skinner (1982–1983). "Prehistoric Cultural Ecology of Capsian *escargotières*, Part 2: Report on Investigations Conducted during 1976 in the Bahiret Télidjène, Tebessa Wilaya, Algeria." *Libyca* 32–33: 59–142.

Lubell, David, P. Sheppard, and M. Jackes (1984). "Continuity in the Epipaleolithic of Northern Africa with Emphasis on the Maghreb." In *Advances in World Archaeology*, *Vol. 3*, ed. F. Wendorf and A. Close. Orlando, Fla.: Academic Press, 143–191.

Columnata

TIME PERIOD: c. 10,800–5200 B.P.

LOCATION: Algeria, near Sidi Hosni, northeast of Tiaret (35°29′ N, 1°16′ E).

MAJOR TRADITION: Late Pleistocene–Early Holocene Maghreb.

DESCRIPTIVE SUMMARY

Local Environment

The region of Tiaret, on the high interior plateau south of Oran, is at the juncture of three vegetation zones: the Mediterranean evergreen oak belt, the woodland steppe, and the shrub or tree pseudosteppe and woodland (Bagnouls and Gaussen 1968). In phytogeographical terms, it is more or less on the boundary between the Steppic-North African domain and the Northern Saharan domain (Quézel 1978: Fig. 1).

Physical Features

Columnata is a north-facing collapsed (but see Brahimi 1972: 93) rock shelter at the foot of a heavily weathered limestone cliff (see photograph in Balout 1958: 122). The deposits extend for 24 m from the shelter wall where they are truncated by a road cut. They are a maximum of 3 m deep at the shelter wall and become thinner toward the road cut (Cadenat 1966: Fig. 2). The maximum area covered is undetermined (or at least not specified in any of the publications).

Cultural Aspects

Columnata was excavated several times over many years (1937–1962) by Cadenat (1948, 1957, 1966) and between 1969 and 1971 by Brahimi (1972). It contains a series of assemblages: Iberomaurusian (dated by a single analysis of *Unio* shell to 10,800 B.P.); Columnatian (a hypermicrolithic transitional Epipalaeolithic with two reliable radiocarbon dates—out of three—for charcoal averaging c. 8200 B.P.); Upper Capsian (three dates for charcoal averaging c. 6750 B.P.); Neolithic (see Lubell et al. 1992, for full list and discussion). The Iberomaurusian and Columnatian are apparently in lateral rather than vertical stratigraphic succession. The taphonomy of the deposits was discussed in detail by Brahimi (1972), who concluded that Cadenat's earlier hypothesis was probably correct: Later Columnatian inhabitants swept out, downslope, the earlier Iberomaurusian materials. Cadenat originally called the assemblage between the Iberomaurusian and Capsian a "transitional epipalaeolithic" because of the very high degree of microlithization and a range of bone tools (especially oblique chamfered pieces reminiscent of the Iberomaurusian), but he subsequently renamed it the Columnatian (Cadenat 1970; Camps 1974: 203–206). Columnata is the only known site other than Haua Fteah to have a sequence from the Iberomaurusian through to the Neolithic although, as Brahimi (1972) made clear, major questions remain about the integrity of the earlier deposits. It ranks in importance with Afalou-bou-Rhummel and Taforalt in having a large series of human skeletons—over 60 individuals, the majority (36) buried in a "cemetery" in the Columnatian level. Chamla et al. (1970) provided an exhaustive analysis of the human remains, referring them to the Mechta–Afalou type but suggesting parallels to or influences from contemporary Capsian populations in terms of cultural practices such as dental evulsion (see discussion in Lubell et al. 1984).

References

Bagnouls, F., and H. Gaussen (1968). *Carte de la végétation de la région Méditerranéenne*. Paris: UNESCO/FAO.

Balout, Lionel (1958). *Algérie Préhistorique*. Paris: Arts et Métiers Graphiques.

Brahimi, C. (1972). "Deux Campagnes de fouilles à Columnata, 1969–1971: Premiers Résultats." *Libyca* 20: 49–101.

Cadenat, P. (1948). "La Station préhistorique de Columnata, commune mixte de Tiaret." *Bulletin de la Société de Géographie et d'Archéologie d'Oran* 70: 3–66.

Cadenat, P. (1957). "Fouilles à Columnata, campagne 1956–1957 1e partie: La Nécropole." *Libyca* 5: 48–81.

Cadenat, P. (1966). "Vues nouvelles sur les industries de Columnata." *Libyca* 14: 189–208.

