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NEOLITHIC TRIBES IN NORTHERN PARTS OF CENTRAL ASIA[1]

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THE development of the Neolithic cultures of Mongolia, southern Siberia and Kazakhstan took place as modern faunal and floral complexes and landscapes were taking shape. In the early stage the Neolithic tribes inhabiting this great expanse of territory had a mobile way of life which involved frequent contacts between ancient populations belonging to differing historico-cultural groups and which implied mutual cultural enrichment. At the same time each area remained highly distinctive, as is evidenced by the mosaic-like character of the cultures and complexes identified and investigated so far.

There was also very great variety in productive activities. The Neolithic cultures in the northern areas of Central Asia generally inherited the Upper Palaeolithic traditions of hafted blade technology for work tools. One innovation that had already begun to appear in the Mesolithic period was the wide-scale use of microliths, particularly of geometric forms. Various economic systems involving different combinations of hunting, fishing and gathering were developed and perfected on the basis of this range of tools. The Mesolithic and Neolithic hunters chiefly hunted the large herds of hoofed animals of the steppes and semi-arid lands. Economic differences were intertwined with cultural differences, and a more detailed and specific description can therefore be given of individual regions.

Two such regions are readily identifiable within the enormous area of the steppes and central Mongolia, where Neolithic cultures developed in large measure following the

[1] See Map 6 on pages xxx and xxx.

tradition of more ancient Palaeolithic and Mesolithic cultures. Of particular significance are sites of the Kere-Uula type with their flake technology. A major influence was likewise exercised by tribes from the Lake Baikal region to the north and from the eastern regions of Manchuria and the Far East. Hence, in discussing the origins of the Neolithic of eastern and central Mongolia, two major factors must be stressed, namely the local basis and the influence of contiguous territories.[2]

The sources of the Neolithic cultures of Mongolia can be seen in the Mesolithic epoch. The expanses of present-day Mongolia are rich in Mesolithic remains. In particular, they have been discovered on the slopes of Kere-Uula, on the left bank of the Halhin-gol river in the eastern *aimak* along the right bank of the Kerulen river across from the city of Choibalsan (Site No. 9), at Moiltyn-am (Layer I) on the Orkhon river in the *aimak* of Kentei, in the southern Gobi *aimak* as well as at various locations in the Bain-Ugli, Kobdo, Gobi-Altai, central Gobi, and Sukhe-Bator *aimaks* of Mongolia.

The above sites are best exemplified by the purely Mesolithic settlement at Kere-Uula, Site No. 9 on the Kerulen and by the extremely well-preserved and representative multi-layered settlements of Rashan-Khad and Moiltyn-am, which exhibit with utmost clarity and in a highly unified manner all the characteristic features of the Mesolithic culture of Mongolia.

Excavations of the Kere-Uula tepe over a total area of 75 m^2 yielded numerous stone tools. These included Gobi cores and core blanks of brown flint; tongue-shaped convex-blade scrapers, fashioned out of flakes of lamellar chips; single-blade knives, side-scrapers of the Kere-Uula type, worked from flat pieces of black shale; Kere-Uula type angle and medium burins made from knive-shaped flakes; edge chips constituting a by-product of core shaping and ski-shaped flakes struck from the long sides of cores, larger triangular flakes, struck from Gobi cores, which were either trimmed or else unretouched along their edges; micro-flakes likewise struck from Gobi cores; and, finally, some individual chopper-like artefacts as well as relatively shapeless pebbles and flints that might have served as cores after careful working.

In fact, the principal function of the Gobi cores was to yield knife-shaped micro-blades. In individual instances the cores may also have been used as scrapers. The angle of Kere-Uula tepe burins are knife-shaped flakes with retouched long edges and slanting transverse cleavage faces struck diagonally from the flake vertex. Their chief use was in fashioning hafted composite tools, that is, making grooves in bone and wooden blade holders. Tools of

[2] Derevyanko and Okladnikov, 1969; Okladnikov and Derevyanko, 1970; Dorj and Derevyanko, 1970; Dorj, 1971.

a similar type found in Japan are known as 'Araya' burins after one of the sites in northern Japan.

The second and third cultural layers of the Rashan-Khad settlement were also found to contain Gobi and boat-shaped cores, together with larger and smaller cores of the subprismatic and Levallois types with either one or two striking platforms.

Other tools included burins with a diagonal cutting edge, angle and median burins formed from a cleavage face perpendicular to the longitudinal axis of the implement. Whatever their type, these burins were made from flakes and flake-shaped chips retouched along their edges.

Also present were ski-shaped flakes, end-scrapers fashioned out of chips and some of rounded shapes with high-relief spines and steeply retouched working edges, large, roughly worked side-scrapers and knives of the Kere-Uula type. The principal material used to make all these implements collected at the Rashan-Khad settlement are fully identical with those of the Kere-Uula inventory. Gobi cores were also found at the settlement of Moiltyn-am in the first cultural horizon, together with various pebble-tools including small scrapers, fine piercing tools and projectile points.

