

BRONZE AGE HUMAN HABITATS OF SEMIRECHIE

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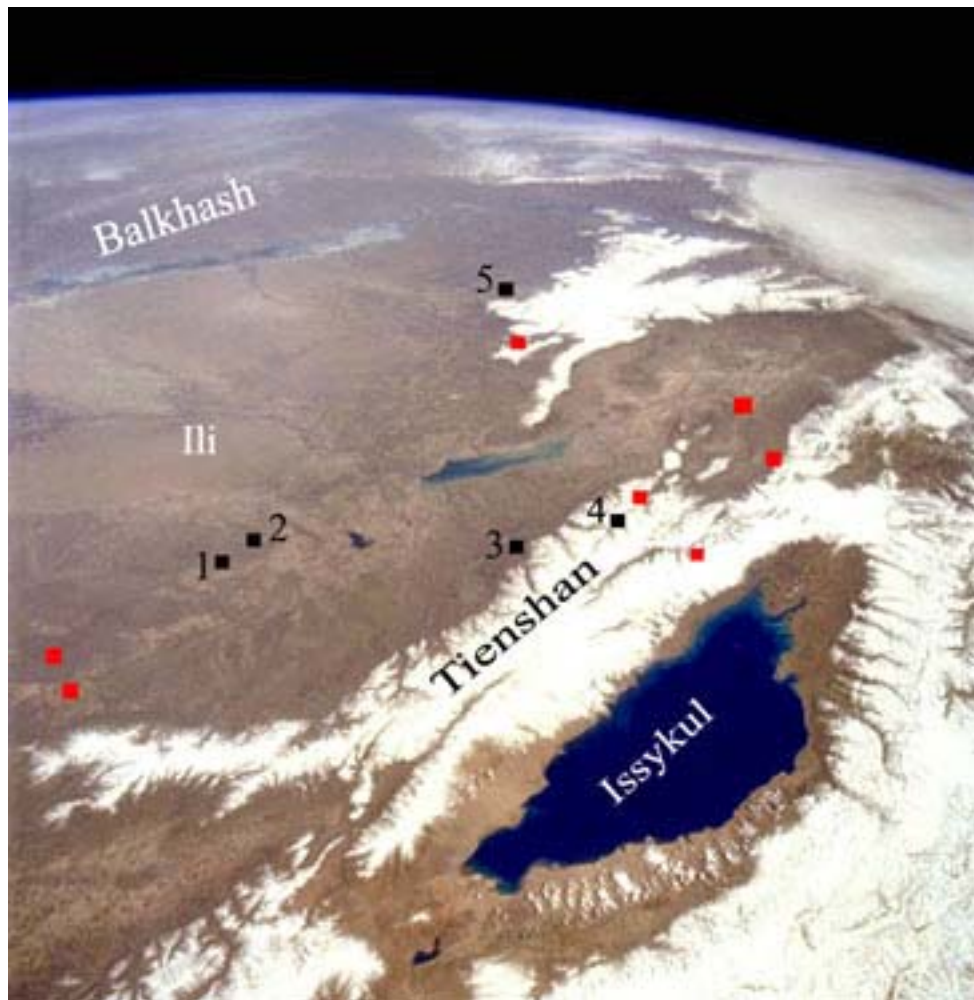


Fig. 1: Satellite image STS059-223-042, April 1994. Issyk-kul lake, Northern Tianshan and, 400 km north, the Balkhash lake partly iced. In the top right corner: the atmospheric circulation patterns of the Siberian anticyclone. Black dots localize polygons of palinological and geo-archaeological research: 1-Tamgaly (800 m asl) and 2-Serektas (750 m) in semi-desertic landscape of the Chu-Ili range; 3-Talgar (800 m) in piedmont steppes and 4-Turghen (1800 m) in mountain meadows of Northern Tianshan; 5-Tasbas (1600 m) in middle mountain steppes on the northern slopes of the Jungarian range. Red dots localize sites of geo-archaeological research: from left to right Kuljabasy, Oi-Jailau, Assy, Saty, Charyn, Usunbulak, and above – Koku.

1 – Where, why and how did people live in Semirechie during the Bronze Age?

Where did people live in Semirechie during the Bronze Age period?

