

# Blug Depe

*a forgotten city  
in Central Asia.*

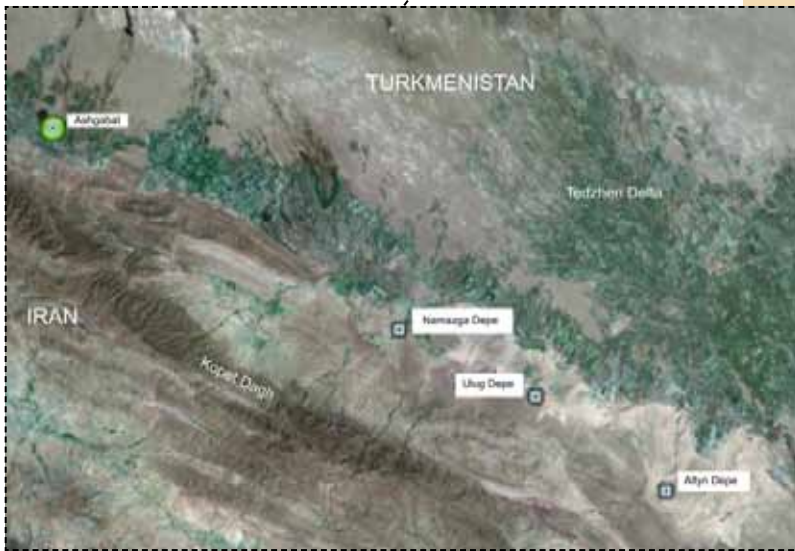
MAFTUR,  
Mission Archéologique Franco-Turkmène



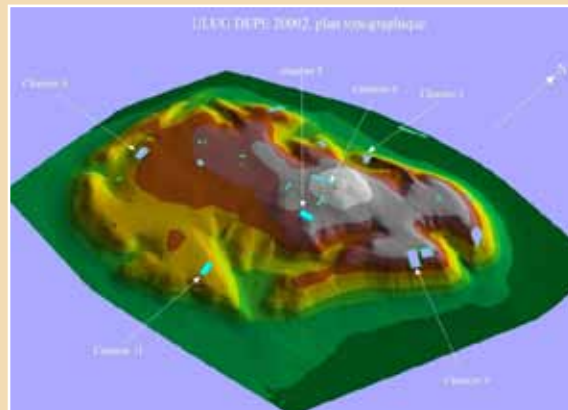
Ulug Depe - the 'great mound' in Turkmen - is one of the major archaeological sites in Turkmenistan, with important remains spanning a long period, from the 6th to the 1st millennium BC. Favorably located on a fertile watercourse running down from the Kopet Dagh mountain range, the mound attracted the notice of archaeologists as early as the 1960s. It is currently explored by a joint Turkmen-French expedition whose research is presented here.



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## Environment and hydrology

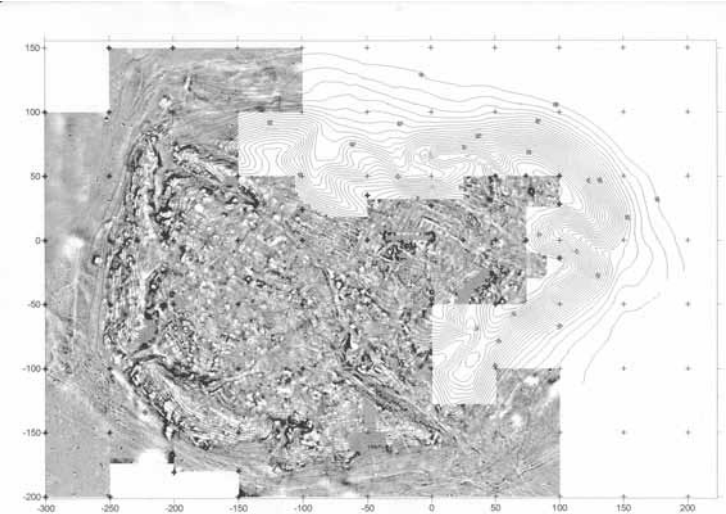
The site rises to an imposing silhouette before the Kopet Dag mountain range. Today, from a height of nearly 30 meters, one can see a distance of 15 km on all sides. Accounting for an additional 10 meters for the monumental building erected on the summit, the outline of other archaeological mounds, or the movement of men and cattle, could have been perceived at up to a distance of 30km.

Nearby, the river Kelet has carved a deep canyon across the Kopet Dag, which reaches 3117m at the Kuh-i Hazar, and separates the Turkmen foothills from the Iranian plateau, in a straight line to the Nishapur region, close to Meshhed, in the Kuh-i Binalud mountains, one of the major sources of turquoise in Khorassan.

