Martin Posselt, Benno Zickgraf und Claus Dobiat (Hrsg.)

Geophysik und Ausgrabung

Einsatz und Auswertung zerstörungsfreier Prospektion in der Archäologie

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Strategien / Strategies

An Iron Age Urban Settlement Revealed by Magnetic Survey:

The Case of Ulug Depe (Turkmenistan)

Olivier Lecomte

Ulug Depe (fig. 1), which means the *great tepe* in Turkmen, rises in an imposing silhouette before Kopet Dagh, the mountain chain which separates the plain of the Turkmen piedmont from the Iranian plateau to the south (fig. 2), some 175 km to the south-east of the head-town, Ashgabat.

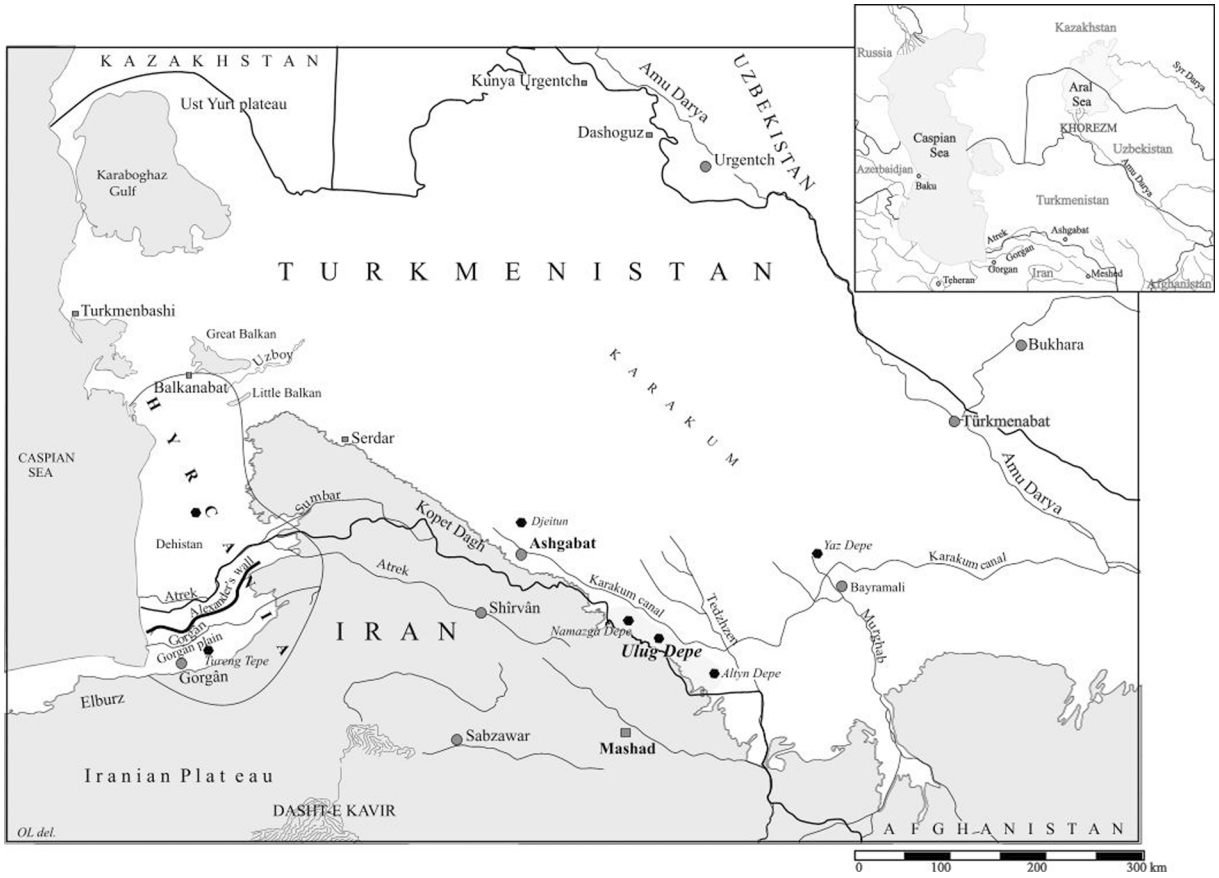

Fig. 1. General map of Turkmenistan.

In this country of which 80 % is covered by the Karakum desert, human occupation could not develop except along the rare water courses which irrigate this semi-arid region, in the delta zones or in the narrow plain of the northern piedmont which borders Kopet Dagh, widening from west to east to attain its greatest width, 25 km, near Ulug Depe.