In Semirechie, Middle and Late Bronze cultures settled in *four kinds of habitats*: mountain plateaus and large mid-mountain valleys, piedmonts, oases in semi-deserts, and river canyons. Such natural locations, relatively rare on the Semirechie territory, were all intensively used by human communities at the turn of the 1st millennium BC and most probably started to be used 500 years earlier. In these eco-niches can be easily detected by surface survey houses, tombs, stone-circles and petroglyphs, with the best places showing superimposed remains of different epochs going from Bronze to Medieval times.

The Bronze Age cultures (1500-900 BC) are based on pastoralist activities, more or less settled and characterized by short transhumances. Later on, at the turn of the 1st millennium BC, the concomitance of several factors like demographic growth, climatic changes and steppe expansion promoted a deep socio-economical transformation based on higher mobility. In fact horse riding and new herd assemblages made of mobile and weather resistant species (horses and sheep) favored the gradual development of migratory habits for the seasonal exploitation of complementary habitats and of the newborn steppes expanses (Sala 1999).

Why did these locations represent the best habitats during the Bronze Age period?

The Bronze Age locations share some common traits: they are in the proximity of water resources (streams or springs), they are provided with wood and wind shelters, located on well drained terraces and, most important, at few hours walk from summer camps in rich mountain prairies on one side and winter camps in semi-deserts free of snow on the other. In that way they constitute compact and well limited ecological niches for mono-residential small human communities of shepherds economically self-sufficient and quite isolated each other. The geo-morphology, paleo-environment and paleo-climate of these sites are important elements of the archaeological complex: together with a given economy and technology, they define the '*paleo-ecological potential*' of the region. Their study, when accompanied with the documentation of the surface distribution of archaeological remains, allows economical and demographic evaluations and explains the historical development of human land-use in the region.

How were these communities living in these habitats? It a question difficult to solve exhaustively but important clues can be deduced from the spatial analysis of the surface distribution of cultural remains and of their complementary function in the context of a reconstructed paleo-environment. This approach will bring to a preliminary model of *landscape culturalization*, which in turn will suggest a choice of specific monuments to exhume with methods of excavation adapted to the goal.

2 - The eco-archaeological complex of the upper Bien valley

An excellent example of Bronze Age habitat submitted to modern methods of research is represented by the upper Bien valley historical complex as object of the geo-archaeologically studied of the years 1998-2000.

In 1998 a multidisciplinary team of scientists, working under INTAS financial support, chose a few sites in different landscape habitats as case-studies of Bronze Age cultures of Semirechie: Tamgaly and Serektas in oases of desert plains; Turgen and Assy in high mountain plateaus; and the mid-mountain valley of the upper Bien river in the Jungarian range.

During the Bronze age the establishment of hot and dry climatic conditions made that, among the 4 kinds of potential habitats mentioned above, most important were the mountain habitats constituted by plateaus and valleys located in the Tianshan and Jungarian ranges. In the Zaylisky Tianshan such niches are located between 2000 and 3000 m, on valley terraces and upper plateaus of the Kargaly, Turgen and upper Chilik valleys; and on the right banks of the upper course of the Kegen river. In the Jungarian range for geo-morphological and climatic reasons they are distributed at lower altitude, between 1500 and 2300 m asl, from west to east: along the mountain courses of the rivers Koksus, Tekely, Upper Bien, Sarkand, Lepsinsk; and in the valleys of the Kungey and Tastau ranges south of the Alakol lake.

The paleo-habitat of the valley of the upper course of the Bien river will be described here below as an example of case-study of Bronze Age mountain habitat of Semirechie. Located 70 km east of Taldykurgan and 12km from Kopal, the valley develops west-east with on the south the Jungarian range (with peaks of 3400 m asl), on the north the Bayanzhurek range (2079 m), on the west the western corner of the Bayanzhurek range

(where is also situated the homonym petroglyph site) and on the east its eastern corner sloping the Bien gorge and the soviet village of Balasas. The landscape consists of mid-mountain steppes.

