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INTRODUCTION

D. Lubell

During the late Pleistocene and Holocene the circum-Mediterranean region was occupied by a plethora of hunter-gatherer-collector groups who used microlithic tools and practised a form of subsistence which has been termed « broad spectrum » (1). The Capsian is one of these archaeological cultures.

Capsian sites are generally open-air mounds consisting of fire-cracked rock, lithic and bone artifacts, fragmentary mammalian remains, occasional human skeletons, and enormous numbers of land snail shells, all contained within a highly alkaline ashy matrix with abundant charcoal. These sites are usually refered to as escargotières although the Arabic word *rammadiyat* (sing. *rammadiya*) derived from the word for ash (*rumad*) or ashy color (*rumadi*) has also been suggested (2). Rockshelter and cave sites are also known but are less frequent.

Prehistorians generally interpret Capsian subsistence to have been heavily dependent on land snails as a source of animal protein despite admonitions to the contrary by a number of people with primary field experience. The latter usually emphasize the probable rôle of hunting and plant collection in addition to snail gathering.

Gobert (3) argued that :

« Rien n'autorise à l'affirmer, ni n'autorise à croire que l'escargot occupait la première place dans la cuisine capsienne ».

In the report on the Logan Museum investigations near Canrobert (now called Oum el-Bouaghi), Romer (4) observed that :

« It thus seems probable that differences between faunal materials in the various sites are to be attributed to differences in mode of life and hunting customs in the various human

(1) FLANNERY (K.V.). — *Origins and effects of early domestication in Iran and the Near East.* In, UCKO (P.J.) & DIMBLEBY (G.W.), (eds). — *The Domestication and Exploitation of Plants and Animals,* Chicago, 1969, pp. 73-100.

(2) GOBERT (E.G.). — *Les escargotières : le mot et la chose.* Revue Africaine, t. 81, pp. 631-645.

(3) *Ibid.*, p. 640.

(4) ROMER (A.). — *Mammalian remains from some paleolithic stations in Algeria.* Logan Museum Bulletin nº 5, Beloit, Wisconsin, 1938, p. 166.

groups occupying them, although it is possible that there may have been seasonal differences in the time of occupation of the various camps, and possibly some fluctuations during the total time occupied by the formation of the deposits ».

Inexplicably, both these suggestions appear to have been ignored by subsequent investigators and this is all the more difficult to understand given the very high density of Capsian sites remarked on by both Balout (1) and Vaufrey (2). The former noted the apparent prediliction of Capsian groups for site locations near springs, in (supposedly) good defensive positions, and at passes (3). He then went on to argue that these sites gave « ... l'impression d'une attitude d'envahisseurs, d'une insécurité collective et peut-être même particulière à chaque campement » (4).

Balout (5) concluded that :

« ... les Capsiens ne sont point grands chasseurs. Leur genre de vie sédentaire... doit se fonder, dès le Capsien supérieur, non seulement sur l'abondance inépuisable des mollusques, mais encore sur la cueillette sinon sur une agriculture rudimentaire ».

Vaufrey's view, in contrast to the above, was that the Capsians were :

« ... comme leurs prédécesseurs du Paléolithique ancien et moyen, des peuples chasseurs, dont les proies préférées étaient les Couaggas et les Bulades, mais ils complétaient leur régime par la capture de Rongeurs... par la récolte des escargots... par la cueillette des plants, des fruits et de graines... » (6).

We now know that the chronological distinction between the Capsien typique and the Capsien supérieur proposed by Vaufrey (7) is largely invalid. The radiocarbon dates for sites of both « industries » overlap in time (8). We can therefore legitimately use the generic term Capsian instead of Capsien supérieur when refering to the above quotation from Balout. If Capsian settlements were sedentary (i.e. year-round habitation sites) their density would imply population figures for Capsian groups well in excess of those accepted for very prosperous modern or prehistoric hunter-gatherers (9). A model of seasonal and/or intermittent occupation of these sites seems far more reasonable if land snails did, in fact, constitute an important source of protein in the Capsian diet. The question this implies might well have been answered before now if prehistorians had followed the prescient suggestions of Romer. Furthermore, with very few exceptions (10) the abundant palaeoecological information available in Capsian escargotières which could have been used to investigate this possibility, has been ignored and as a consequence explanation has stagnated.