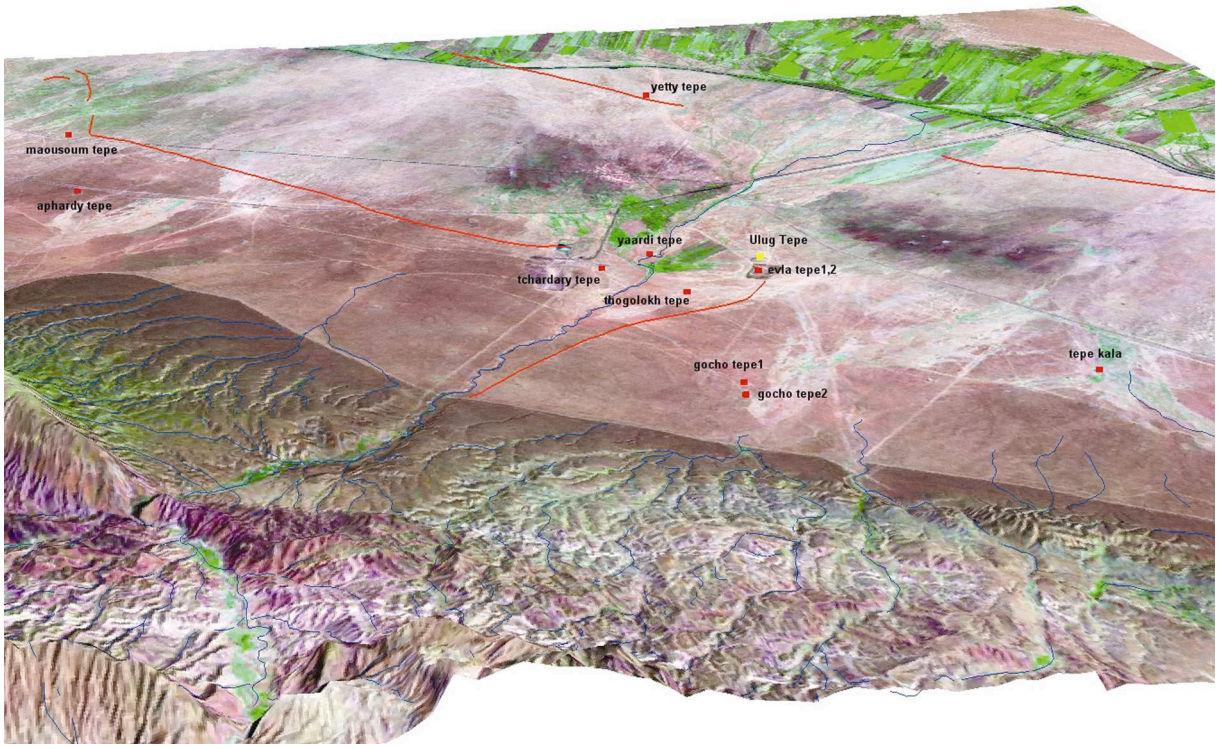

Fig. 2. Location of Ulug Depe on the terrain modelling of the piedmont plain of the Kopet Dagh. To be noted is the course of the river across the mountain in the direction of Iran.

From a height of some thirty metres (fig. 3) which the site has attained today, the view reaches a distance of 15 km on all sides. But if we attribute an average height of ten metres to the monumental constructions which occupied the summit, the relief formed by the other tepes as well as the movements of men and herds could be distinguished up to a distance of thirty kilometres.

It is of course the presence of water, here the Kelet river, which influenced the choice and the place to establish human occupation. This river, whose source is in Iran, has carved a deep, narrow valley across Kopet Dagh and flows into the plain some ten kilometres upriver from Ulug Depe, forming a natural passage between southern central Asia and the Iranian plateau. It is not insignificant that if a straight line is drawn perpendicular to Kopet Dagh from Ulug Dagh to Iran, it ends in the region of Nishapur, not far from Meshed, in the Kuh-e Binâlud mountains which contain one of the principal deposits of turquoise in Khorassan.

Fig. 3. Ulug Depe, general kite view.

Cultural context and chronology

Such geographic, environmental and strategic conditions occur in only two other places in the mountain chain, at Änäw near Ashkhabad, and at Namazga, forty kilometres to the west of our site. These are two major monuments of Turkmen antiquity of which the first has produced vestiges of the proto-Chalcolithic, the Bronze Age, and the early Iron Age. From the excavations of the second, Namazga Depe, Soviet archaeologists were able to establish a stratigraphic and chrono-cultural sequence for all the sites on the plain of the piedmont of Kopet Dagh and even beyond. The different periods of these sites are thus referred to as Namazga I to Namazga VI, from the Chalcolithic to the end of the late Bronze; to qualify the following Iron Age periods, the reference is to Yaz Depe in the delta of the Murghab river (Margiana). Thus Yaz I refers to the early Iron Age and Yaz II-III refers to the middle and late Iron Age.

Namazga Depe, the largest site of southern central Asia, is no larger than fifty hectares; Altyn Depe, the main site of the eastern piedmont of Kopet Dagh, covers forty hectares; Ulug Depe is in third position with twenty-six hectares at its base and ten at its top.

However, of all the central Asian sites, it possesses the longest stratigraphy known so far (from Namazga I to Yaz II-III): from the early Chalcolithic to the end of the Iron Age, most probably including the Achaemenid period. Moreover, evidence (lithic tools) discovered during excavation of the Chalcolithic levels of the site indicate a strong possibility that a settlement of the end of the Neolithic (Jeitun type) would have been the oldest occupation.

The excavations: stratigraphy and chronology

The table below provides the chronological sequence for southern central Asia.