In Turkmenistan, 80% occupied by the Karakum desert, human occupation could only develop along the rare watercourses which irrigate this semi-arid region, in the inland delta zones or the narrow plain of the northern foothills alongside the Kopet Dag : it widens from West to East and reaches its greatest width of 25 km near Ulug Depe. The source of the Kelet is more than 2500m high. It drains a larger number of streams coming from higher points of the Kopet Dag. Enough snow is stored during winter to ensure a permanent flow of water into the area of Ulug Depe and present day Dushak. This abundant surface flow is the major water resource of the area. The present bed runs a few kilometres away from the site, to the modern city of Dushak. An earlier bed was recently identified right down to the Depe.



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Such a significant location, with its geographic, environmental and strategic advantages, is encountered in only two other places in Turkmenistan: at Ānew near Ashgabat and at Namazga, 20 km from Ulug. These are two major sites of Turkmen antiquities. From Ānew, remains of the proto-Chalcolithic, Bronze Age and early Iron Age have been unearthed. From the excavation of Namazga by Soviet pioneers of Turkmen archaeology, a stratigraphic sequence has been established for the whole of the Kopet Dag foothills, referred to as Namazga I to VI, from the Chalcolithic to the end of the Bronze Age. For the following Iron Age periods, references are to Yaz Depe in the delta of the Murghab River (Margiana).

The stratigraphy of these two sites is still used for defining the various periods on other sites. The size of the settlements of Central Asia do not compare to those of Mesopotamia : Namazga measures 50 hectares, Altyn Depe, the main site of the eastern foothills of the Kopetdag, 40 hectares and Ulug Depe comes third with 13 hectares at its base. Of all the sites in Central Asia, Ulug Depe has the longest stratigraphic sequence known so far, from the Late Neolithic (Dzheitun) and early Chalcolithic (Namazga I) to the Middle Iron Age (Yaz II), with a probable reoccupation during the beginning of the Hellenistic period.

## History of excavation

Due to its size and location, Ulug Depe attracted the attention of early excavators and explorers. The most famous of these pioneers, Viktor I. Sarianidi carried out three excavation campaigns at the end of the 60s and the beginning of the 70s, establishing the first chronology of the site by a series of judiciously placed trenches.

The development of archaeological research in Turkmenistan since independence and the opening up to western scholars have favored the creation of joint missions. In 2001, a French-Turkmen Archaeological expedition (MAFTUR: Mission Archéologique Franco-Turkmène) was created under the aegis of the Department for the Protection, Study and Restoration of Historical and Cultural Monuments of Turkmenistan, in cooperation with the French Ministry for Foreign Affairs. Muhammed Mamedov, Olivier Lecomte and Julio Bendezu-Sarmiento, directors, Ahmed Khalmyradov, Director of the Abiwerd Archaeological Park, have invited specialists of various scientific fields (paleobotanic, bioanthropology, geomorphology, ceramology, archaeozoology, etc...). A Geographic Information System (GIS) was undertaken (fig. 3). Photographs are taken from the air, using a kite. A magnetic survey of the site was conducted in 2003 and revealed the traces of a number of monumental buildings (fig. 5)

The new research program aimed at a redefinition of the chronological framework and the refinement of the issues of regional cultural interchange. In the foothills of the Kopet Dagh, three geographical zones presented significant cultural differences during the Chalcolithic and Bronze Age periods. Ulug Depe is situated at the border between the central and the eastern zones and should offer important characteristics. Relations with the BMAC, acronym for Bactro-Margian archaeological complex, also called the Oxus civilization, should be explored. BMAC was first identified by V. I. Sarianidi in northern Afghanistan (Bactria) and in the delta of the Murghab river (Margiana). Since the creation of the expedition, ten seasons have been completed (as of 2011). Progress reports are regularly published in scholarly papers and international conferences, and on the Internet. Comprehensive studies of the different phases of the architectural remains and the many kinds of artifacts are being pursued by specialists and students.



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## Chronological sequences in Turkmenistan

Period	Dates
Late Neolithic (Dzheitun)	6200-5000
Proto-Chalcolithic (Ānew 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 (Margiana, Gonur phase)	2200-1800
Late Bronze (Margiana, Togolok phase)	1800-1500
Early Iron (Yaz I)	1500-1100
Dehistan (S-W Turkmenistan)	1300-500
Pre-Achaemenid & Achaemenid (Yaz II)	1100-329



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## Chronology of Ulug depe

### The Late Neolithic period (6200-5000 BC)

Neolithic levels have not been excavated so far at Ulug Depe and may be hidden somewhere under the level of the plain. However, a large number of sherds and lithic tools of a type named after the site of Dzheitun (in Central Turkmenistan near Ashgabat) have been recovered during the excavation of later Chalcolithic remains at Ulug Depe, an indication that the earliest occupation of the site dates to the Late Neolithic.