Baker (11) had demonstrated and Morel (12) confirmed that the land snail species found in the escargotières were still extant in the same regions today. Morel alluded as well to their seasonal abundance, a fact well known for numerous land snails and especially for those arid-lands species whose survival may often be predicated on an ability to withstand long-term extremes of temperature and humidity by aestivating or hibernating. The archaeological implications of land snail seasonality for prehistoric subsistence patterns has been discussed by Reed (13) for the Zagros region and a bibliography compiled by Drake (14) contains other examples.

We decided to examine the implications of Baker's and Morel's data and Romer's suggestion by further fieldwork. We reasoned as follows :

a) if the land snails found in the escargotières are still extant today,

and if

b) they were therefore only available during certain seasons,

and if

c) modern ecological conditions are analogous to mid-Holocene ones,

(1) Balout (L.). — *Préhistoire de l'Afrique du Nord,* A.M.G., Paris, 1955, p. 397.

(2) Vaufrey (R.). — *Préhistoire de l'Afrique, T. I : le Maghreb,* Paris, 1955, p. 234.

(3) Balout (L.). — *Op. l.,* 1955, p. 398.

(4) *Ibid.*

(5) *Ibid.,* p. 431.

(6) Vaufrey (R.). — *Op. l.,* 1955, p. 413.

(7) *Id., Notes sur le Capsien.* L'Anthropologie, t. 43, 1939, pp. 456-483.

(8) Grebenart (D.). — *Le gisement capsien de Rabat près d'Ouled Djellal.* Libyca, t. 19, 1971, pp. 165-169.

Id., *Vues générales sur le peuplement capsien au Nord des Némencha : secteurs de Chéria, Télidjène et Rass el-Euch.* Libyca, t. 19, 1971, pp. 171-178.

Camps (G.), Delibrias (G.) et Thommeret (J.). — *Chronologie des civilisations préhistoriques du Nord de l'Afrique d'après le radio-carbone.* Libyca, t. 21, 1973, pp. 65-89.

(9) Lee (R.B.) et Devore (I.). — *Man the hunter.* Chicago, 1968.

Hassan (F.A.). — *Determinants of the size, density and growth rates of hunting-gathering populations.* In, Polgar (S.), (éd.), *Population ecology and social evolution.* Mouton, The Hague, 1975.

(10) Morel (J.). — *Le Capsien de Khanguet el-Mouhaâd.* Libyca, t. I, 1953, pp. 103-119.

Id., *La faune de l'escargotière de Dra-Mta-El-Ma-El-Abiod (Sud algérien).* L'Anthropologie, t. 78, 1974, pp. 299-320.

(11) Baker (F.C.). — *The mollusca of the shell heaps or escargotières of northern Algeria including comparisons with the recent fauna of Algeria.* Logan Museum Bulletin nº 5, Beloit, Wisconsin, 1938, pp. 185-266.

(12) Morel (J.). — *l. l.,* 1953 et 1974.

(13) Reed (C.A.). — *Snails on a Persian hillside.* Postilla, nº 66, Yale University, New Haven, 1962, pp. 1-20.

(14) Drake (R.J.). — *Molluscs in archaeology and the recent.* Vancouver, 1960-1962.

then

d) Capsian subsistence must have been adapted to account for this,

and if

e) land snails did form a major dietary element then Capsian escargotières were probably not occupied year-round.

Certain evidence suggested the possibility of transhumance by Capsian groups between the Tébessa and Négrine regions. In the latter, Balout (1) had demonstrated the presence of Capsion sites and emphasized the lack of barriers to movement via the SW-NE trending valleys. This possibility had also been suggested by Pond (2). Furthermore, Grébénart (3) had remarked on the absence (or at least the rareity) of land snails from sites with Capsian lithic assemblages in the Négrine and Ouled Djellal regions. We wondered, therefore, if Capsian groups might have moved between the two areas seasonally, concentrating their occupation of the Chéria region (and the High Constantine Plains in general) during periods of peak snail availability.