PERIOD	DATES
Neolithic of Jeitun type	6200-5000
Proto-Chalcolithic (Anaw Ia)	5200-4800
Early Chalcolithic (Namazga I)	4800-4000
Middle Chalcolithic (Namazga II)	4000-3500
Late Chalcolithic (Namazga III)	3500-3000
Early Bronze (Namazga IV)	3000-2500
Middle Bronze (Namazga V)	2500-2200
Late Bronze (“Namazga V I”)	2200-1500
Late Bronze (Margian, Gonur phase)	2200-1800
Late Bronze (Margian, Togolok phase)	1800-1500
Early Iron (Yaz I)	1500-1100
Archaic Dehistan (SW Turkmenistan)	1300-500
Pre-Achaemenid and Achaemenid period (Yaz II-III)	1100-329

During the first six seasons, the excavations (fig. 4) were focussed mainly on the following periods:

- Chalcolithic
- early Bronze
- middle Bronze
- pre-Achaemenid period

The following periods were encountered with relative irregularity (in view of the size of the site):

- end of the late Bronze
- late Iron

The Iron Age, identified on the site of Yaz Depe in Margiana, appeared around 1500 BC. It seems to reflect, besides the technological advance of the use of iron, an ideological upheaval seen particularly in funeral practices. Burials very rapidly ceased to exist in sedentary Central Asia, to be replaced by practices of de-fleshing in the open air. A relation is generally established between these new practices and the appearance of beliefs and taboos linked to the diffusion of Mazdeism, under the supposed influence of the precepts of Zarathustra. This period, Yaz I, is very well attested in the north-eastern part of the tepe, where the Soviet scholar V. Sarianidi in the sixties recovered the most striking examples

of painted pottery which was not wheel-thrown associated with other shapes which had been turned, characteristic of this period.

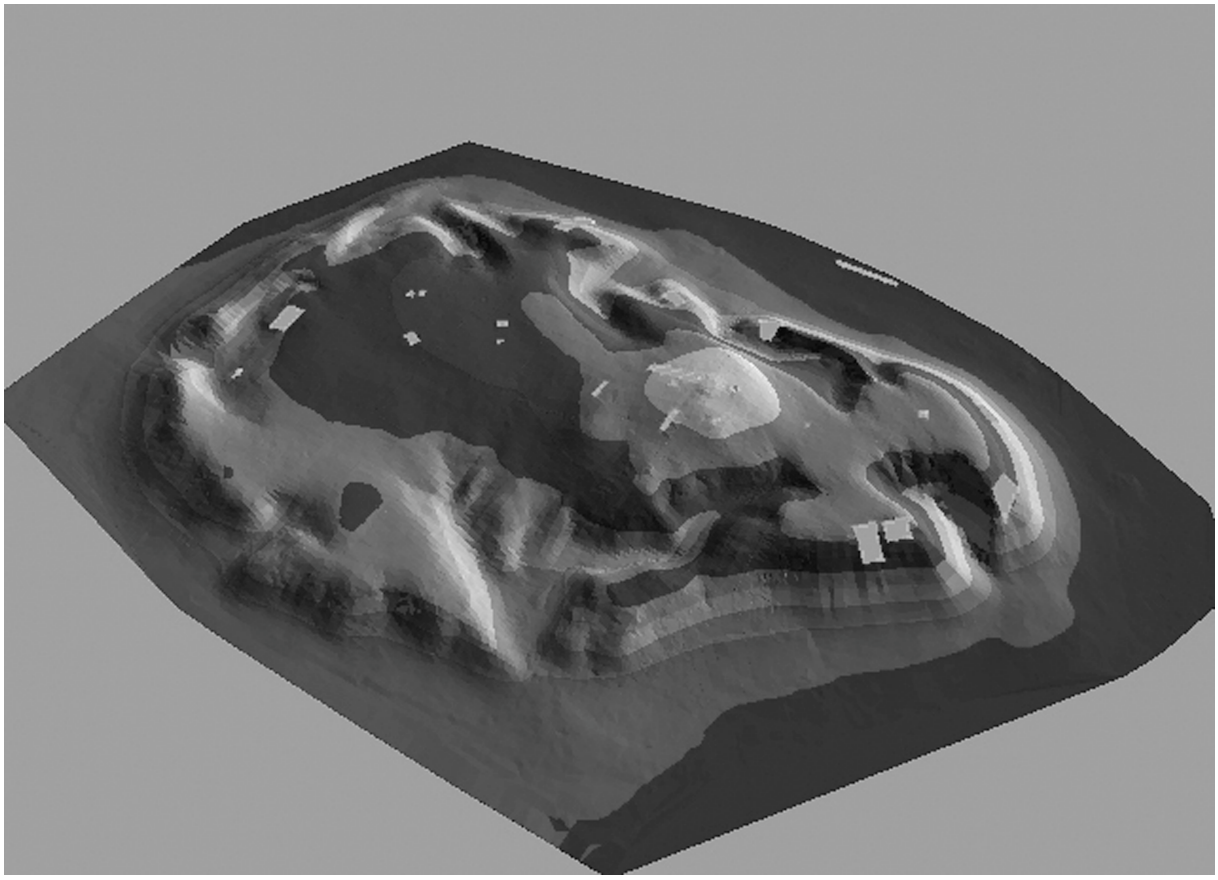

Fig. 4. Ulug Depe, terrain modelling.

