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THE MICROFAUNA OF THE DJEBEL QAFZE CAVE

by

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The author wishes to express his thanks to M. B. Vandermeersch for transferring to him the microfauna recovered from the Qafze Cave excavations. This is the first, preliminary and partial, report on this rich faunal assemblage. Mammals, mainly, will be discussed in the following paragraphs.

Material from the following strata was available :

2	VII	XVIa/XVII
4	VIIb	XVI/XVII
5	X	XVII
6	XI	XVIII
7	XII	XVII/XVIII
7a	XIII	XVIII/XIX
8	XIV	XIX
9	XV	XIX/XX
10	XVI	XXI
	XVIa	XXII

Arab figures indicate late paleolithic strata from the interior of the cave, whereas Roman figures refer to Mousterian levels from the terrace.

Strata XV, XVI and XVIa were very rich. Strata X (incl.) to XVIII are of Mousterian age; inferior strata up to XXII are, therefore, early mousterian, according to the information given to me by M. Vandermeersch. Strata 6, 7a and 7b are mixed up. Other rich strata were : XVIa/XVII, and XVII to XIX.

The material contained :

A) Very few pulmonate shells in a few strata only, which could be intrusions. For this and the following items, compare the respective lists at the end of this communication.

B) Mainly vertebrate bones, forming the overwhelming part of the animal remains.

Remarks to point B. Except for a few small teleost vertebrae (from layer XVIa/XVII only), all the other vertebrate classes were represented, among these mammals were preponderant in high degree, compared with the rather negligible quantities of birds and reptiles. But there are more reptile than bird remains. Among the reptile remains, gekkonids, *Ophisaurus* (Anguidae) and snakes were more numerous than remnants of *Agama* and *Chameleon* and scinco-lacertids. Very few bones of turtles were found. Urodeles were completely absent, but frogs were found in rather small quantities, mainly in the uppermost levels.

The sparse but rather diversified bird remains will be determined by Dr. Eitan Tchernov.

As far as micromammals are concerned, the following orders were represented: Insectivora, in form of many remains of shrews, ranging second in frequency after the Rodentia; bats occur in rather small quantities; by far the biggest part of the mammals are rodents, and among these, *Microtus guentheri* forms the vast majority.

Second place takes *Mus musculus*, but all the other Murinae are rather less frequent. Among the murid group, *Rattus* (*? Mastomys*) was found in good numbers, followed by the big form *Arvicanthis* cf. *ectos* BATE. A big and a small *Apodemus* were very rare. Among the Gerbillinae, *Meriones* cf. *tamaricinus* was much more numerous than a very scanty small *Gerbillus* sp. Also *Spalax* was present, but rarer than *Meriones*. *Philistomys* (= ? *Myomimus*) was found in rather considerable numbers, comparable to the frequency of *Mus*, but mainly in the deeper strata (especially in XVIa). *Sciurus* cf. *anomalus* GUELDENSTAEDT was found in the superficial layers, but, always in small numbers, also in some of the deeper strata. The most surprising fact about this assemblage of several thousands of mandibles, upper jaws, isolated teeth and other rodent bones was the complete absence of Cricetinae of any sort. J. Heller (1970) also did not report, except two lower incisors referred to *Mesocricetus auratus*, any hamsters from a fairly rich microfaunal assemblage from the rather contemporaneous Geula cave (Haifa, Carmel area). Tchernov (1968), after considering *Cricetulus demetros* BATE as a synonym of the recent *Cricetulus migratorius* (PALLAS), mentions for this phase also the (recent) *Mesocricetus auratus* (WATERHOUSE) and the fossil species *M. aramaeus* BATE; the genus *Allocricetus* (two species) is restricted to the earlier strata Tabun E and F.