The valley hosts monuments of every epoch: Bronze, Saka, Wusun, Turks, Kazakhs. Together they constitute the so-called *Upper-Bien geo-archaeological complex*. The main Bronze Age sites are Muzbulak, Kalakai, Tasbas, Bayanzhurek and Tasty-Bien: the first 3 are constituted by several kinds of monuments (villages, cemeteries, stone-henges, petroglyphs, cupmarks, etc); the last 2 are constituted by just petroglyphs. The best ecological niches are located in the north-eastern part of the valley; ore deposits in the south-western one.



Fig 2: Aerial photo of the Upper Bien valley. Violet spots refer to: on the left the Bayanzhurek petroglyph site; on the right the Tasbas petroglyph site. Red spots refer to: on the left the Muzbulak Bronze Age villages 1 and 2; on the right the Tasbas Bronze age village and cemetery.

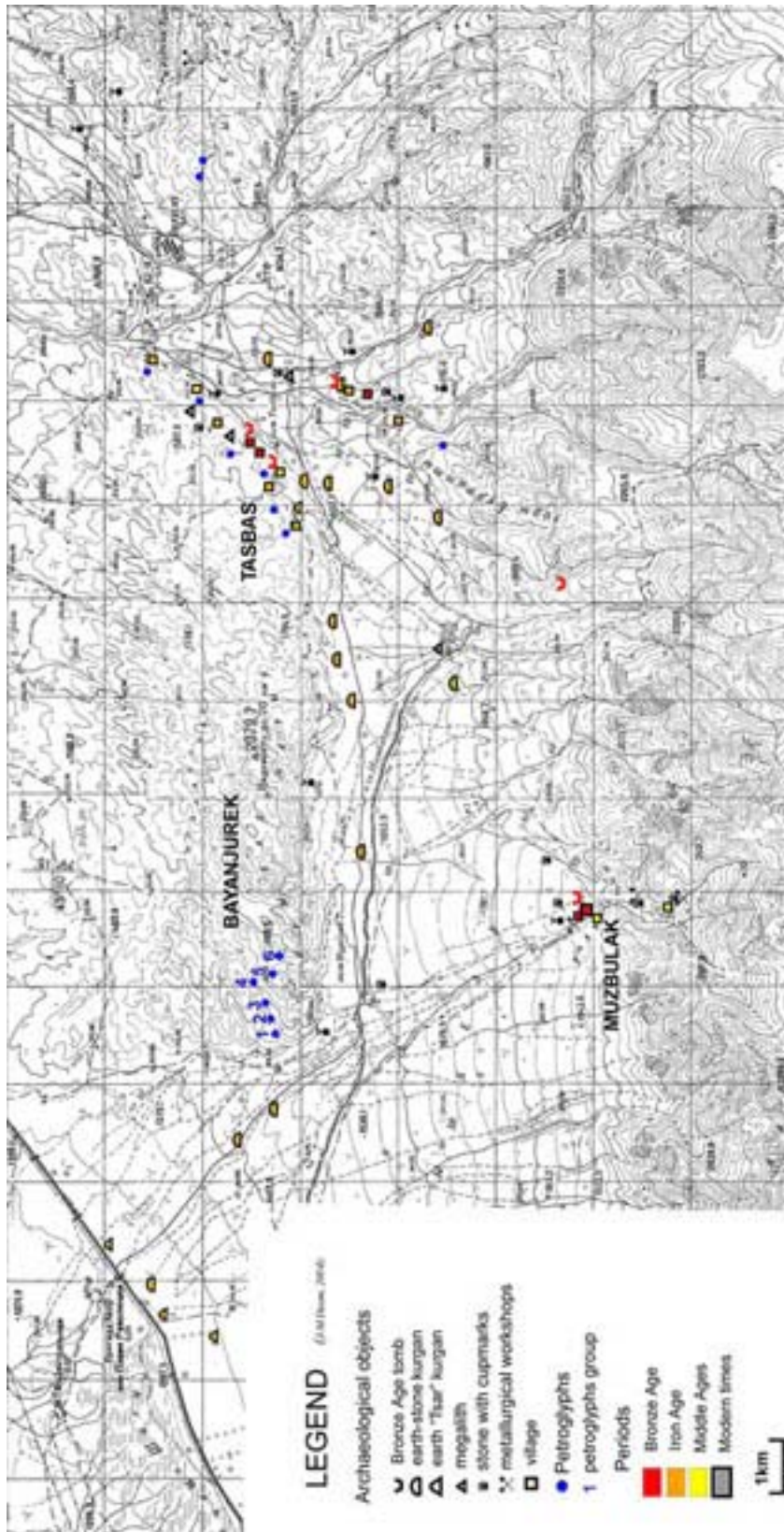


Fig 3: Archaeological map of the Upper Bien

2.1 - Habitats of the eastern part of the valley

From the ecological point of view, the richest part of the valley is the eastern one, where most of the rivers flow, their bed surrounded by tugai (arbored riverine corridor) that in a few places, together with resurgent waters, enlarges into green meadows and marshes.

Summer pastures are provided by the northern slopes of the Djungarian range between 1500 and 2500 m. Winter pastures free of snow are provided by the southern slopes of the Bayanzhurek range between 1500 and 1700 m: they are characterized by a drier and warmer microclimate, well protected from northern winds, with abundant piedmont springs. The 2 localities are at few hours walk from each other.

The cultural monuments are located at the mouth of the valleys both north (Koksai, Kalakai) and south (Ibrahimsai, Tasbas) of the plain. They consist of villages, cemeteries and rock art of every epoch. Middle-Late Bronze Age villages are located in terraces near springs in locales well protected from winds (**Fig 3**); Bronze Age tombs are concentrated in 2 main cemeteries. During the following periods (Early Iron, Medieval, Ethnographic) villages are superimposed on the Bronze Age ones and also diffused in other locales; tombs are spread on almost all the positive forms and flatlands of the valley. (**Fig 3**)



Fig 4: *Tasbas, eastern part of the upper Bien valley. Red spot: Bronze Age village Tasbas 1*

2.2 - Habitats of the western part of the valley