Magnetic survey of the city of the end of the Iron Age (fig. 5)

At the top of the tepe the early Iron Age is uniformly covered by levels belonging to the period called pre-Achaemenid (9th-4th centuries BC). This was indicated by the analysis of the surface material[1] and confirmed by the magnetic survey conducted in 2003 on the ten hectares of the high part of the site. This survey method is extremely efficient and reliable, as seen in figure 6.

Thus *without excavation* it was possible to reveal in the northern high part of the city (fig. 8):

- The near-complete plan of the citadel and associated structures in this part of the site.
- The plan of a very large construction, in the south-west of the latter, suggesting a “treasury”, that is a huge storage building for communal use, indicated by the long narrow rooms which compose it over more than 60 m. Its protection was ensured by the nearby citadel.
- A monumental complex composed of two distinct buildings, which perhaps functioned as a palace and as a religious place, the other side of the main north-west/south-east axis.

[1] Carried out by H.–P. Francfort, CNRS, Nanterre.

- The outlines of three main streets and secondary streets in the south-west of the high city and leading to the citadel. The houses of the lower city seem to be distributed according to an orthogonal grill which determines the habitation blocks south of the palace complex.
- Finally, long segments of enclosing wall (fig. 6 and 7, in blue) mark, by their interruptions, the presence of three access gates to the city, at each extremity of the main streets.

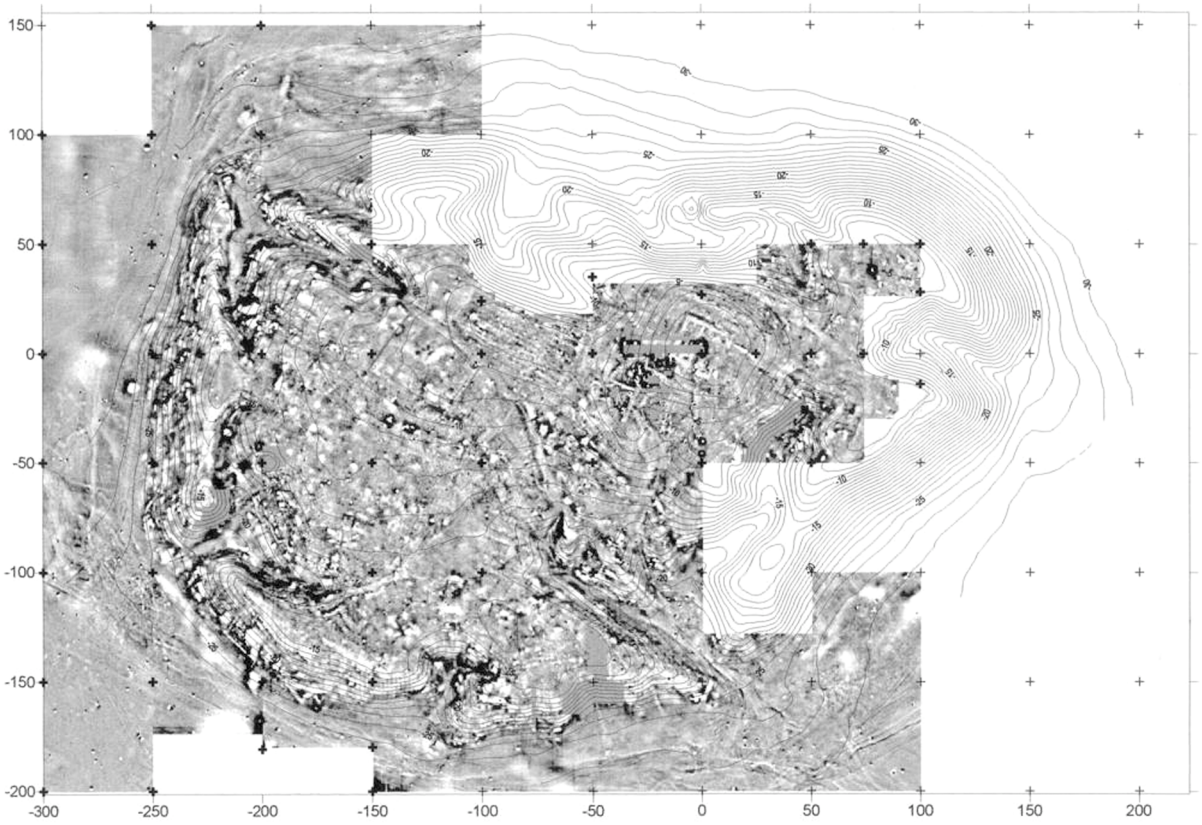

Fig.5. Magnetogram.

In brief, we are already able to make the following observations: the high city, to the north, dominates the domestic quarters which occupy the rest of the some ten hectares composing the upper part of the site. It is in the high city that the monumental constructions are concentrated; the citadel played a role in defence and surveillance of the surrounding territory; up to thirty kilometres could be observed when the walls were higher by ten metres than the present top of the tepe. The provisions stored in the storerooms situated on the ground floor of the building would have permitted the maintenance of a small garrison of soldiers. The principal resources of the city were stored in a huge building sixty metres long, characterised by the juxtaposition of very long and narrow rooms.