Remnants of bigger mammals were rare in the earth samples so rich in elements of the microfauna. Besides *Felis catus* LINN., *Procavia* cf. *syriaca*, a few teeth of ruminants were found in this material (*Gazella, Dama, Cervus ?, Capreolus, Capra ?*). Some small, probably mustelid, incisors were found as well. For more details, see the inventory according to strata, at the end of this article.

Besides the lack of cricetids, the absence of hedgehogs and Lagomorpha should be stressed. Both last mentioned facts could be due to sheer chance, but the complete absence of hamsters, as small and rather frequent forms elsewhere from Israel, asks for an explanation. Is this peculiar situation due to

a combination of factors, like climate or specific behaviour of the avian collectors of this microfauna ? No proper and adequate answer can be given for the time being.

The bat material, consisting mainly of isolated teeth and of very few, mainly edentulous, mandibles, is very inadequate for a quick systematic evaluation. In contrary to this situation, the fairly rich material of *Philistomys* proved to be very useful for a more comprehensive study of the small dormice found so far at different pleistocene sites in Israel (Ubeidiya, Givat Shaul, Geula, Caves of the Carmel Area, Oumm Qatafa near Bethlehem, etc.). We shall deal with this field in a separate publication which is now under way.

In comparing the faunulae of the different levels separately, irrespective of the frequencies of the species concerned, it becomes evident that the uppermost levels are rather poor in the number of species (the samples were also very small indeed). But it is interesting, however accidental, that no *Microtus* were found in levels 2, 4, 5 and 6, whereas all other levels contain this species, some even in very great numbers. In these superficial levels *Sciurus* was represented in 4, 5, 6, 7, 9, but reappears in levels XV, XVIa, XVII and XIX. It is a strange, but probably accidental fact, that *Philistomys* is found in level 4, in order to reappear only from level XVI (incl.) onwards.

In general, layers XVIa to XVII/XVIII are by far the richest in quantity and in number of species per layer. *Arvicanthis* starts to appear at level XVI and goes on to level XIX/XX without any break. This interesting fact has to be combined with the data of occurence mentioned by D. Bate (Tabun E and F), therefore from Upper Acheulean levels and earlier than the Mousterian Qafzeh strata. The case of *Rattus (? Mastomys)* is similar : according to Bate and Tchernov, this genus (probably identical with Bate's *Mastomys*) is likewise restricted to Tabun E and F. Both species will be discussed at the end of this article in detail. At least, four different species of soricids are distinguishable. The smallest, most probably cospecific with *Suncus etruscus* (Savi), starts from stratum XI (incl.) downwards to XIX, but is missing in a few intermediate strata. The other Soricids, belonging to the genus *Crocidura*, deserve a special study; two or three size groups might be involved. The number of fully toothed mandibles is considerable, but upper complete dentitions are wanting almost completely; on the other hand, many single upper teeth could be recovered. A definitive evaluation of the rich material has still to be done. For the time being, no more can be said but that at least a species of medium size, similar to *C. suaveolens*, and a bigger species similar to *C. russula*, are involved. Besides these species, some isolated molars and lower incisors point to the presence of a much bigger species than *C. russula*.

In order to get a rough estimate about the number of the small mammals from square A13 found in the rich layer XVIa, all calcanei were counted, because these sturdy bones were well preserved in high quantity. The total figure was halved in order to get a minimum figure of the individua preserved in this layer. The same procedure was repeated for the astragali. Number of "pairs" of calcanei ... 306; number of "pairs" of astragali ... 257. The

numeric discrepance is not too considerable in view of the relatively smaller size of the astragali.

The "pairs" give an idea of the great local concentration of small mammals, as well as the number of "pairs" of the biggest microtine molar, the M1. This count gives an idea about the frequency of the main element of this assemblage for the same square and layer (XVIa); the 110 "pairs" give a fairly good idea about the enormous concentration of one single species.