Cadenat, P. (1970). "Le Columnatien, industrie épipaléolithique d'Algérie." *Bulletin de la Société d'Études et de Recherches Préhistoriques*, *Les Eyzies* 20: 40–50.

Camps, Gabriel (1974). *Les Civilisations Préhistoriques de l'Afrique du Nord et du Sahara*. Paris: Doin.

Chamla, Marie-Claude, Jean-Noël Biraben, and Jean Dastugue (1970). *Les Hommes Epipaléolithiques de Columnata* (*Algérie occidentale*): *Étude anthropologique*. Paris: Arts et Métiers Graphiques (Mémoire du C.R.A.P.E. No. 15).

Lubell, David, P. Sheppard, and M. Jackes (1984). "Continuity in the Epipaleolithic of Northern Africa with Emphasis on the Maghreb." In *Advances in World Archaeology*, *Vol. 3*, ed. F. Wendorf and A. Close. Orlando, Fla.: Academic Press, 143–191.

Lubell, David, P. Sheppard, and A. Gilman (1992). "The Maghreb." In *Chronologies in Old World Archaeology*, 3rd edn., ed. R. W. Ehrich. Chicago: University of Chicago Press, 305–308 (Vol. 1) and 257–267 (Vol. 2).

Quézel, P. (1978). "Analysis of the Flora of Mediterranean and Saharan Africa." *Annals of the Missouri Botanical Garden* 65: 479–534.

Dra-Mta-El-Ma-El-Abiod

TIME PERIOD: c. 7300–7000 B.P.

LOCATION: Eastern Algeria, 26 km south of Tebessa (on sheet 235 of the 1:50,000 series for Algeria, Lambert coordinates 999.50 by 222.425, or about 8°11′ E, 35°10′ N) and visible from the main road (N16) running south from Tebessa to Negrine, 3.2 km south of the village of El-Ma-El-Abid.

DESCRIPTIVE SUMMARY

Local Environment

On the southern border of the interior plateau where modern vegetation cover is dominated by *Stipa tenacissima* and *Artemisia herba alba* with occasional stands of *Pinus halepensis*.

Physical Features

An elliptical mound covering an area of about 700 m^2 (32 m by 28 m) and with a maximum depth of deposit of 1.7 m (Morel 1974: 300), at the base of a northwest-southeast–trending ridge.

Cultural Aspects

Morel excavated the site during a series of campaigns between 1938 and 1953, eventually publishing complete analyses of both the lithics (Morel 1978a) and the fauna (Morel 1974) and several papers on the implications of his data (Camps and Morel 1982; Morel 1977, 1978b, 1980, 1981). Part of the lithics collection was re-examined by Sheppard (1987).

Dra-Mta belongs to the Upper Capsian, following the technological transition identified by Sheppard (1987). Morel interpreted the lithic sequence as showing a progressive decrease in size from bottom to top of the deposits with overall characteristics similar to other assemblages from the Tebessa–Gafsa region. The faunal remains are also characteristic of similar sites in the region. They include large numbers of a variety of land snails belonging to the *Helix* and *Helicella* genera in addition to *Leucochroa candidissima*, and fifteen vertebrate species including zebra, aurochs, hartebeest, gazelle, Barbary sheep, and lagomorphs in addition to a variety of carnivores, birds, and reptiles. Morel (1974) reported only identified specimens, so that it is difficult to be entirely sure of proportional representations in the assemblage. Nonetheless, these appear to be roughly similar to two other sites in the region, Aïn Misteheyia and Kef Zoura D, although the frequency of hartebeest (*Alcelaphus buselaphus*) at over 70% of NISP seems a bit high by comparison and led Morel to speculate that they might have been kept in partial captivity even though when MNIs are calculated (Morel 1978b: 317), hartebeest and lagomorphs are about the same, at about 30–35% of mammals that would likely have been food sources.

References

Camps, Gabriel, and Jean Morel (1982). "Recherches sur l'alimentation en Afrique du Nord durant les temps épipaléolithiques." *Société d'Études et de Recherches Préhistoriques Les Eyzies*, *Bulletin* 32: 37–49.

Morel, Jean (1974). "La Faune de l'escargotière de Dra-Mta-El-Ma-El-Abiod (Sud-Algérien): Ce qu'elle nous apprend de l'alimentation et des conditions de vie des populations du Capsien Supérieur." *L'Anthropologie* 78(2): 299–320.

Morel, Jean (1977). "Les Capsiens de la région de Tebessa: Sédentaires ou nomades." *Libyca* 25: 157–162.