It is important to note that this is the first time that the plan of such an urban site (fig. 7) has been discovered for this period, either in Central Asia or on the Iranian plateau. It is certain, because of the common alignment of the different structures, that they all date to the same period – the end of the Iron Age, a period discovered during the excavation of the citadel, begun in 2001 and nearly finished in the 2006 campaign. However long it took to build such a group of structures, probably begun in the 9th century BC, it is certain that this is a true urban plan that took best advantage of the ancient topography to build the fortress at the highest point of the site.

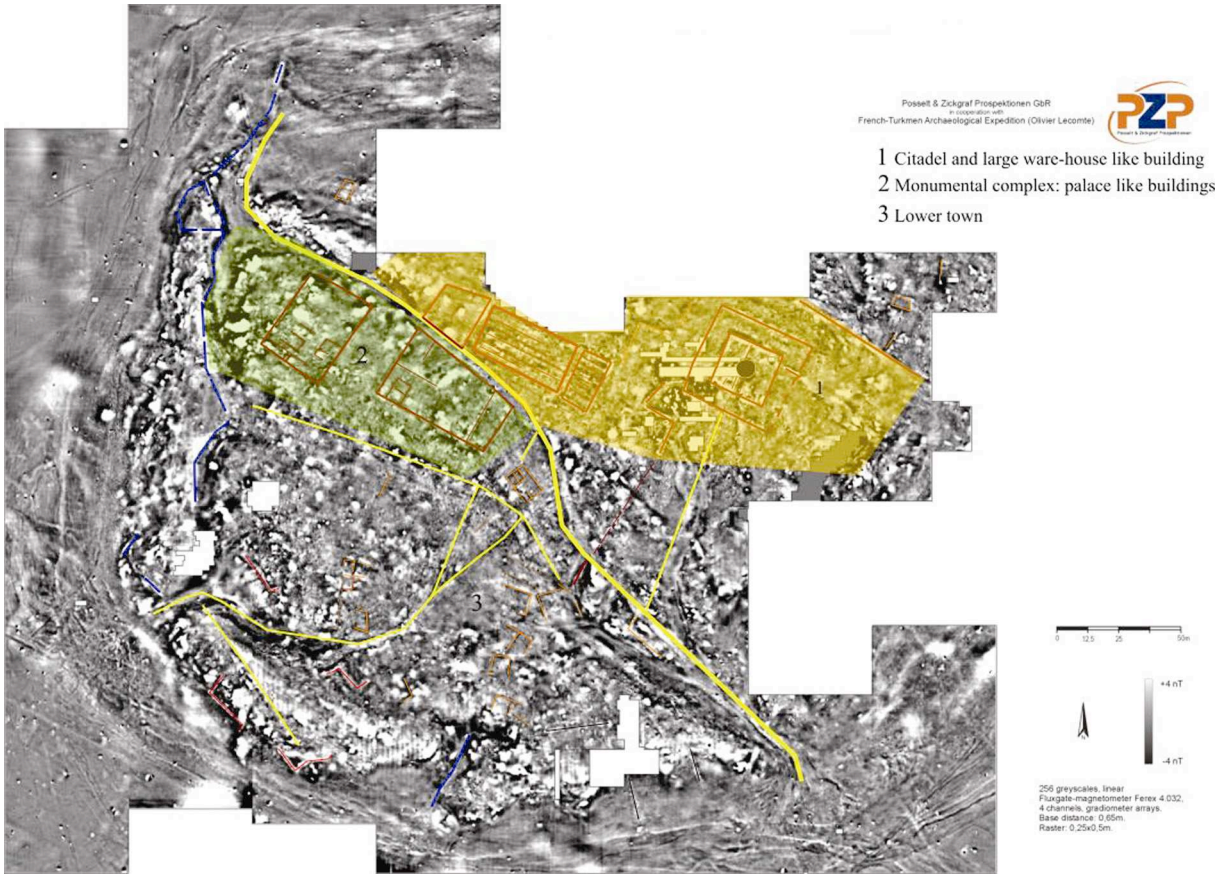

Fig. 6. Magnetogram of the top of the tepe placed over the topographic plan and layout of identified buildings and street network.