The western part of the Upper Bien valley presents monuments in the form of villages, petroglyphs, cupmarks, and structures for the exploitation of the local deposits of mineral ore and, apart from a relevant Kazakh cemetery at the bottom of the Bayanzhurek petroglyph site and a wonderful stone enclosure in a panoramic point, very few funerary monuments.

Villages, metallurgic workshops and cupmarks are concentrated in the valley of Muzbulak, along the river of the same name, at the height of 1800-1900 m asl. Here are located 3 villages with more than 30 houses each. The excavation of 2 houses, respectively located in village 1 and 2, show successive cultural layers attributed to a period spanning from Middle-Late Bronze to Medieval periods. The earliest ceramic assemblages show analogies with the Alakol culture of Central KZ and with Altaic cultures. Two-three km upstream, in the forested area, have been found several places with stone structures in matrix sites holding a large accumulation of iron slag and charcoal. Two of them (one at 2100 m and the other at 2250) have been investigated by trial trenches and revealed to be iron blacksmith workshops sedimented in an archaeological matrix holding ceramics attributed to the Saka, Wusun and Medieval periods. The place at 2100 m is an open air metallurgic workshop located in the pine trees and along the branches of small streams running down the mountain. The place at 2250 m (just 1.5 km up) is a blacksmith village made of 22 flattened platforms surrounded by round stone walls: here, together with iron slag have been found a few samples of raw copper. (**Fig 3**)

The location of the rich poly-metal deposit are the right and left outcrops at the mouth of the valley. The smelting technology has been very primitive all along epochs: the extracted mineral was crushed into fine fragments and washed in the stream water; pine wood (from the forest surrounding the workshops) provided the smelting fuel; furnaces were very elementary pits 30-60 cm deep dug in the ground and bedded with stones (one of them with large stone with a cup-mark 30 cm in diameter right in the center). Most probably the earliest very simple workshops started during the I millennium BC for smelting copper for local use and ended up with few technical improvements in smelting iron during the medieval period.

Two detailed reports concerning the geo-archaeological study of the sites of Muzbulak have been published:

- Maryashev A (2002) *Novi materialii o paseslenia epoki bronzi gorak Bayanzhurek*. Almaty, Izvestia 2002-1
- Deom JM (2003) *The blacksmith settlements and workshops of the Muzbulak valley*. In: Actualnie problemi geosystem aridnik territorii. Almaty, Kazakh University.