These three figures, illustrating the high concentration of small vertebrates, especially mammals, indicate that such quantities were concentrated from desintegrated pellets which fell on the ground from the haunts or nests of bird prey at the entrance of the cave, or close to the entrance. The relatively large number of microtines, shrews and lizards speaks in favour of rather indiscriminate hunters, and certainly not for macrosmatic hunters, whose sense of smell would refrain them from catching the evel-smelling shrews in such big quantities. Therefore, birds only could have been the collectors of this assemblage. The predominance of the remains of crepuscular or even strictly nocturnal animals points to smaller owls as the most probable collectors of the microtines murines and gekkos, and even the bats.

But falconiformes were, probably, also, participating in this collecting of animal bones, as several purely diurnal vertebrates were also preserved, e.g. non-gekkonid reptiles, birds, *Sciurus*, *Procavia*, and others. Whatever the proportion of diurnal against nocturnal hunters has been, there is no explanation from this angle for the complete absence of hamsters; hares and hedgehogs were, perhaps, not an attainable prey for small owls and kites like *Falco tinnunculus* or *naumanni*. Among the very few bat mandibles were two of considerable size showing only 2 alveoles for incisors; they most probably belong to the now oriental genus *Megaderma*, which has been described from Tabun F (*M. watwat* BATE) in the Carmel area. Another rather well preserved mandible could be ascribed to *Tadarida* sp. The peculiar fact that the upper layers of the Qafze cave up to layer 8 (incl.) are rather poor in species, just indicates no more thant that the upper faunal assemblages were probably not concentrated by the activity of birds of prey but that they contain just chance elements only, like *Sciurus*, frogs and very few small rodents which lived in or near the entrance of the cave and were buried at the place of their death.

The presence of *Arvicanthis* and a small *Rattus* (*? Mastomys*) in the Qafze fauna is very remarkable. *Arvicanthis* ranges from layer XIX (incl.) to XVI (incl.); with other words, it extends well into Mousterian strata, whereas Bate found it at Tabun F and Eb (Upper Acheulean); the smaller form, *Rattus (? Mastomys)* also was described by Bate from Tabun Eb. We have this form starting from the deepest level of our samples, from XXII in practically all strata up to 8 (except the rather poor layers XIII, X, 9, which does not mean too much). In the following paragraphs both species will be dealt with and the data of Bate (1942) will be completed here.

Arvicanthis cf. *ectos* BATE, 1942

Bate describes this species and gives a figure of the holotype, M 15964, a left maxilla with cheek-tooth row, at fig. 4a. This specimen comes from Tabun F, as well as (fig. 3) a left mandibular ramus M 15965. A practically identical mandible was found in the Qafze material, showing the highly characteristical posterior part of the lower jaw with the straight anterior contour of the mighty angular process. We figure here a specimen like the type, but showing a stronger wear of the crowns; M^3 is missing. In general this specimen resembles closely Bate's type, but the molars are wider; the second molar has an almost triangular crown, in which t1 (antero-lingually) is stronger developed than seen in Bate's figure. We add a crown view of a right mandibular cheekteeth series and of a single almost unworn right M_1 in order to show the peculiar absence of the posterior "heel" in the first and second molars. The relative smallness and narrowness of M_1 is also very striking.

The first lower molar shows quite clearly a posterior cingulum and no terminal heel. M_2, much broader than long, has, externally of its two transverse ridges isolated tubercles at both facial ends. The narrow M_1 shows such an accessory tubercle externally of the posterior loop. In M_3 just two transversely disposed enamel loops form the crown pattern; the anterior one being by a third wider than the other. The second molar has, like the first M_3 a terminal cingulum instead of a terminal tubercle.

All photos given are from specimens from A13, layer XVIa. *Arvicanthis* is by far the biggest murid in the Qafze fauna. Bate mentions the very high number of roots of the M^2 and M^3; we made the same observation in our material.

Rattus (? Mastomys) nazarensis sp. n.