Morel, Jean (1978a). "L'Industrie lithique de l'escargotière de Dra-Mta-El-Ma-El-Abiod dans le sud-est Algérien: Sa Composition, son évolution." *L'Anthropologie* 82: 335–372.

Morel, Jean (1978b). "Les Sources d'alimentation des Epipaléolithiques de Tamar Hat et le problème des origines et la domestication en Afrique du Nord." *Bulletin du Musée d'Anthropologie Préhistorique de Monaco* 22: 73–78.

Morel, Jean (1980). "Sur certaines aspects de la vie des populations Capsiennes." *Bulletin du Musée d'Anthropologie Préhistorique de Monaco* 29: 89–102.

Morel, Jean (1981). "Nouvelles Réflexions sur l'alimentation et le mode de vie des Capsiens de Dra-Mta-el-Ma-el-Abiod dans la région de Tébessa (Est-Algérien)." In *Préhistoire Africaine*: *Mélanges offerts au Doyen L. Balout*, ed. C. Roubet, H.-J. Hugot, and G. Souville. Paris: A.D.P.F., 189–194.

Sheppard, Peter J. (1987). *The Capsian of North Africa: Stylistic Variation in Stone Tool Assemblages*. Oxford: British Archaeological Reports, International Series 353.

Haua Fteah

TIME PERIOD: >100,000–<4500 B.P.

LOCATION: Cyrenaican Libya (32°50′ N, 22°05′ E).

DESCRIPTIVE SUMMARY

Local Environment

The Haua Fteah ("Great Cave") is located at 60 m above sea level about 1 km inland from the modern coast of Libya, on the north side of the Gebel el Akhdar ("Green Mountain"), east of the gulf of Sirte. This is "a region in striking contrast to the surrounding desert; in an ecological sense it offers a territory of fertility and vegetation following the coast for some two hundred miles from east to west and of varying width up to about thirty miles inland" (McBurney 1967: 1).

Physical Features

McBurney (1967: 3) described the site as "distinctly awe-inspiring," with a roof rising to 20 m above the floor and a roofed area 80 m in diameter. The deposits were exposed to a depth of 14 m without reaching bedrock, and "the stratigraphy revealed is remarkable for the regularity of the numerous thin horizontal layers of which it is composed," which McBurney interpreted from radiocarbon dates as having been deposited at an average rate of 20–30 cm per 1000 years (McBurney 1967: 48–50, 324).

Cultural Aspects

McBurney subdivided the stratigraphy into seven culture-stratigraphic units (or phases), from top to bottom:

1. Phase G, Historic and Protohistoric (c. 4500 B.P. to present)
2. Phase F, Neolithic of Libyco-Capsian tradition (7000–4700 B.P.)
3. Phase E, Libyco-Capsian (10,000–7000 B.P.)
4. Phase D, Eastern Oranian (18,000–10,000 B.P.)
5. Phase C, Dabban (40,000–15,000 B.P.), but perhaps better given an upper date of 18,000 B.P. in light of more recent work at Tamar Hat and other sites (Klein and Scott 1986)
6. Phases BI to BIV, Mousterian (60,000–40,000 B.P.)
7. Phase A, Pre-Aurignacian (80,000–65,000 B.P.)

As the names imply, McBurney interpreted Phases D, E, and F as showing relations with the Maghreb to the west. The nature of these relations for Phases D and E is examined in detail by Close (1986) using her own reanalysis of the stone tools. She concluded that there are, indeed, relations but that the Haua Fteah materials are sufficiently distinctive to be accorded separate status and "should be considered as parts of a single industry, which, in terms of the Maghrebi sequence, is most similar to the Iberomaurusian" (Close 1986: 175). The Dabban, Phase C, is one of the very few non-Aterian industries of this date known from the Maghreb and, as Close showed, has good correspondence with a number of industries of roughly similar date found in the Nile valley.

Faunal remains were well preserved at Haua Fteah and were the subject of two exhaustive analyses: the first by Higgs (1967a, 1967b) and the second by Klein and Scott (1986) who also reviewed the paleoclimatic interpretations of the deposits based on geological and paleontological data. Barbary sheep (*Ammotragus lervia*) are common throughout the sequence. Next most numerous are bovines (mostly aurochs—*Bos primigenius*), while gazelle are present throughout but more frequent in Phases A, B, and C. Hartebeest (*Alcelaphus buselaphus*) are present in small numbers as are equids. Rhinoceros are found in Phases A and B with trace amounts in C. Domestic caprines appear first in the Libyco-Capsian (Phase E), are more frequent in Phase F, and then dominate the identifiable faunal remains in Phase G.