To investigate this possibility, we first examined the Chéria and Ouled Djellal regions in July and August of 1972. On the basis of our observations, and largely due to the availability of an excellent gazeteer of Capsian sites in the Chéria region (4), we decided to concentrate further work there. We spent the period from June to November 1973 in Algeria investigating the geomorphology, palaeontology, palynology and archaeology of Holocene deposits and Capsian escargotières in the Chéria region. The results of this research are presented here, and while only preliminary, we think they are of sufficient importance to warrant publication now. We hope the reader will excuse those lacunae which are as unavoidable as they are regretted.

(1) BALOUT (L.). — *Op. l.*, p. 428.

(2) POND (A.W.). & *al.* — *Prehistoric habitation sites in the Sahara and north Africa.* Logan Museum bulletin nº 5, Beloit, Wisconsin, 1958, p. 159.

(3) GREBENART (D.). — *l. l.*, 1971, p. 174.

(4) ID. — *Le Capsien des régions de Tébessa et d'Ouled Djellal.* Travaux du L. A. P. M. O., Aix-en-Provence, 1975.

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Palynological analyses were supervised by Dr T. Habgood of the Palaeoenvironmental Laboratory, Department of Anthropology, University of Alberta. Sedimentological and geochemical samples were processed by the Soils Department, Universty of Alberta and interpreted by Hassan who was greatly aided by advice from Dr A. Hassan. Figures 2, 9, 10, 11, 12, 13 and 19 were drawn by I. Wilson, Cartographic Section, Department of Geography, University of Alberta.

Analysis of the lithic collections was primarily the responsibility of Close and Hassan with assistance from Lubell. Chippendale was instrumental in the

study of modern land snail densities and first noticed the paucity of five-banded *Otala* spp. in modern assemblages. Elmendorf helped in all aspects of the research.

The senior author greatfully acknowledges the unstinting cooperation of all members of the project, but especially thanks Hassan, Close, Chippendale and Elmendorf for remaining in the field and completing work in progress when he and Gautier were forced to leave due to illness. Without their help this project would never have come to fruition. He also wishes to thank J. Rastoul of the Canadian Embassy in Algiers for succor at a particulary critical time.

Although the present report is very much a collaborative effort, with each of us contributing suggestions to the others, the major author(s) of each section are credited following the section title.

We dedicate this work to the memories of F.-E. Roubet and E. G. Gobert.

ENVIRONMENTAL SETTING

Eastern Algeria consists of two major biogeographical zones as defined by Quézel and Santa (1) on the basis of flora. To the north are the High Constantine Plains (H2) and to the south the Constantine Saharan Atlas (AS 3) which includes the Aurès and the Nemenchas. Essentially it is a region of plains bounded on the north, south and west by mountains. The region includes the major centers of Sétif, Constantine, Biskra and Tébessa (fig. 1). The elevation of the plains averages about 1 000 meters, with an undulating topography punctuated by elongate ridges which rise as musch as 500 meters above the plains.

The climate is semi-arid with cool, wet winters and hot dry summers. It falls within the steppe-grassland (BSk) of Köppen (2). Mean annual precipitation at Tébessa is 340 mm with a monthly minimum in July (8 mm) and monthly maximum in April (44 mm). Snow is common in winter. Mean annual temperature is 15° C with a mean monthly low of 5,6° C in January and mean monthly high of 25,6° C in July (3). The region is thus at or near the critical values for the limits of the grassland-desert boundary (4). As such, the ecological equilibrium of the region must be considered precarious and easily upset by anthropogenic disturbance. Such disturbance during the historic period is well documented within the circum-Mediterranean area (5) as well as in other regions of semi-arid climate (6). The introduction of mechanized wheat monoculture during the period of French colonization has had disastrous effects (7) which are readily visible today. Denuded slopes, rapid colluviation and marked degradation of stream beds are common. The density and size of Roman settlement in the region argues convincingly that the modern situation is mostly a recent phenomenon. For example, a shepherd living at the large Roman site on the the flank of Djebel El-Outed (where are there are numerous escargotières, fig. 2), told us he had to cross the Djebel El-Bib and go to Aïn Télidjène (a distance of about 10 km) to obtain water. It would appear that the water table has been lowered significantly since Roman times.