### The Chalcolithic period (ca 5000-4000 BC)

The Chalcolithic period, is divided into 4 phases, Proto-Chalcolithic (Ānew IA), Early (Namazga I), Middle (Namazga II) and Late (Namazga III). In the delta of the Tedzhen river, 40 km east of Ulug Depe the beginning of irrigated agriculture was observed to occur during this period, together with an increase in animal husbandry and the invention of a hammered copper industry. Villages grew larger; a complex and hierarchical society is established and is responsible for the construction of the earliest fortification walls as well as the first sanctuaries. Interregional trade is attested by the presence of exotic material such as turquoise and lapis lazuli. Many minute beads carved in these precious stones have been found at Ulug Depe. The late Chalcolithic period is illustrated at Ulug by the discovery of what may have been a workshop for the production of figurines: an accumulation of hearth kilns, indicating a long period of use, was excavated at the periphery of the settlement. They were built on a series of mud platforms, carefully and regularly swept, serving as work spaces. Together with many examples of completed figurines, numerous clumps of raw or baked clay show traces of manipulation, and are probably the rejected material for the fabrication of the figurines proper. These belong to several types. Many are simple pillar shaped human figures in the «snowman technique», standing on a circular base, with extremely diminutive head and raised arms (fig. 10-11). Female figures, already known from other sites. They are depicted seated, their joint legs extended, their body shortened to the pubic area. They often boast an elaborate coiffure of applied ribbons of clay (fig. 12-16).

Significant for the religious beliefs expressed in these figurines are the numerous animal statuettes. Most of them depict bulls, easily recognizable with their bulky neck, massive body and raised tail, even when the shortened horns and ears have been broken (fig. 17-18).

The association of naked human figures and bulls is abundantly attested in a large geographic area extending from the Balkans and the Mediterranean to the Near East and Central Asia and is usually explained by the survival of ideologies dating back to Paleolithic times.

Two types of pottery are represented: the coarse, large open shapes and the fine shallow plates, bowls and small dishes with a flat or a round base, small pots with a pouring lip. The fine pottery is painted in black over a red or light-coloured slip. Motifs are animal and geometric, with complex compositions of triangles, crosses, lozenges and stepped shapes. The pottery from the Chalcolithic period at Ulug Depe presents analogies with that of the other sites of Namazga III located in the foothills and the river deltas.



12 a



12 b



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15 a



15 b



16 a



16 b



17 a



17 b



18

## The Early Bronze Age (3000-2500)

Known as Namazga IV, the Early Bronze Age heralds the urban phase of the Oxus civilization. An urban revolution takes place, the population is grouped in the three great centers of Namazga, Altyn and Ulug. This cultural phenomenon is limited, as before, to the narrow band of the foothills. At Ulug Depe, the occupation of the period is more than 7,5m thick, indication of a long occupation. It is mostly concentrated on the North of the tepe. A strong fortification wall was excavated near a sounding previously made by V. I. Sarianidi. It is a mud brick wall, more than 2 m wide, with a series of regular recesses. Roughly oriented south-west/north-east, it bends towards the east, possibly near one of the gates, still apparent in the topography of the site. This access to the Bronze Age city is comparable to the gate of Altyn tepe excavated by V. M. Masson.

The fortification later fell into disuse and a potter's kiln was installed. Part of the hearth is still preserved at the edge of the vault. It was located on the periphery of the settlement, with due consideration for the dominant winds, so as not to send smoke and debris towards the inhabitants. A tomb was found under the kiln, possibly that of a potter. The body was curled up on its right side and accompanied by two painted bowls typical of the Early Bronze Age. Another, somewhat later, grave was built in the area. It contained, in addition to a painted bowl, an alabaster dish of a type well known from Susa, in south-east Iran. Several houses of the Namazga IV period were excavated at Ulug Depe. The rooms are small, furnished with door sockets, hearth, storage jars, the floors strewn with fragments of painted pottery with geometric motifs of the best quality. Namazga IV pottery at Ulug Depe is well documented. It retains the technical traditions of the late Chalcolithic. Products are specially fine, due to an increase in the use of the potter's wheel for the final touch. New carinated shapes were added to the repertoire already in use during the previous period. Decorations are mostly geometric, evolving towards more complex ornamented bands and more schematic motifs. Good parallels may be found with other sites of the Kopet Dagh foothills, and as far away as Tadjikistan (Sarazm), Afghanistan (Taluqan, Mundigak) and Iranian Sistan (Shahri Sokhtah). Domestic activities are attested by many spindle whorls, used to produce textiles from locally raised sheep (fig. 32).