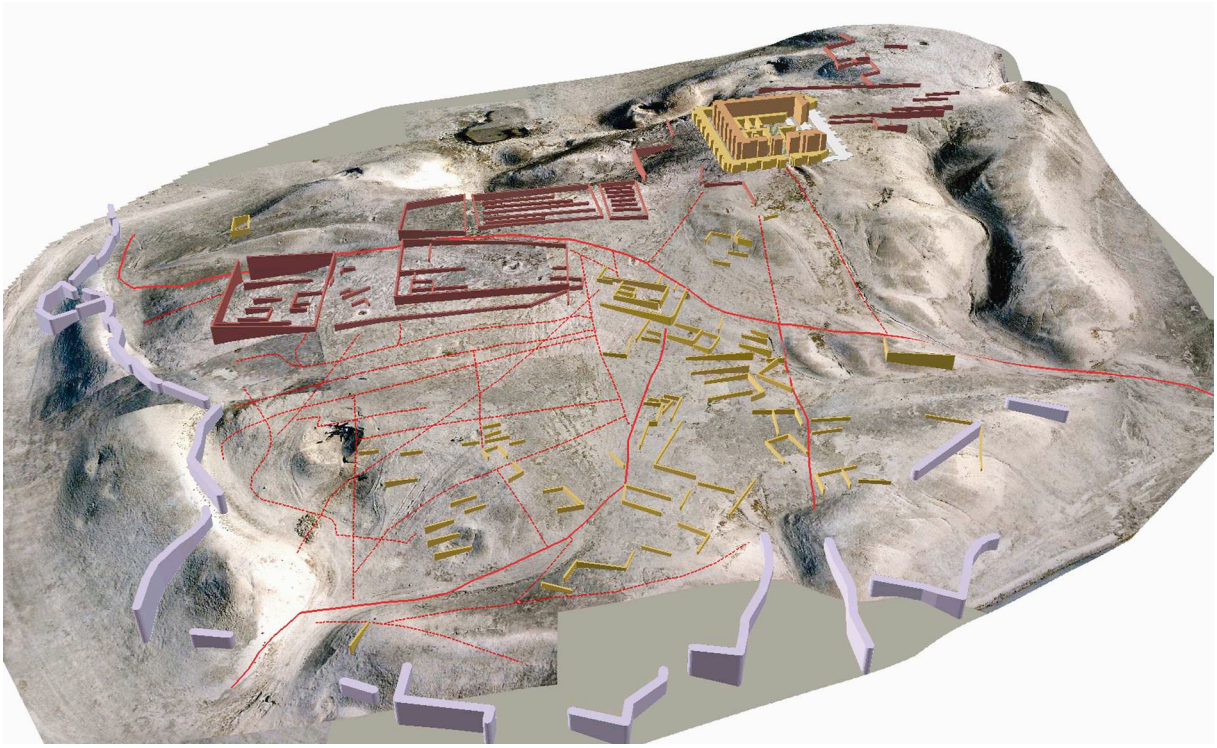

Fig. 7. 3D schematic reconstruction of the architectural structures.

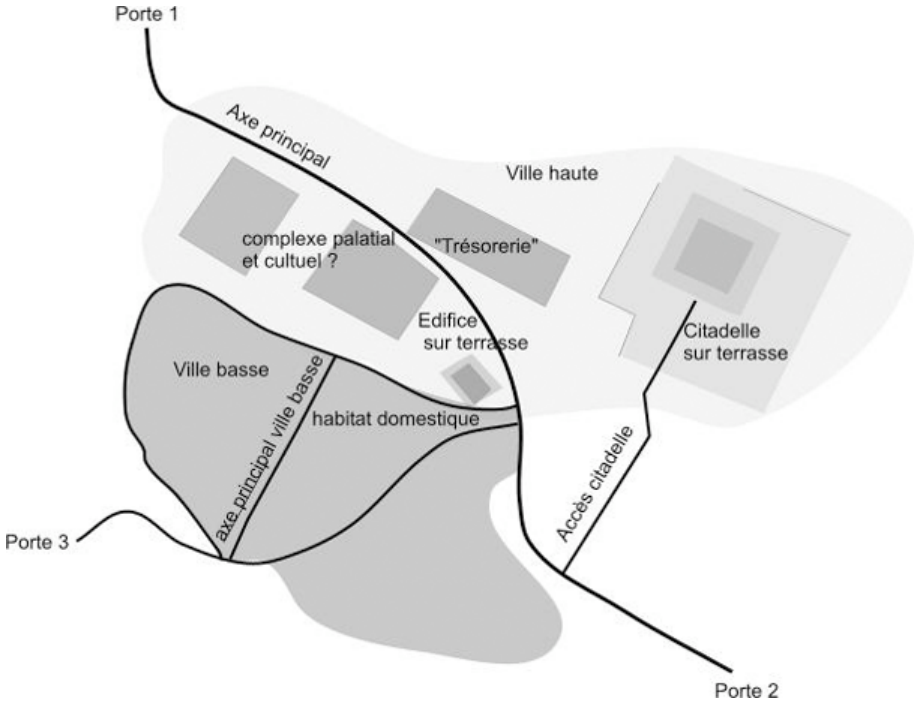

Fig. 8. Schematic interpretation of the magnetogram.

The excavation of the citadel

The traces of walls revealed by aerial photographs (taken with a kite) and after heavy rain, indicate that the square citadel, 40 m per side (fig. 9), was erected on a mud brick terrace. It has so far been three-quarters excavated; the ground floor, the only one preserved, had an economic function. Its façade, enlivened by recesses, presented openings for archers the incline and thickness of which played a role which was more dissuasive than defensive. A second wall set back, also with recesses, determined the "core" of the building, about 20 m per side, where the storerooms are located. A corridor for circulation of which the tamped earth floor lies on a bed of pebbles, runs along the external wall of the citadel.