A species equalling in size recent *Acomys*, of which two recent species, *cahirinus* and *russatus*, are found in Israel. The fossil under consideration, is, however, clearly separated from *Acomys* in possessing a well developed coronoid process which is almost absent or completely reduced in this recent genus.

A right ramus (fig. 2a) shows the prominent coronoid process. Three measurable upper dental series range from 4,5 to 4,8 mm :

4,5 mm (3113); 4,6 mm (3114); 4,8 mm (3103).

This compares fairly well with the length of the upper series of *Acomys russatus* (4,5 mm) given in Stehlin-Schaub fig. 279. But besides a similar size there is little similarity in crown pattern; the Qafze species is very similar in the pattern of the upper molars of the West and Central African *Malacomys longipes* (*ibid.*, fig. 280). In both forms tubercles 1 and 4 are well developed in M^1 and in M^2, t1 also in M^3. This tooth resembles closely

Malacomys. Our species differs from it by the presence of a tubercle 3 in M^2 and in the loop formed by fusion of t8 with t9, t7 being completely absent (M^1 and M^2). The lower series is completely different from *Malacomys* (Stehlin & Schaud, fig. 613), which possesses terminal heels in the first two molars. There are no accessory tubercles at all besides the three successive loops in M_1, and two in M_2 and M_3.

In the Qafze species the lower dental pattern is very similar to Bate's *Rattus* (*Mastomys*) sp. from level Eb of Tabun (Bate, 1942, fig. 4b, M 15978). In the first molar a facial accessory tubercle is situated close at the margin of the third loop, or better, inside the external gap between the second and third loops. The first two loops fuse centrally by continued wear, forming an X-shaped pattern (spec. 3109). In M_2, t1 and t4 are well developed, t2 being fused gradually to the linked t2 + 3. The same tubercles (1 and 4) are seen in the M_2. In Bate's figure t4 in the third molar is visible. Besides, the M_2 is relatively shorter in the Qafze species.

List of total lengths of lower cheekteeth series :

— 4,45 mm (3104);
— 4,50 mm (3118 and 3107, M_2 missing);
— 4,60 mm (3108, 3115);
— 4,65 mm (3109);
(fig. 2 c).

This species is much smaller than all the *Rattus* figured by Tchernov (1968, fig. 52). All figured species, *R. rattus, norvegicus, haasi,* show no trace of t4 in the third molar. In *Mastomys batei* TCHERNOV the combined length of the first two lower molars is 3,25 mm in the Qafze species 3,5 (3109); besides this difference, there are no terminal heels in *M. batei.*

The accessory tubercles of M_3 are not clearly distinguishible in all specimens; they seem to fuse with both loops during wear. We do not think that this detail, in view of complete conformity in all other, points to the presence of two separable species.

The name of *Rattus (? Mastomys) nazarensis* is proposed for this species, which has not been named by Bate.

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LITERATURE

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TABLE 1

Mollusca, Pisces, Amphibia, Aves, Reptila of Djebel Qafze Cave

	2	3	4	5	6	VII 7	VII a 7 a	VII b 7 b	8	9	X	XI	XII	XIII	XIV	XV	XVI	XVI a	XVIa XVII	XVI XVII	XVII	XVIII	XVIII	XVIII XIX	XIX	XIX XX	XX	XXI	XXII
Calaxis hierosolumarum																+													
Helix cavata																			+										
Levantina caesareana																					+			+					
Pisces																			+										
Amphibia (Anura)	+				+				+	+						+		+		+									
Bufo	+		+							+																			
Aves (indet.)						+			+	+	+		+		+	+	+	+	+	+	+	+	+	+	+			+	
Reptilia																													
Testudinata																		+ ?			+ ?								
Gekkos																			+	+	+	+		+	+				
Agama											+			+		+	+	+			+	+	+						
Chamaeleo/Agama							+												+						+				
Chamaeleo																		+				+ ?							
Lacertidae										+		+					+		+	+	+	+			+				+ ?
Scincide																		+			+			+	+				
Ophisaurus																		+	+	+	+	+		+	+				
Ophidia										+						+	+	+	+		+	+	+		+	+		+	
Viperid (teeth)																		+	+										