Marine and terrestrial invertebrate remains are found throughout the deposit. The marine shells in Phase A "rank among the oldest evidence in the world for human use of coastal resources" (Klein and Scott 1986: 520). Shells of edible land snails occur primarily in Phase A and Capsian and Iberomaurusian sites to the west in the Maghreb (see Iberomaurusian and Capsian, with references).

References

Close, Angela (1986). "The Place of the Haua Fteah in the Late Palaeolithic of North Africa." In *Stone Age Prehistory: Studies in Memory of Charles McBurney*, ed. G. N. Bailey and P. Callow. Cambridge: Cambridge University Press, 169–180.

Higgs, E. S. (1967a). "Environment and Chronology—The Evidence from Mammalian Fauna." In *The Haua Fteah* (*Cyrenaica*) *and the Stone Age of the South-East Mediterranean*, ed. C. B. M. McBurney. Cambridge: Cambridge University Press, 149–163.

Higgs, E. S. (1967b). "Faunal Fluctuations and Climate in Libya." In *Background to Evolution in Africa*, ed. W. W. Bishop and J. D. Clark. Chicago: University of Chicago Press 16–44.

Klein, R. G., and K. Scott (1986). "Re-Analysis of Faunal Assemblages from the Haua Fteah and Other Late Quaternary Archaeological Sites in Cyrenaïcan Libyca." *Journal of Archaeological Science* 13: 515–542.

McBurney, Charles B. M. (1967). *Haua Fteah* (*Cyrenaica*) *and the Stone Age of the South East Mediterranean*. Cambridge: Cambridge University Press.

McBurney, C. B. M., and R. W. Hey (1955). *Prehistory and Pleistocene Geology in Cyrenaïcan Libyca*. Cambridge: Cambridge University Press.

Kef Zoura D

TIME PERIOD: c. 9500–7000 B.P.

LOCATION: At about 1100 m above sea level in the Télidjène Basin, south of Cheria, Tebessa Wilaya, Algeria (7°47′48″ E, 35°8′34″ N).

DESCRIPTIVE SUMMARY

Local Environment

The region has a semiarid Mediterranean climate with cool, wet winters and hot, dry summers. The average annual precipitation is 340 mm per year. The mean annual temperature is 15 °C, with a monthly mean for January of 5–6 °C. The modern vegetation consists of a degraded steppe composed predominantly of shrubs and grasses such as sagebrush (*Artemisia herba alba*) and alfa grass (*Stipa tenacissima*). Where moisture permits along perennial watercourses or near springs, there are poplar (*Populus alba*), willow (*Salix alba*), tamarix (T. *africana*), oleander (*Nerium oleander*), rushes (*Peganum harmala*), and various thistles. On those slopes where soil remains, there are occasional stands of pine (*Pinus halepensis*), oak (*Quercus ilex*), and juniper (*Juniperus phoenicea*).

Physical Features

The Télidjène basin is a southwest-northeast–trending breached anticline (28 by 8 km). The basin rim is formed of Eocene limestone and is cut by a number of high-angle normal faults. The floor of the basin (about 1000 m above sea level) is underlaid primarily by soft, greenish shales (Upper Cretaceous–Paleocene), interrupted near the center of the basin by a hill of lower Cretaceous sandstone; to the west of this hill is an area of diapiric intrusions of Triassic evaporites. Zef Zoura D is one of a series of north-facing rock shelters located 60–80 m above the basin floor in the limestone escarpment that forms the southwestern end of the basin (Site No. 201 in Grébénart's [1976] gazetteer). The shelter is over 30 m long and 6 m from front to back, with at least 3 m of archaeological deposit remaining (a substantial portion has been eroded downslope at several times during the past 9000 years).

Cultural Aspects

Kef Zoura D is one of only two sites (the other is the neighboring site of Relilai; Grébénart 1976: 139–203) at which there is confirmed evidence for both Typical Capsian and Upper Capsian. Because we know that these two variants are, in general, contemporary (cf. Camps 1974: 154–158; Lubell et al. 1984, 1992), this makes it an important site. It is all the more unfortunate that political events in Algeria have prevented completion of work there (Lubell et al. n.d.).