They were woven into fabrics, of which nothing has been preserved. Complex geometric motifs ornament clay artifacts: the head of a spindle whorl is incised with the so called «stepped pyramid» design, which appears more frequently on the clay «reliquaries» typical of the Namazga IV period, probably boxes for storing precious belongings (fig. 29).

Modelled in clay, those square or rectangular boxes had their walls cut away in champlévé technique with triangles, zig zag and stepped pyramid designs. The recesses often received blue, yellow or red pigment. It should be noted that such intricate composition of design was to become, several millennia later, the identity indicator of the Turkmen carpet weavers. Hundreds of clay «drill knobs» (fig. 31) were found on the site. A globular lump of baked clay, they show at their base a dowel made to insert a handle. They may have been used to hold a bow drill or borer, an instrument of carpentry, or some other instrument of household industry: some of those «drills» were made of pretty colored stones. Terracotta figurines were still used to express religious beliefs during the Namazga IV period. Impressive human figures with large torso and shoulders, and prominent genitalia, they may herald the introduction of male ideology into the old female/bull duality of previous times. Also related to the new male-oriented imagery are the numerous wheels and model carts in clay (fig. 30) : they mirror the development of animal-drawn transport and the solid wooden wheel, full size examples of which have been found at Gonur and as far as Susa in South-West Iran.



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### The Middle Bronze Age (2500-2200 BC)

The Middle Bronze Age (Namazga V) is the urban phase of the Oxus civilization, a protostate society comparable to the culture of Elam and Mesopotamia, without the adoption of writing. However, recent studies by H.-P. Francfort and X. Tremblay raise the possibility that the Central Asian chiefdoms may have been known in Mesopotamian sources as the great country of Marhashi. Major sites in North-east Iran and southern Turkmenistan built impressive public monuments, palaces, and high terraces for religious practices, which were discovered at Tureng Tepe, Altyn Tepe and Nad-i Ali. Specialised crafts such as pottery production, metallurgy and stone working were developed. Even more significantly, evidence for long-distance trade relations completes the image of this urban revolution.

At Ulug Depe, the period heralds a significant change in technological development: the pottery is produced on a quasi-standardized level and ceases to be painted. The occupation, as before, is best represented in the northern part of the tepe, where inhabited quarters lasted more than eight centuries from the end of Namazga IV to the end of Namazga V. A narrow lane climbs up the slope and remained in use during all that time. The presence of the earlier fortification wall may have prevented building overflow and the modification of a «plan of land occupation» and street network, forcing the houses to be built and rebuilt on their own foundations. During this period, the dead and the living remained closely associated. Although there may have existed distinct graveyards and cemeteries, the dead were frequently buried right next to their own houses, or in nearby wasteland or ruined houses.

The settlement pattern follows that of the previous period, with narrow lanes parallel to the remains of the early fortification wall. A burial zone was excavated in the midst of the houses. Newborn and infants were not considered full members of the community and thus did not receive funerary offerings. Eight such tombs, devoid of offerings, were excavated. The unusual features reside in their grouping. In an adjoining room, another unusual structure was discovered. It consists of a grouping of specific stones so as to roughly represent a human figure: two alabaster «columns» for the body and two circular querns

for the arms and head (fig. 52). This «cenotaph» may have served to indicate the presence of the child burials. Columns of this type are characteristic of the Oxus civilization and are known to be associated with cultic and/or funerary contexts.

From around 1800 BC until ca 1500 BC, during the Late Bronze Age, the Oxus civilization underwent important changes such as the abandonment or reduction of the main sites; technological and socioeconomic evolutions; and the slackening of long distance exchanges. Often confused with the Middle Bronze Age observed in the rest of southern Central Asia, the phase, designated as Namazga VI in the foothills of the Kopet Dagh range, remains difficult to define: its presence on the site of Ulug Depe is not attested so far. Such an absence raises questions about how the Oxus civilization came to an end in that area, and the probable regional disparities in the process that lead to its extinction.