TABLE 2

Mammalia of Djebel Qafze Cave

	2	3	4	5	6	VII 7	VIIa 7a	VIIb 7b	8	9	X	XI	XII	XIII	XIV	XV	XVI	XVIa	XVIa XVII	XVI XVII	XVII	XVII XVIII	XVIII	XVIII XIX	XIX	XIX XX	XX	XXI	XXII
Crocidura							+					+		+			+	+	+	+	+	+		+	+				
" med.							+					+	+	+	+	+	+	+	+	+	+	+	+	+			+	+
" big							+									+	+	+	+	+	+	+	+						
Chiroptera			+			+	+			+		+			+		+	+	+	+	+	+		+	+			+	
Giant Soricid																					+								
small Carnivore indet.										+																			
Felis catus										+																			
? Canid																					+								
Procavia	+																	+											
Dama/Cervus										+				+C				+											
Capreolus or *Gazella*										+		+G				+G													
? *Capra*										+								+											
Sciurus			+	+	+	+				+						+?	+?		+		+			+	+				
Spalax										+		+	+	+		+	+	+	+		+	+	+		+			+	
Philistomys			+														+	+	+	+	+	+	+	+	+			+	
Gerbillus						+	+	+	+	+	+							+	+	+	+	+		+	+				
Meriones									+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Microtus						+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Apodemus big										+		+						+	+	+	+	+	+	+					
Apodemus small			+									+			+				+	+	+	+		+	+				
Rattus (Masto.)									+			+	+		+	+	+		+	+	+	+	+	+	+	+	+	+
Mus								+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Arvicanthus																	+	+	+	+	+	+	+	+	+				

PLATE 1

Arvicanthis cf. *ectos* BATE, Qafze Cave, Al3, XVIa.

1a right mandible

1b M^{1-2} left

1c M_{1-3}, right

1d M_1 left

Rattus (*? Mastomys*) *nazarensis* sp. n., Qafze Cave, Al3, XVIa.

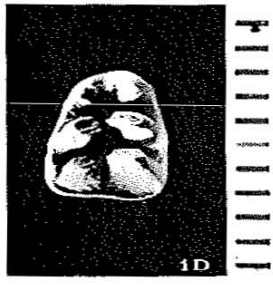
2a right mandible in lateral view

2b M^{1-3} right

2c M_{1-3} left.


1A


1B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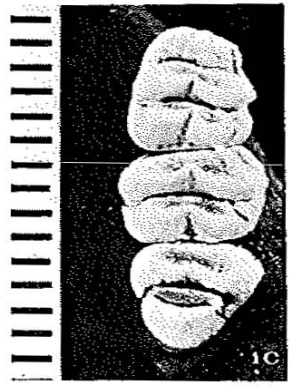
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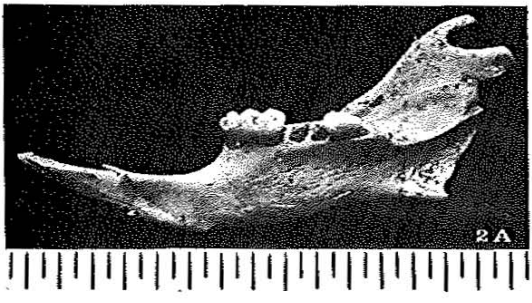
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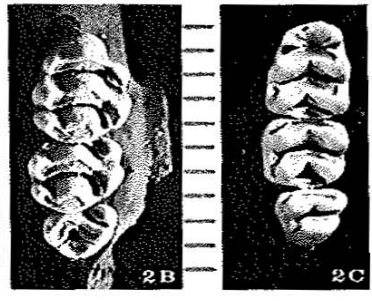
2B
2C