It is therefore unlikely that the modern vegetation patterns in this region bear any great resemblance to those of the historic or prehistoric past. The modern vegetation consists of a degraded steppe composed predominantly of grasses and shrubs such as alfa grass (*Stipa tenacissima*) and *Artemisia herba-alba* and *A. campestris*. In more humid habitats such as the courses of perennial wadis or near spring, poplar (*Populus alba*), willow (*Sadix pedicellata*), tamarix (*T. africana*), oleander (*Nerium oleander*), rushes (*Peganum harmala*) and various thistles all occur. On those slopes where some soil remains one can occasionally observe

(1) QUEZEL (P.) et SANTA (S.). — *Nouvelle flore d'Algérie et des régions désertiques méridionales*. Paris, C.N.R.S., 1962.

(2) BUTZER (K.W.). — *Environment and archaeology*. Chicago, 1971, pp. 73-75.

(3) LEBEDEV (A.N.). — *The climate of Africa, Part I*. Jérusalem, 1970.

(4) LANGBEIN (W.B.) & SCHUMM (S.A.). — *Yield of sediment in relation to mean annual precipitation*. American Geophysical Union Transactions, t. 39, 1958, pp. 1076-1084.

(5) LE HOUEROU (H.N.). — *North Africa : past, present future*. In, DREGNE (H.N.), (ed.), *Arid lands in transition*, Washington, 1970, pp. 227-278.
NAVEH (Z.) & DAN (J.). — *The human degradation of mediterranean landscapes in Israël*. In, DI CASTRI (F.). & MOONEY (H.A.), (eds.), *Meditarranean type ecosystems*, New York, 1973, pp. 373-390.

(6) YORK (J.C.) & DICK-PEDDIE (W.A.). *Vegetation changes in southern New Mexico during the past hundred years*. In, MC GINNIES (W.G.). & GOLDMAN (B.J.), (eds.), *Arid lands in perspective*, Tucson, 1969, pp. 155-166.

(7) PASKOFF (R.). — *Geomorphological processes and characteristic landforms in the mediterranean regions of the world*. In, DI CASTRI (F.) & MOONEY (H.A.), (eds.), *Mediterranean type ecosystems*, New York, 1973, pp. 53-60.

stands of pine (*Pinus halepensis*), oak (*Quercus ilex*) and juniper (*Juniperus phoenicea*).

The economy in the area today is primarily a herding one with sheep and goat the principle crop. Small-scale farming provides many of the vegetables used locally although irrigation is required for adequate yields. Cereals are grown primarily on the plains between Tébessa and Constantine. This pattern is beginning to change with the introduction of modern cropping practices, communal agricultural operations, and large-scale irrigation as part of the agricultural reform program of the Algerian government. Efforts are also underway to terrace and reforest some slopes. Undoubtedly these activities will eventually destroy many of the remaining prehistoric sites in the region.

Wild fauna are rare, consisting primarily of hare, the occasional jackal, a few birds, some reported but very rare gazelle or antelope, and a range of terrestrial microfauna including gerbils, scorpions, and the same species of land snails found in Capsian escargotières.