21 Bactrian «column»



22 Alabaster vessel



23 Alabaster vessel



24 Gold bead

25 Faience bead



26 Carnelian from India

27 Turquoise from Iran



28 Lapis lazuli from Afghanistan

Imported beads



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Clay, and stone artefacts, metal filter

## The early Iron Age - Yaz I (1500-1100 BC)

Referenced by the site of Yaz Depe in Margiana, the Iron Age appeared around 1500 BC. The reasons for the collapse of the proto-urban Oxus civilization and for the appearance of the early Iron Age cultures are still a matter of debate. It probably results from the interaction of two different trends: one, the local evolution of the Oxus civilization and two, the influence of the steppe cultures. It is difficult to determine if these cultural changes were linked to population migrations, and the question of the ethnic identity of the painted ware cultures people remains unanswered. The main features of the period seem to be the ideological transformation seen particularly in funerary practices. Burials ceased to take place in all of sedentary Central Asia, to be replaced by open air exposition, without collecting bones in specific places. This is generally associated with the appearance of new beliefs and taboos, and the diffusion of early Mazdeism. The Yaz I period is well attested in the north-east and east part of Ulug Depe, where several domestic installations were excavated. The pottery is characterized by the combination of wheel-shaping and hand-made pottery, the latter painted with monochrome geometric designs (fig. 35).



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## The late Iron Age - Yaz II

The excavation season of 2011 has discovered important remains of the very early phase of Yaz II (ca 1100-1000 BC?). Over the whole of the southern part of the mound, built against the old Bronze age mound, a gigantic reorganization of the topography took place, with the establishment of retaining walls and terraces. The old Bronze Age site to the North may have been cut into, in order to procure enough dirt as material to make mud bricks for the new building, and ensure that the new buildings would rise above the rest of the old mound. In the center, a monumental structure with recessed walls is currently being excavated: it may well have been a predecessor of the citadel as we know it today, one of the most striking buildings of Ulug and of all Turkmenistan.

## The Iron Age citadel

The magnetic survey conducted in 2003 over 6 hectares of Ulug Depe has revealed the presence of monumental public buildings on the upper part of the site. Excavation conducted in 2010 and 2011 proved the survey right, although the remains have been heavily destroyed by erosion, with the exception of one building, the «Citadel». It is a massive towering structure, a square of 40 m a side, consisting of several symmetrical parts. The outer envelope, a buttressed wall of mud brick, is defended by false «arrow-slits» regularly cut across its width in each recess, which were only meant to provide light, since they didn't display any widening or sloping towards the exterior.

The only opening is from the south. Behind this outer wall, an outer corridor whose clay floor, resting upon a layer of river pebbles, is lined by an inner buttressed wall. To the south, a central gate opened into a monumental staircase, perpendicular to the wall and leading to the upper floor and to the roof. Calculation of the angle allows for a height of 8 to 10 m for the central structure. On each side of the staircase, two doors opened on an inner corridor which runs on all four sides of the building. It was lined with mud brick benches where storage jars rested. Several large jars were also buried into the floor of this corridor. The inner corridor gave access to the central structure which is divided into four symmetrical quarters around the staircase: each quarter consists of two long parallel rooms lined by mud brick benches for storage jars; as in the corridor, a large jar was placed under the floor to ensure good climatic condition of the content, water or food supply. Some of the jars were sealed with a clay lid, sealed with the impression of stamp seals of various designs (fig. 46-48). Sealings were also found near the few doors giving access to the storerooms. The practice of sealing is evidence of a rigorous control and a centralized administration of the goods stored in the building.



The citadel was heavily destroyed by a huge fire, which has left deep traces over the entire monument. The building was repaired on a large scale, after partially filling several of the store rooms of the ground floor. The outside walls were painted a bright red for its protruding parts, using lumps of ochre, some of which were found close to the southern city-wall, and white for the recesses. With its height and its color, the citadel must have been a striking landmark visible from afar, notably from the passes issuing through the mountains. There is no analogy in Central Asia for this citadel, but its plan recalls those of the later buildings at Nush-i Jan and Godin-tepe in Iran or Tell Gubba in Iraq.

Contemporary to the citadel on the summit, other public buildings were recognized on the west part of the summit by the magnetic survey. One large structure presents two distinct parts and may have combined a palatial residence and a religious site. To the southwest of the depe, a complex of long parallel rooms suggests a function as storage and commercial use, comparable to the «Treasury» at Persepolis. Currently under excavation is a series of impressive, although very much eroded, enclosure walls delimitating an outer or lower city; a middle city opened to the south through a major gate with a ramp or stairs, enclosing the citadel and the palatial and economic complex to the west.

Carbon 14 analysis date assign a date ca. 900 BC for the whole complex, an indication that Ulug Depe was occupied, completely reorganized and built over by people who arrived prior to the Iranian «Medes» on the Iranian plateau, as a seat of power, a statement of prestige of identity. The old mound was entirely occupied both by public buildings to the north, and by inhabitants residing in small houses to the south.