Unlike smaller open-air Capsian sites such as Aïn Misteheyia and Dra-Mta-El-Ma-El-Abiod, Kef Zoura D retains visible (and highly complex) stratigraphy. There appear to have been two major periods of occupation. The earlier, which is tentatively assigned to the Typical Capsian, is known from only a small area of excavation near the front of the shelter and the presence of larger tools littering the talus slope below. Whether this is actually a case of vertical succession or apparently a lateral stratigraphy as at Relilai cannot be confirmed at present. There is clearly a depth of time represented at Kef Zoura D, and there may be a hiatus in the middle of the deposit caused by a partial scouring of the site because of the abrupt episode of climatic change that occurred at c. 8200 B.P. (Alley et al. 1997).

At this site, individual snail collection heaps are preserved and can be identified and analyzed, as can structural arrangements reminiscent of those seen in one level at Aïn Misteheyia (Lubell et al. 1975: Fig. 20). Changes in the composition of the artifact and faunal assemblages are analogous to those seen elsewhere (e.g., Lubell et al. 1984: 182–184): diminution in the size of artifacts; changes in frequencies of particular kinds of tools (especially burins and geometric

microliths); shifts in subsistence strategies as indicated by decrease in frequency of larger vertebrates and land snails.

References

Alley, R. B., P. A. Mayewski, T. Sowers, M. Stuiver, K. C. Taylor, and P.U. Clark (1997). "Holocene Climatic Instability: A Prominent, Widespread Event 8200 Years Ago." *Geology* 25(6): 483–486.

Camps, Gabriel (1974). *Les Civilisations Préhistoriques de l'Afrique du Nord et du Sahara*. Paris: Doin.

Grébénart, Danilo (1976). *Le Capsien des régions de Tébessa et d'Ouled-Djellal, Algérie: Contribution à son étude*. Aix-en-Provence: Études méditerranéennes 1, Éditions de l'Université de Provence.

Lubell, David, A. Gautier, E. T. Leventhal, M. Thompson, H. P. Schwarcz, and M. Skinner (1982–1983). "Prehistoric Cultural Ecology of Capsian *escargotières*, Part 2: Report on Investigations Conducted during 1976 in the Bahiret Télidjène, Tebessa Wilaya, Algeria." *Libyca* 32–33: 59–142.

Lubell, David, P. Sheppard, and M. Jackes (1984). "Continuity in the Epipaleolithic of Northern Africa with Emphasis on the Maghreb." In *Advances in World Archaeology*, *Vol. 3*, ed. F. Wendorf and A. Close. Orlando Fla.: Academic Press, 143–191.

Lubell, David, P. Sheppard, and A. Gilman (1992). "The Maghreb." *Chronologies in Old World Archaeology*, 3rd edn., ed. R. W. Ehrich. Chicago: University of Chicago Press, 305–308 (Vol. 1) and 257–267 (Vol. 2).

Lubell, David, M. Jackes, P. Sheppard, W. R. Farrand, and others (n.d.). *Early to Mid-Holocene Subsistence and Settlement in the Telidjene Basin, Eastern Algeria* (in preparation).

Medjez II

TIME PERIOD: c. 8900–6500 B.P.

LOCATION: Algeria; east of Setif, 4 km north of El Eulma (Lambert coordinates 769.85 by 325 on sheet 154 of the 1:50,000 topographic series for Algeria, or approximately 5°42′ E, 36°11′ N).

DESCRIPTIVE SUMMARY

Local Environment

The archaeological deposits rest on fluviolacustrine deposits, and there are exposures of flint-bearing limestones in the immediate vicinity. The surrounding soil cover, sandy and clayey, is suitable for cereal cultivation. Trees are rare, and the predominant vegetation cover is semiarid grassland. The climate is Mediterranean with cold, dry winters and hot, dry summers. Rainfall occurs in the spring or fall.

Physical Features

A mound, 100 m by 40 m by 3.65 m, adjacent to a spring, the Aïn Berda. The archaeological deposits consist of ash, fire-cracked rock, land-snail shell, vertebrate faunal remains, human skeletons, and bone and lithic artifacts (Camps-Fabrer 1975).

Cultural Aspects

Medjez II is the largest of several open-air Capsian *escargotières* in the immediate vicinity. It is assigned to the Setif facies of the Upper Capsian (*Capsien supérieur*) by the excavator, H. Camps-Fabrer (see Camps 1974: 132–140, for a definition, and Lubell et al. 1984, for a discussion of facies and variability in the Capsian). Despite the restricted nature of the excavations (two 1-m-wide trenches—6 m and 3 m long—to sterile substrate), the site is important because modern methods of excavation, recovery, and analysis were employed and because it provides a deep stratified sequence. Although the radiocarbon dates pose some problems of interpretation—two series, run at different laboratories, gave different results (see Lubell et al. 1992)—it is nonetheless clear that Medjez II spans the technological transition identified by Sheppard (1987) and dated to c. 8000 B.P., which appears to be related to an abrupt, short-lived period of climatic change identified at other sites in eastern Algeria (see Lubell et al. 1984: 182–184).