The excavation has shown that this corridor was covered and that the roof supported a terrace whose collapsed and broken vestiges were found on the floor of the corridor. The central part of the building was higher than the peripheral corridor, allowing the recesses in the wall to be seen and light to enter the halls of the upper floor. The circulation inside the building seems to have been modified several times. This is indicated by the different openings between the rooms of the lower level which were all blocked or revised during the last phase of the occupation of the building. The condemned rooms were apparently used as storerooms, as their elongated proportions, the raised areas along the base of the walls; the impressions on the bottom of the jars as well as the large storage jars buried in each of them would seem to indicate. A staircase faces the principal gate of access to the fortress and leads directly to the upper floor. The presence of an upper floor thus justified the considerable thickness of the walls of the lower level and did not play just a simple role of support, from an architectural point of view. The function of these rooms and the corridor, transformed into storerooms, then closed and abandoned for the most part was then less important as the noble part of the building was situated on the upper floor.

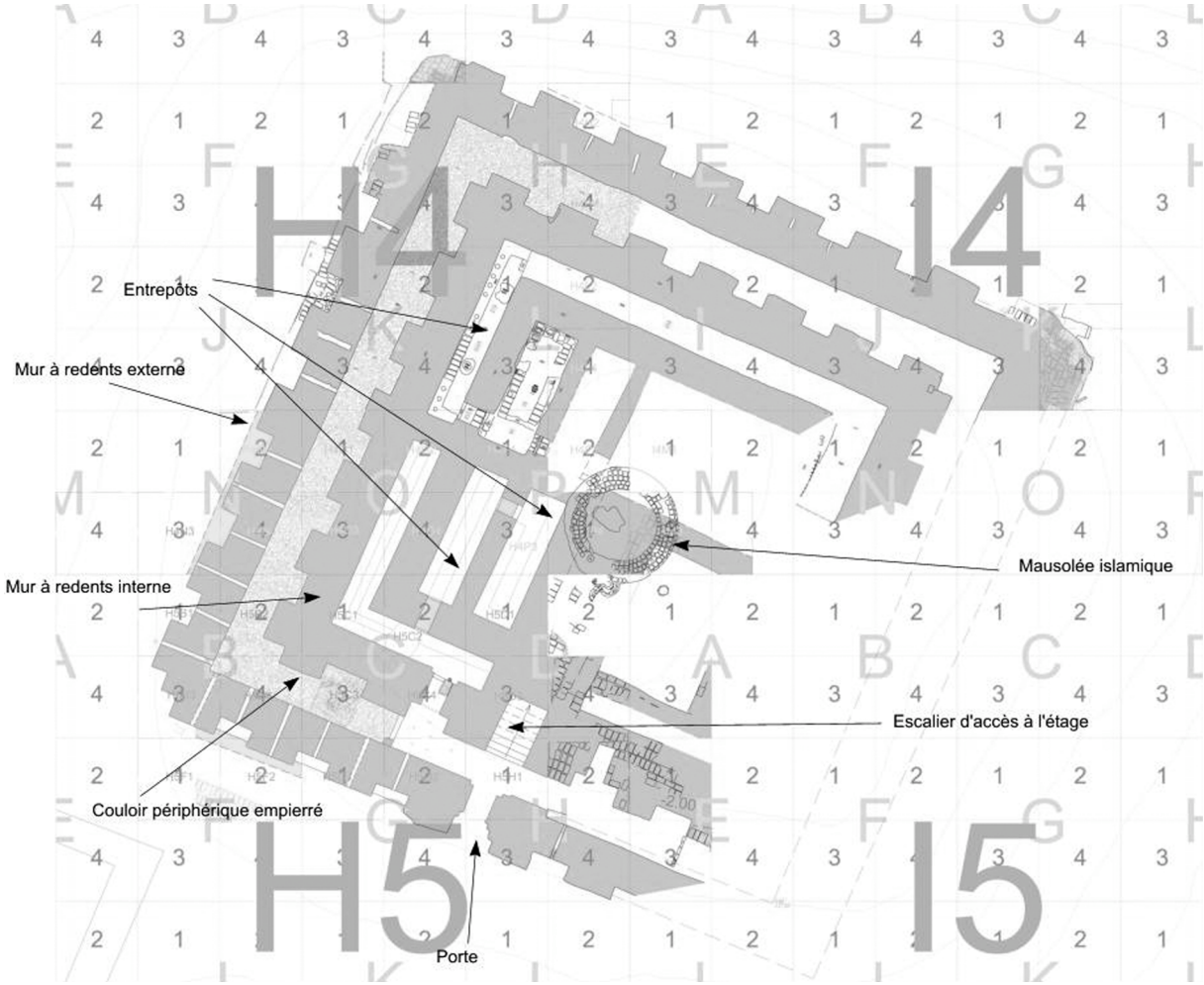

Fig. 9. Plan of the citadel (2005).

A plan from elsewhere?