The citadel was abandoned, after some complex «closure rites» were carried out in the interior (all doors were blocked with mud-brick layers, narrow walls were built through some of the storage-rooms to prevent circulation in the building, some clay sealing impressions and one complete seal were buried among door blockings, as well as a human and two fox skulls...). It is noticeable that similar closure rites, i.e the filling of all rooms of a religious building at Nush-i Jan, were carried out some two hundred years later in Iran. Some scanty, localized, traces of later

occupations of the debris created by the slow decay of the citadel and other contemporary buildings may date to the Hellenistic period (ca 300 BC), when the monument was already totally ruined and its inner spaces no longer accessible. The pottery includes red slip wares, characteristic of the first stages of the Hellenistic period.

During later periods, because of its dominant position, the site attracted nomads at various periods. One small temporary occupation on the summit has been dated ca 1200-1210 AD by Carbon 14, and on the summit of the Depe, above the ruins of the citadel the remains of a circular built tomb, the (Ziyarat Khane), were dated to the end of the medieval period (ca 1650 AD). Present day visitors favor the funerary complex of Malik Baba, built in the 19th century at the foot of the mound, the last phase in the long history of Ulug Depe.





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Clay jar sealings and stone stamp seal

## Mortuary practices

Primary burials were placed in shallow cuts within a compact inhumation space. The dislocation of a number of bone connections such as those from the hand, foot (phalanx) and thorax (cervix) suggests that the corpse remained some time in a vacuum when the vegetal container which wrapped the body had disintegrated. Traces of such containers have been recovered. Subjects were laid on their left or right side, their limbs (mostly the lower limbs) flexed, the head oriented towards the north or north-west. The forcibly flexed position of a number of subjects indicates that they had been bound with straps which have disappeared. Accompanying furniture such as clay and alabaster vessels and beads were deposited in the cut, near the feet, the hips or the head of the adult burials. In some instances, faunal remains accompanied the burials.

Accompanying furniture were more frequent during the early phases (Namazga IV). Several adults were deposited in areas which were been abandoned at the time of the burial. Perinatals and infants were buried under the floor of houses, in positions analogous to those of the adults. On the whole, mortuary practices in Ulug Depe conform to those observed all along the foothills of the Kopet Dagh in Turkmenistan, Bactria and Margiana. There is a continuity in the rituals between the Chalcolithic period and the early phases of the Bronze Age, with a majority of individual burials. Diversity appears in the later phases of the Bronze Age, mostly in the construction type (chamber tombs, cists, and mausolea); they vary within the same site and between different regions.

One of the houses in the dwelling area dating to the end of the Middle Bronze Age presented an unusual case, associating seven individual child burials with a cenotaph: several grinding stones and stone columns, of a type usually related to funerary practices, had been deliberately positioned so as to look like a prone human figure. Under this contraption, a large cylindrical vessel had been buried vertically in a pit.

The infant burials, statistically too numerous to come from the same household, had been dug close by, inside the floor on which the cenotaph was built. Children at that time did not possess a social status, as evidenced by the lack of funerary furniture and their burial within the houses instead of a cemetery. In this exceptional case, the location of their burial seems to have been deliberately marked.

The vessel buried under the cenotaph may have been used to receive the liquids from libations poured over the cenotaph. There may have been some taboo against rituals for dead infants, but in this case, the salvage of the libation liquids within the confine of the buried vessel would have avoided contaminating neighboring tombs. A major change took place with the coming of the Iron Age. Burials became very rare and were replaced by open air depositions, a practice generally associated with early Mazdeism.



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## Stone tools and vessels

Stone tools are highly involved in the daily life of the Ulug Depe inhabitants, and were used either for food processing or craft activities. In this region, stone procurement is not easy and the original sources of the different types of stone (sandstones, metamorphic rocks, limestones) are not known yet. Different types of grinding tools, were mainly used for cereal processing. Numerous pestles were used together with hammerstones, anvils and crushing tools, employed for various pounding activities (mineral or plant processing). Among the polishing tools, several burnishers were involved in the ceramic production and sharpeners were used for metallic objects. Limestone grooved weights of different sizes were also recognized. There is good evidence for a local production of stone vessels in white limestone: the different stages of working are present, from the natural blocks to the drilled roughouts. A few fragments of well-polished, flat bottomed, carved vessels have survived. These limestone vessels were probably produced by specialized craftsmen.



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## Plant remains

Macroscopic plant remains (wood, seeds and fruits) have been systematically collected during the excavations at Ulug Depe. Macroscopic plant remains are considered to be those that can be seen with the naked eye, in opposition to microscopic remains, such as pollen, spores and phytoliths, that necessitate the use of a microscope to be observed. In most cases these remains are preserved by carbonisation, but plant impressions on mud brick are also common, as a result of the recurrent use of a vegetal temper in earthen building materials. Botanical remains were collected as sediment samples and extracted from the soil matrix by using the so-called flotation method where samples are poured into a tank of water in order to separate the heavier mineral fraction (that sinks) from the lighter organic material that floats on the surface of the water and is recovered in a sieve. This sieve has a small mesh-size (0,5 mm) in order to catch even minute remains.