Camps-Fabrer's excavations at Medjez II, despite being fairly restricted in extent, yielded four adult and seven neonate skeletons. To this total, we can add at least three adults and one infant recovered during earlier, less systematic excavation at the site. The adults show a range of burial patterns—from fully extended to tightly flexed. Dental evulsion is present, as are human bones that have been used to manufacture artifacts.

Faunal remains are consistent with other Capsian sites, with enormous numbers of land snails belonging to several species and abundant vertebrates. For larger vertebrates, hartebeest (*Alcelaphus buselaphus*) is the most common, followed by gazelle and Barbary sheep (*Ammotragus lervia*). In terms of NISP, the hare (*Lepus kabylicus*) is the more frequent.

Charcoal was collected and identified from all levels. The most common element is ash (*Fraxinus oxyphylle*), with lesser amounts of several other arboreal varieties including arbutus, willow, hawthorn, carob, oak, pistachio, cedar, juniper, and pine. Few of these are found in the region today, certainly not in the abundance implied by the frequency of ash and charcoal in this site, or for that matter in any other Capsian *escargotière*.

Medjez II can stand as a "type example" for the open-air Capsian *escargotières* of eastern Algeria. Whether large as is the case here (e.g., Mechta el Arbi [Camps 1974: 132; Pond et al. 1928] or Sites 12 and 51 [Pond et al. 1938] or small (e.g., Aïn Misteheyia, Dra-Mta-El-Ma-El-Abiod), there is a relatively homogeneous pattern: located near springs, these midden deposits are composed of abundant ash and fire-cracked rock, which give them a gray color that contrasts with the surrounding beige soils. The deposits contain enormous numbers of whole and crushed land-snail shells in addition to vertebrate remains, stone and bone tools and, almost always, human burials.

References

Camps, Gabriel (1974). *Les Civilisations Préhistoriques de l'Afrique du Nord et du Sahara*. Paris: Doin.

Camps-Fabrer, Henriette (with chapters by M. Chabeuf, M.-C. Chamla, J. Bouchud, and M. Couvert) (1975). *Un Gisement Capsien du faciès Sétifien: Medjez II, El-Eulma (Algérie)*. Paris: Centre National de la Recherche Scientifique.

Lubell, David, P. Sheppard, and M. Jackes (1984). "Continuity in the Epipaleolithic of Northern Africa with Emphasis on the Maghreb." *Advances in World Archaeology, Vol. 3*, ed. F. Wendorf and A. Close. Orlando, Fla.: Academic Press, 143–191.

Lubell, David, P. Sheppard, and A. Gilman (1992). "The Maghreb." In *Chronologies in Old World Archaeology*, 3rd edn., ed. R. W. Ehrich. Chicago: University of Chicago Press, 305–308. (Vol. 1) and 257–267 (Vol. 2).

Sheppard, Peter J. (1987). *The Capsian of North Africa: Stylistic Variation in Stone Tool Assemblages*. Oxford: British Archaeological Reports, International Series 353.

Taforalt

TIME PERIOD: c. 22,000–10,000 B.P.

LOCATION: Northeastern Morocco, southwest of Berkane and northwest of Oujda (35°54′ N, 2°22′ W).

DESCRIPTIVE SUMMARY

Local Environment

Taforalt Cave lies 850 m above sea level in the Beni-Snassen massif, a west-southwest-east-northeast–trending limestone ridge rising to 1530 m which is part of the western chain of the Atlas mountains. Climate in the region today is Mediterranean, and vegetation cover, although sparse, does include stands of Mediterranean woodland (mostly Aleppo pine, *Pinus halepensis*) (Santa 1958–1959).

Physical Features

Taforalt is a large east-facing cave in a dolomitic limestone cliff. The opening is about 30 m wide and 15 m high; the rear wall is 12 m wide, and the distance from rear to front is 31 m (Roche 1963: Pl. II A and Fig. 4). The archaeological deposits are ashy, with abundant fire-cracked rock. The deposits consist of nine major layers that reach a maximum exposed thickness of almost 5 m, underlaid by yellow sand (Roche 1963: Fig. 9). Roche (1972: 5–6) stressed the ease of access, good light, and proximity to a permanent spring (see Roche 1963: Fig. 3) in addition to the rich archaeological record, as reason for describing Taforalt as "le gisement épipaléolithique le plus important de tout le Maghreb" (Roche 1972: 5).