This type of plan, whose elements can be identified with a Central Asian architectural tradition, is characteristic of the architecture of the Median period on the Iranian plateau and particularly on the site of Nush-I Jan where the staircase avoids the lower rooms to reach the upper floor directly (fig. 10). It is the first time that we have a complete plan of an urban site constructed during the pre-Achaemenid period, but this is not the main importance of this discovery. If the plan of the citadel of Ulug Depe is compared with those of what are called "the Zagros forts" in western Iran, the several points in common are striking: the Zagros forts are always constructed on a height, directly above steep slopes; the enclosing wall follows perfectly the contours of the tepe or the natural relief; in their residential areas is a building with a plan comparable in every detail to that of our citadel to which other monumental buildings are adjoined. On all sites are walls with recesses. The lower part of this building is composed of storerooms and here again, the staircase always avoids the storeroom zone to reach the upper floor directly. The sites whose plans are closest to that of Ulug Depe are Nush-I Jan and Tepe Ozbaki, some 1500 km west of Ulug Depe, and also Tell Gubbah in the Hamrin, in present-day Iraq. We observe that the same architectural tradition, characterised by the presence of huge columned halls, is found at Hasanlu and Godin Tepe, also in western Iran. The discovery of a columned room in one of the monumental buildings at Ulug Depe, in the "palace complex", for example, reinforces the relation between these different sites.

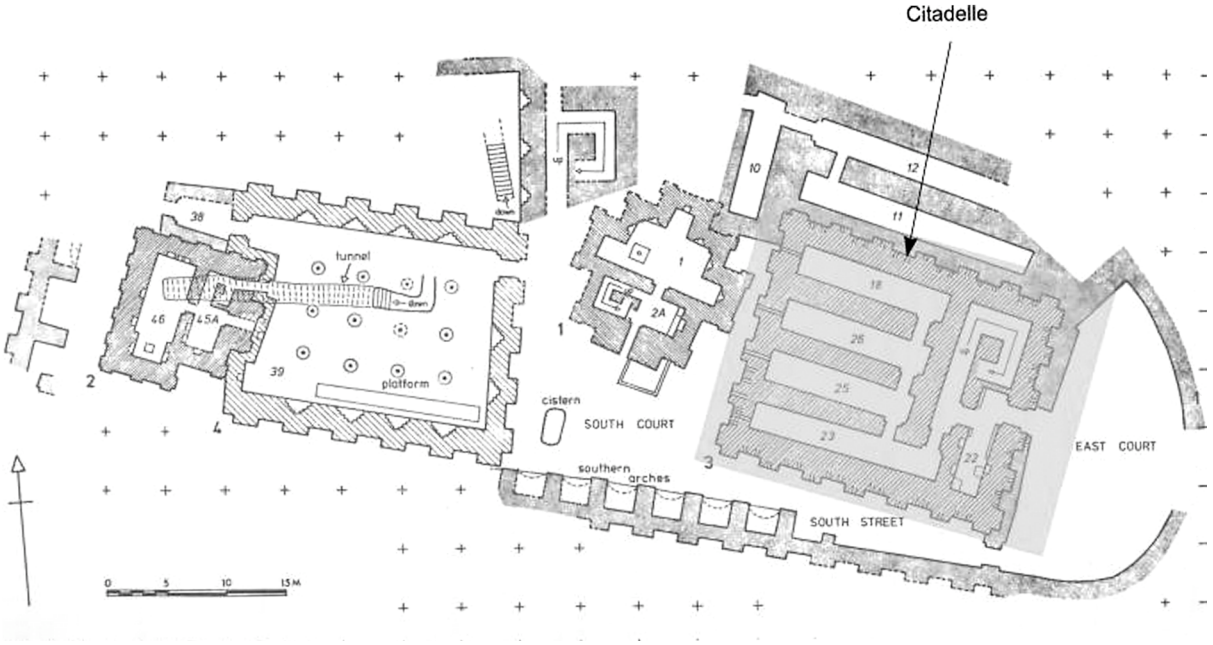

Fig. 10. Plan of the fort of Nush-I Jân.

We are thus in a position to raise a problematic and radical question in relation to the origin of the inhabitants of the "Median triangle". Is it possible that the Median populations were present, before their migration towards western Iran, in the plain of the northern piedmont of Kopet Dagh, and founded an urban settlement (or settlements?) much larger and better structured than the small forts of the Zagros which can only be seen as fortified residences of minor local potentates? The hypothesis deserves in any case to be taken into consideration in light of the fact that the construction of Ulug Depe is anterior to that of the sites of western Iran. A C14 date (from levels in which impressions and seal were found) of 7th-6th century BC corroborates the stylistic interpretation, thus fixing in time a probable change in the function of the partly destroyed building. From this fact it is clear that the conception and the construction of the city of Ulug Depe are earlier than these dates.

Fig. 11. The citadel from the. south-west.

But, although the architecture of the citadel is directly comparable to that of the Median period in Iran (fig. 11), this is not true for the rest of the material culture which clearly refers to a Central Asiatic substratum. The Median material culture of Iran was itself characterised by the prominent influence of its neo-Assyrian neighbours, which in turn were influenced by Egypt. The abundant material evidence found at Ulug Depe for a centralised administration goes beyond the strict framework of the city, and would seem to be situated in a hierarchical scale well above that of the Zagros forts which would have been inhabited at best only by the elite of tribal confederations.

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