Fig 5: Muzbulak, western part of the upper Bien valley. Red spots: Bronze age villages Muzbulak 1 and 2. (view N)

2.3 - Rock art

Rock art performances are extensively applied on rocky elements of the landscape and consist of petroglyphs, cup-marks, proto-sculptures, and geoglyphs.

Simple *petroglyph* engravings are distributed everywhere, but the most significant of them are concentrated in 3 main sites: Bayanzhurek in the west, Tasbas in the center and Tasty-Bien gorge in the east. The sites are respectively characterized by three different rock materials (sandstone, granite, schist) and by three totally different styles, all of them of very exquisite taste. Particularly interesting is the phenomenon, attributed to Early Iron and Medieval times, of total culturalization of central flat part of the valley by engravings of simple linear sheep and goats applied on every existing scattered granite stone.

Cup-marks are executed on imposing isolated granite boulders: they are mainly concentrated in proximity of metallurgic workshops.

Proto-sculptures are applied on some granite stones, emphasizing the natural sheep-head shape of the rocky blocks. They are mainly found in the area of Tasbas (meaning 'head-stone'), as interventions (eyes, mouth, horn-rings, reinforced lines) on granite boulders that by their natural shape are geologically and popularly called koitas (sheep-head).

Geoglyphs in the form of sheep horns are drawn by aligned stones on the southern piedmont of the Tasbas mountain located in the eastern end of the Bayanzhurek range

Further information about the rock art of the upper Bien valley is provided by chapters 11-12 of the book of Sala R, Deom JM (2005) *Petroglyphs of South Kazakhstan*. Almaty, Laboratory of Geo-archaeology.



Left - Fig 6: Petroglyph on sandstone / Middle Bronze period / Bayanzhurek west

Right - Fig 7: Proto-sculpture on granite / Early Iron Saka period ?/ Tasbas



Fig 8: Geoglyph with shape of sheep horn (main axis 8 m long) at the piedmonts of the Tasbas mountain (view SW)

3 – Conclusions

The archaeological study of Late Bronze monuments of the Upper Bien valley shows the following patterns of cultural development. Dwelling sites were occupied successively and uninterruptedly from Bronze to Medieval times, witnessing a *gradual transition* across different cultures. In Muzbulak the terraces hosting Bronze Age houses have

been successively always occupied by villages, in Tasbas have been superposed by nomadic camps and Kazakh tombs (Mariashev 2002). Also the evolution of patterns of funerary constructions show gradual steps making of the valley a significant polygon for the reconstruction of the historical development of funerary rituals within a compact conservative region. The Bronze Age rock art performances are characterized by big differences in the breed of the rocky support and correspondently of techniques and styles. Only with the Iron Age styles become more homogeneous with prevalent figures of goats and sheep. Geoglyphs are built following a spiral-circular sheep horn module, which represents the main element of the landscape culturalization in the region characterizing not only petroglyphs and geoglyphs but also the principles of construction of houses and tombs. Metallurgic works exploited the poly-metal resources of the mountains cliffs starting from the smelting of copper for local use and ending in smelting large amounts of iron during the medieval period. The preliminary space analysis of the relative monuments location shows the following patterns: association between villages and cemeteries, villages and metallurgic workshops, metallurgic workshops and cupmarks; dissociation between metallurgic workshops and cemeteries.

As a whole the development by gradual transformations of the cultural monuments of the upper Bien valley suggests the hypothesis that the region, by constituting a very isolated and very rich habitat, had the possibility to develop until very recent times in a quite secluded and original way, slightly disturbed by outside events. *We must underline the fact that strong ecological boundaries and cultural originality characterize not only the upper Bien valley but many other Bronze Age habitats of Semirechie.* The monumental complex of the upper Bien valley, because of its seclusion and rare state of conservation, represents an excellent study-object for the reconstruction of the development, from Bronze to Medieval times, of human land use, monumental and cultural expression and landscape culturalization within a compact secluded territory. Moreover, being that these basic cultural features still now characterize the human communities inhabiting the valley, ethnographical enquiries in situ would be of great help for the interpretation of the paleo-ethnographic and paleo-social context of archaeological objects of the valley and of other regions presenting similar environmental and cultural conditions.