Cultural Aspects

The site was first tested by Ruhlmann in the 1940s, but no publications resulted. Roche excavated the site from 1950 to 1957 and again briefly in 1969, publishing his results in some detail (Roche 1963, 1972, 1976—all with references).

The 1950s excavations covered about three-quarters of the surface of the cave (Roche 1963: Figs. 4–8), exposing a 30-m-long section (Roche 1963: Fig. 9 and Pl. I) through the Epipalaeolithic deposits (Roche preferred this term to Iberomaurusian). In addition to a large assemblage of lithic (20,000 retouched tools, 5,000 cores, and at least 500,000 pieces of debitage) and bone (about 550 pieces) artifacts, ground stone mortars (Roche 1963: Fig. 41), and some art (Roche 1963: Fig. 47), Roche found and excavated two cemeteries, recovering a total of 180 skeletons (the majority, infants—Ferembach 1965; Ferembach et al. 1962). The 1969 work consisted of two much smaller tests (2.5 m by 1 m and 2 m by 1.5 m), dug through the yellow sand. These exposed further Epipalaeolithic layers underlaid by a Palaeolithic breccia (Roche 1972: Fig. 3).

The chronology is equivalent to Tamar Hat, established by a series of 14 internally consistent radiocarbon determinations to between 20,600–10,800 B.P. The cemetery is dated by a single sample to 11,900 B.P. (Lubell et al. 1992: II: 259).

Roche (1963: 152–154) provided only presence–absence data for fauna and flora. Vertebrate remains include genera and species known to be common throughout the Maghreb in this period, and once again (as at Tamar Hat) land snails are abundant. Roche

interpreted the heavily rolled marine shells as having been collected from beaches and not as part of the diet. Charcoal from the deposits was analyzed by Santa (1958–1959). The assemblage is dominated by Aleppo pine (*Pinus halepensis*) in association with oak and juniper—much the same as at present.

References

Ferembach, Denise (1965). *Diagrammes craniens sagittaux et mensurations individuelles des squelettes Ibéromaurusiens de Taforalt* (*Maroc Oriental*). Travaux du Centre de Recherches Anthropologiques, Préhistoriques et Ethnographiques, Alger. Paris: Arts et Métiers Graphiques.

Ferembach, Denise, Dastugue, J., and Poitrat-Targowla, M.-J. (1962). *La Nécropole Epipaléolithique de Taforalt* (*Maroc Oriental*): *Étude des squelettes humains*. Rabat: Edita Casablanca.

Lubell, David, P. Sheppard, and A. Gilman (1992). "The Maghreb." In *Chronologies in Old World Archaeology*, 3rd edn., ed. R. W. Ehrich. Chicago: University of Chicago Press, 305–308 (Vol. 1) and 257–267 (Vol. 2).

Roche, Jean (1963). *L'Epipaléolithique Marocaine*. Lisbon and Paris: Fondation Calouste Gulbenkian.

Roche, Jean (1972). "Les Cultures épipaléolithiques du Maroc." In *Die Anfänge des Neolithikums vom Orient bis Nordeuropa*, *7*: *Westliches Mittelmeergebiet und Britische Inseln*, ed. J. Lüning. Vienna: Fundamenta, Reihe A, Bd. 3. 1–18.

Roche, Jean (1976). "Cadre chronologique de l'Epipaléolithique Marocaine." In *Chronologie et synchronisme dans la Préhistoire circum-Méditerranéenne*, ed. G. Camps. Nice: Prétirage, Colloque II, IX Congrès, Union International des Sciences Préhistoriques et Protohistoriques, 153–167.

Santa, S. (1958–1959). "Essai de reconstitution de paysages végétaux quaternaires d'Afrique du Nord." *Libyca* 6–7: 37–77.

Tamar Hat

TIME PERIOD: 21,000–10,000 B.P.

LOCATION: Algeria (36°40′ N, 5°25′ E).