The carbonised plant remains thus recovered were dried before being analysed in a laboratory with the help of a microscope. Wood samples are identified on the basis of their anatomy, or cellular structure. The observation of the general morphology or outer shape of seeds and fruits allow their determination. Carbonised wood fragments of various sizes are abundant in the cultural layers. Most often these charcoals correspond to the use of wood as a fuel in domestic contexts or in areas where craft activities took place, for example in the periphery of the site of where a workshop for the manufacture of figurines as well as a pottery kiln have been identified (see above). In some cases, for example in the Iron Age citadel, burnt wood may also result from the accidental burning of construction elements. In both cases, the botanical identification of these remains provides information on the exploitation of wood resources and indirectly also on the vegetation that grew in the surroundings of the site in the past. The first results of the charcoal analysis carried out at Ulug Depe show that species characteristic of the gallery-forests or the so-called tugai growing along the Kelet constituted a preferred source for wood collection in the early periods. Tamarisk trees (*Tamarix*), willows (*Salix*), poplar (*Populus*) and ash trees (*Fraxinus*) were part of this vegetation. In the particular context of the monumental citadel, juniper (*Juniperus*) wood was used for roofing.



### 57 Carbonised plant remains :

- A. A spikelet of bread wheat (*Triticum aestivum*)
- B. Barley (*Hordeum vulgare*) grains
- C. Seed of lentil (*Lens culinaris*)
- D. Grape seeds (*Vitis vinifera*)

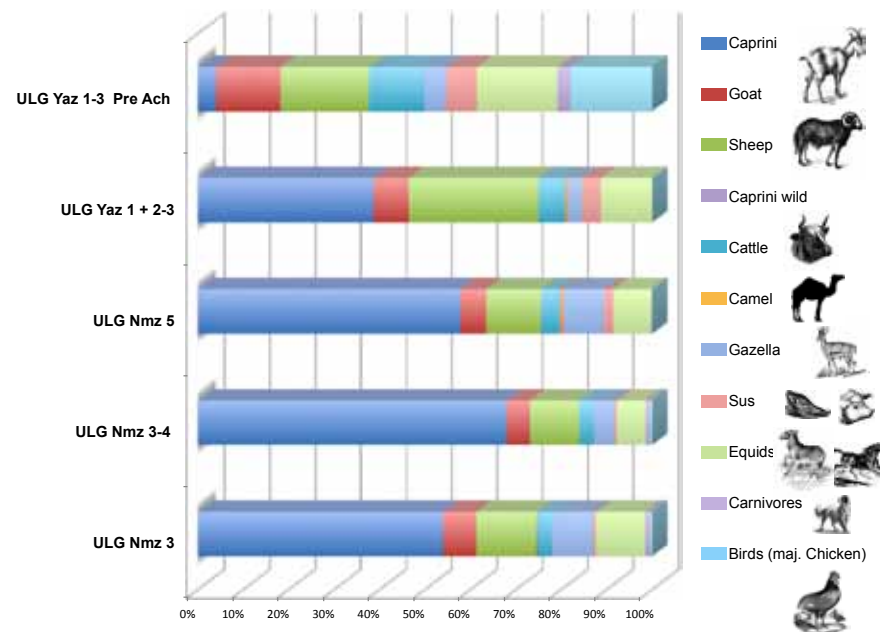
Carbonised remains of seeds and fruits are found in ashy layers from all periods of occupation. They correspond to cultivated crops, field weeds or genuinely wild plant species and inform us of different modes of exploitation (collecting, cultivating) and use (food, fodder, craft activities, medicine) of these resources. Cereal remains, belonging to either freethreshing bread wheat (*Triticum aestivum*) or barley (*Hordeum vulgare*), form the bulk of cultivated plant remains throughout the occupation of the site. Other crop species present since the Chalcolithic are flax (*Linum usitatissimum*) that could be used for its textile fibres or its edible oil, and two types of pulses: lentil (*Lens culinaris*) and pea (*Pisum sativum*). In Bronze Age contexts appear the seeds of a fruit species: grapevine (*Vitis vinifera*) that becomes widely distributed over southern Central Asia and the Middle East from this period on. Parallel to the cultivated plants, the archaeobotanical samples from Ulug Depe contain a series of wild plant species of which many may correspond to weeds that grew in the fields and were cleaned out from crops after the harvest. A particular case is that of an Early Bronze pottery oven that contained numerous seeds and pods of the camel thorn (*Alhagi cf camelorum*). The small spiny shrubs of this species, still common in the steppic environment around Ulug Depe, seem thus to have been used as a preferential fuel in this particular context.