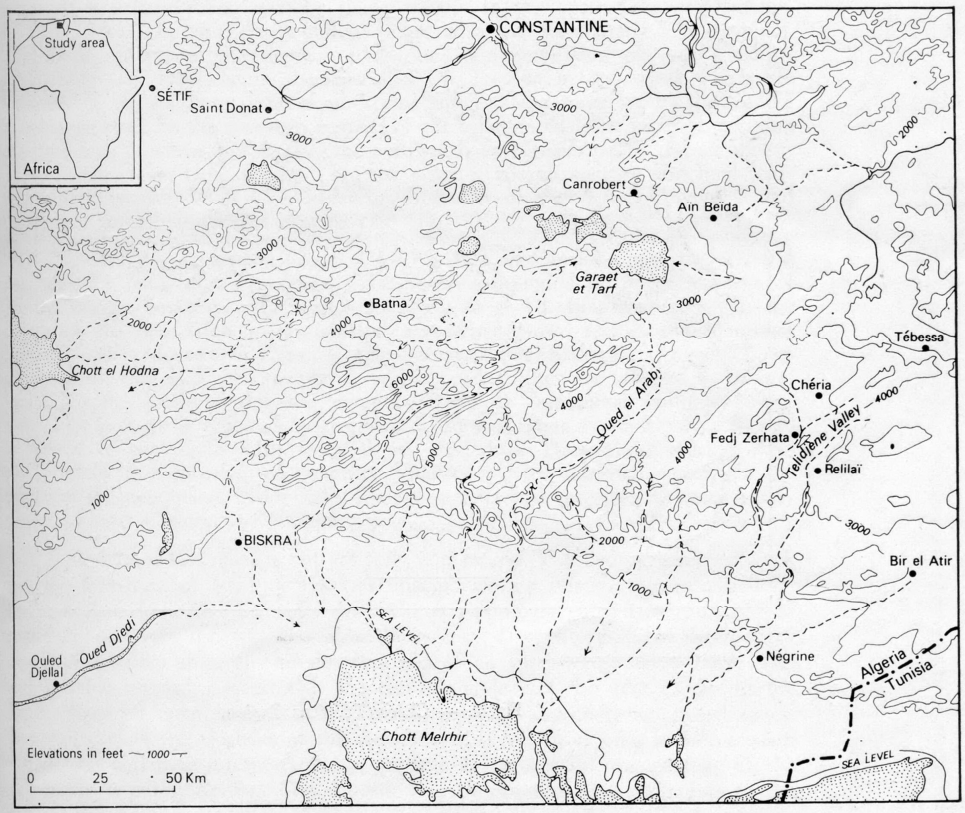

Fig. 1. — Eastern Algeria.

Water is available from springs, artificial wells of up to 20 meters depth, or perennial streams. It seems to be in reasonably plentiful supply although shortages do sometimes occur during the mid-summer.

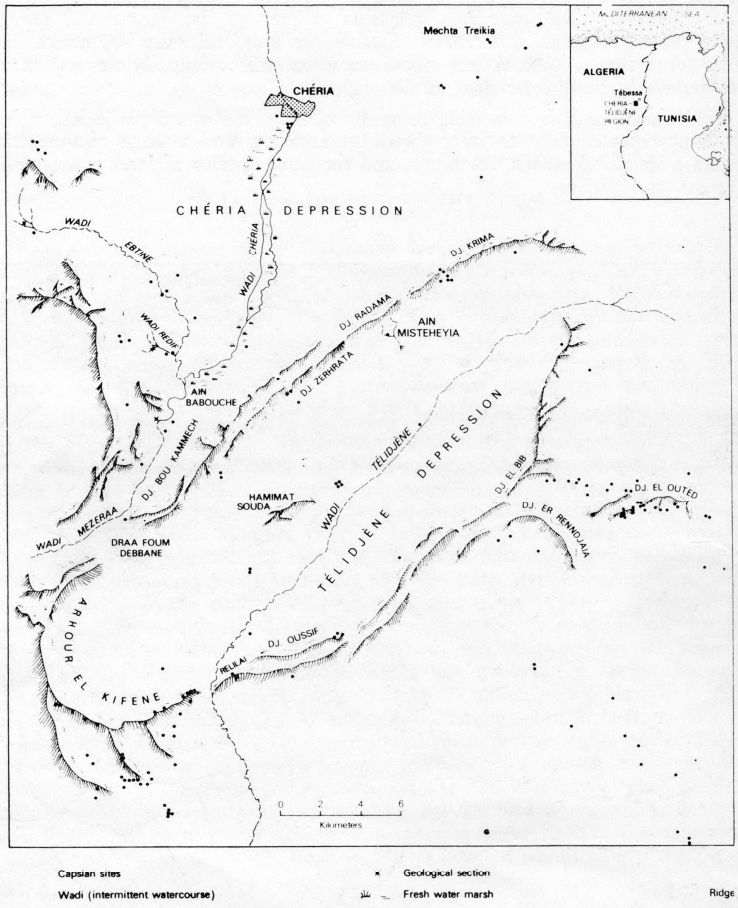

Fig. 2. — Chéria/Télidjène Region.