DESCRIPTIVE SUMMARY

Local Environment

"Tamar Hat Cave is a rock shelter facing the sea at the eastern end of the Bejaia Bay in eastern Algeria (5°25′ E, 36°40′ N). It is located 2 km east of the Agrioun River mouth. To the south are low, but rugged mountains. The coastal plain in front of the cave now consists of a strip of sand, 400 m wide and less than 1 m above sea level. The existence of wave-cut caves along the base of the limestone ridge (20 m below the entrance of the solution caverns with archaeological deposits) indicates that the sand has only recently accumulated in front of the cave. At the period of most recent high sea level, the Mediterranean would have completely inundated the level area in front of Tamar Hat" (Saxon et al. 1974: 49–50)."

Physical Features

The shelter is 18 m wide at the mouth, at least 11 m from rear wall edge of deposit, and 4 m deep. There do not appear to be any breaks in the stratigraphic sequence (Close 1980–81), which is divided into six zones made up of 85 distinct layers with numerous hearths or ash lenses (Saxon et al. 1974) and dated by an internally consistent series of seven radiocarbon dates for charcoal to between 20,600–10,350 B.P.

Cultural Aspects

Tamar Hat has been the object of three separate excavations (Arambourg et al. 1934; Brahimi 1969; Saxon et al. 1974). Only the last can be considered completely reliable because Saxon used fully modern excavation and analysis techniques and exposed a complete sequence through the Iberomaurusian. In this latter respect, the site ranks second in importance only to Haua Fteah for our understanding of this period of Maghreb prehistory. Analysis of the lithics (Close 1980–1981) suggests that the site "was reoccupied many times, apparently by the same, diachronic, social group . . . [suggesting] not only an astonishing longevity and stability in the maintenance of group territories, but also a very successful pattern of adaptation" (Close and Wendorf 1989: 45). This pattern was probably a seasonal one (largely winter, based on oxygen isotope analyses of marine shells) and included heavy reliance on Barbary sheep (*Ammotragus lervia*). Saxon (Saxon et al. 1974; Saxon 1975, 1976) interpreted the characterisitics of the A. *lervia* remains as evidence for domestication, but this has been challenged on a number of grounds (Klein and Scott 1986; Lubell 1984; Morel 1978). Land snails also form an important element in the faunal assemblage (as they do in later, inland Capsian sites; see Lubell 1984), but despite the location, marine fauna is not common.

References

Arambourg, C., M. Boule, H. Vallois, and R. Verneau (1934). *Les Grottes Paléolithiques des Beni-Segoual* (*Algérie*). Paris: Archives de l'Institut de Paléontologie humaine, Mémoire 13.

Brahimi, Claude (1969). "L'Industrie lithique de l'abri de Tamar Hat (Petite Kabylie)." *Libyca* 17: 35–48.

Close, Angela (1980–81). "The Iberomaurusian Sequence at Tamar Hat." *Libyca* 28–29: 69–104.

Close, Angela and Fred Wendorf (1989). "North Africa at 18,000 B.P.," In *The World at 18,000 B.P. Vol. 2*: *Low Latitudes*, ed. C. Gamble and O. Soffer. London: Unwin Hyman, 41–56.

Klein, R. G., and K. Scott (1986). "Re-analysis of Faunal Assemblages from the Haua Fteah and other Late Quaternary Archaeological Sites in Cyrenaïcan" Libyca. *Journal of Archaeological Science* 13: 515–542.

Lubell, David (1984). "Paleoenvironments and Epipaleolithic Economies in the Maghreb (c. 20,000 to 5000 B.P.)." In *From Hunters to Farmers*: *Considerations of the Causes and Consequences of Food Production in Africa*. In J. D. Clark and S. Brandt. Berkeley and Los Angeles: University of California Press, 41–56.

Morel, Jean (1978). "Les Sources d'alimentation des épipaléolithiques de Tamar Hat et le problème des origines de la domestication en Afrique du Nord." *Bulletin du Musée d'Anthropologie Préhistorique de Monaco* 22: 72–78.

Saxon, Earl C. (1976). "The Evolution of Domestication: A Reappraisal of the Near Eastern and North African Evidence." In *Origine de l'élévage et de la domestication*, ed. E. S. Higgs. Nice: Prétirage, Colloque XX, IX Congrès, Union International des Sciences Préhistoriques et Protohistoriques, 180–226.

Saxon, Earl C., A. E. Close, C. Cluzel, V. Morse, and N. J. Shackleton (1974). "Results of Recent Investigations at Tamar Hat." *Libyca* 22: 49–91.

Saxon, Earl C. (1975). "The Prehistoric Economies of the Israeli and Algerian Littorals: 18,000–8000 B.P." Ph.D. diss., Cambridge University.

David Lubell
Department of Anthropology
University of Alberta
Edmonton, Alberta
Canada