## Faunal studies

The archaeozoological study of Ulug Depe was performed on a relatively rich and abundant faunal assemblage collected from the beginning of the French/Turkmen excavations until 2007 campaign, when the remains were studied. Following the chronological chart of the site animal bones were divided into 5 groups comprising the Namazga III to Namazga V levels and then from Yaz I to Yaz II levels.

In all periods, the inhabitants of the site relied on pastoralism and herding as well as hunting. Domestic Caprines (sheep *Ovisaries* and goat *Capra hircus*) constitute the bulk of the faunal remains independent of the period. Domestic Bovines (*Bos ssp.*) also played an important role in the meat and other by-products (milk, skin, power). Considering the natural distribution of the two humped camel *Camelus bactrianus* in this region of the world, we were expecting to find more osteological remains of this animal. The camelid remains were not present before Namazga III period (3500-3000 BC) and the presence of this animal is rather rare, indicating its utilisation mostly as a pack animal, rather than for food purposes. Carnivores are also present at the site mostly represented by the remains of domestic cat and dog. Some fox bones indicate the probable use of fur also in Ulug Depe.

During the Iron Age, the last phase of occupation, chickens were also kept at the site. Besides these species that are the base of the meat and dairy diet at Ulug Depe, hunting is also an important activity. The surrounding steppes were exploited for hunting: gazelles (*Gazella subgutturosa*) as well as the hemionagres or half-asses (*Equus hemionus*). The piedmont areas of the territories were exploited for hunting wild goat and sheep (*Capra aegagrus* et *Ovis orientalis*). The presence of the white stork (*Ciconia ciconia*) during the Iron Age indicates the presence of river and water sources in the vicinity of the site between Ulug Depe and the Kopet Dag. Finally it



should be noted that the wild boar, although it is not always easy to recognise the wild and domestic forms from the bones, was also among the favoured hunted animals during the Bronze and Iron Ages. The large size of some specimens is a reliable indication for allocating these remains to the wild. The chronological evolution of the faunal spectra in Ulug Depe shows a global stability in the animal food economy until the Yaz II proto Iranian period. In this period Bovine remains are relatively more abundant as is the case of Equids probably domesticated here (horse, donkey and hybrids - mules and hinies). It should be noted that during the Yaz II period a sensitive increase in the boar / pig ratio is visible, which might be an indication of the herding and consumption of domestic pig in this period, which seems to be a widely observed phenomenon on the adjacent areas, namely the Iranian Plateau.

## GIS and Geomatic

The use of GIS in archeology contributes to the renewal of reflection on the interaction between society and space, between society and environment, both in terms of results obtained and in the manner of obtaining them; it affects the development process of archaeological reasoning. GIS is part of the general approach that computerization has brought in the dematerialization of data recording and processing. Geomatic combines all the information in one information system. At and around Ulug Depe, the geomatic prospection program was undertaken in 2004. Its aim is a better understanding of the development of urbanisation, the urban crisis of ca 2000-1700 BC, characterized by changes in space occupation and a regression of long distance exchanges. The approach combines archaeological, anthropological, archaeozoological, paleo-environmental data collected in the region with the geomatic data. By processing satellites and aerial images it will be possible to map the implantations of early human settlements and orient future prospection (fig.3-4).

58 Restoring the citadel walls



59 The LLLab



60

Conservation

The restoration and conservation of the finds is performed every year by a joint team of conservators under the supervision of Estelle Ottenweller and Mekan Annanurow from the Abiwerd Archaeological Park (Kaakhka). The emphasis is put on the restoration of metal artifacts and on clay objects such as ceramics and figurines. With the help of the Leon-Levy Foundation in New York, a laboratory has been established in the excavation house at Dushak and training courses in conservation program are being organized every year for students of Turkmenistan and neighboring Central Asian Republics. Like all mud brick architecture, the monuments unearthed at Ulug Depe run the risk of fast degradation once they are exposed to rain and wind and unsupervised visitors. The archaeological remains, specially the citadel, are restored and maintained every year by MAFTUR, combining traditional and experimental methods.

61 Metal conservation from the site to the lab



## A Future for Ulug Depe

Ulug Depe has been inscribed on the 2012 list of endangered site published by World Monument Watch for 2012-2013. A private foundation, the World Monument Fund, draws the attention of the international community to the site in the hope of raising the necessary funds to restore and maintain Ulug Depe in cooperation with the Turkmen authorities. An on-site museum is soon to be organized so that visitors from Turkmenistan and tourists from foreign countries will be able to discover the rich heritage of Ulug Depe.

## List of participants since the opening of MAFTUR

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