Site No. 9 in the Kerulen area was of entirely different character as regards both its artefacts and the culture which they represented. The Neolithic finds which turned up in the course of excavating some 50 m^2 at the site included a significant array of arrowheads made out of grey, light yellow and green flint flakes. All of these were finely retouched at the sharpened tip; some of the arrowheads were likewise retouched along the edges, more often than not from the ventral surface.

Similar flake arrowheads were found in the Gurmiin-nor area of Bayanobo *somon* (Kentei *aimak*) and by mount Bat-Khan in the same *somon*. Here they were accompanied by Gobi cores, as well as (in the case of the early complexes of the Neolithic site of Dulany-gobi in the eastern *aimak*) by Kere-Uula knives.

This completes our brief account of the principal pre-ceramic sites in Mongolia. Some of them date back to the Late Pleistocene, i.e. 17,000 to 12,000 years ago (in the case of Moiltyn-am and Rashan-Khad, whose early artefacts show a marked tendency towards Levallois forms of stone chipping), or else to the Early Holocene, i.e. 12,000–10,000 years ago (Kere-Uula).

Site No. 9 and other contemporary sites belong to the final stages of the Mesolithic, that is, to the fifth millennium B.C. as is evidenced by their bifacially retouched flake arrowheads reflecting perfect mastery of stone-working technique.

A distinctive clue to the cultural identity of the Mesolithic population of Mongolia is afforded by the Gobi core, which begins to occur in the territory of present-day Mongolia

towards the end of the Upper Palaeolithic, developing during the Mesolithic and surviving until the Early Neolithic.

Independently of the Gobi core, the presence of other individual items from the above list of Mesolithic cultural artefacts found in Mongolia at sites situated in the above-mentioned territories also points to a clear picture of the routes taken by specific ethnic groups migrating outwards from the heart of Central Asia. Eloquent testimony of this may be seen in the fact that in Mongolia all the elements of the Mesolithic are present as a unified complex (as at the settlement of Kere-Uula and Rashan-Khad), rather than in the scattered fashion in which they occur in the neighbouring parts of northern Asia. This establishes beyond doubt the stability of the local forms of stone-artefact assemblages, while at the same time providing solid ground for supposing that such a stable source culture might well originally have been that of a fully formed and unified ethnic group with an Upper Palaeolithic tradition behind it. According to all available evidence, the Mesolithic population of Mongolia constituted precisely such a group.

Among the earliest of the Neolithic finds in Mongolia are the settlement-type sites by Lake Yamat-Nuur some 10 km from the station of Khovirga. The lake is shallow and is gradually drying up. Its width is 250–300 m. The water line is now 300–400 m away from the old lake shore.

Most of the finds were made on the northern and north-western shores of the lake as well as along the rim of the ancient terrace adjacent to the high southern shore. The material collected in the area around the lake has certain highly distinctive features, the cores being chiefly of the flake type. Of these, the majority are either prismatic or quasi-prismatic, with flakes struck off from three or four sides. Wedge-shaped cores and scraper cores are also present.

Most of the collection consists of primary flakes and flake tools. Particularly noteworthy among the finished implements are end-scrapers made from both chips and flaked stones as well as invert blades and cutters. The end-scrapers were fashioned by high-angle oblique retouching. The invert blades were worked largely out of knife-shaped flakes. The fine retouching was done on the ventral face, with some of the items finished by retouching on the dorsal face as well. Distinctively shaped adze or scraper-like tools constitute a special group. These are quasi-triangular in plan. One whole face of these tools was worked in broad scaling strokes.

The settlement in question exhibits numerous archaic features. Its scraper cores, cutters, and composite implements are analogous to those found in such early sites as that of Mount Kere-Uula. The adze or scraper-like tools are also of early date. Moreover, no potsherds

were found at the Lake Yamat-Nuur site. Both of these considerations suggest that sites of this type date back to the fifth or fourth millennium B.C.

One important Neolithic site in Mongolia is the settlement of Tamsagbulag. It is situated on a high terrace above a flood plain and consists of large semi-subterranean dwellings having an area of roughly 40 m^2.

All the stone objects discovered in the Tamsagbulag settlements are characteristic of a fairly clearly defined stage in the history of the ancient tribes of the Tamsagbulag culture. The stone implements consisted of cores of various shapes (with one notched lateral edge; sub-prismatic pebble-shaped), including core scrapers of both the classical and Tamsagbulag type. The latter are so named because of their highly distinctive features peculiar to this culture alone, that is, a bevelled striking surface fashioned by making transverse chips. The flakes were removed from only one side and the shoulder was cut into a point or wedge shape. Cores were usually fashioned from flint, jasper, tuff and, occasionally, chalcedony. The finished cores were often later converted into different types of implements – hammers, cutters, draw-knives and planes for making bone and wooden objects. It is possible, in fact, to use almost all ‘ Tamsagbulag’ cores as tools of this kind since, after a slight modification by chipping, their final surface constitutes a good notched blade.

A large number of knife-like flakes – and tools made from them – were found. In fact, they constitute the majority of all such finds, and include cutters, knives, knife-blades, awls and scrapers. The scrapers are of several kinds: end-scrapers with a straight or rounded blade, lingulate scrapers and scrapers made of flat flakes of siliceous tuff or, as they are called, Tamsagbulag scrapers, since they are characteristic of that culture alone. The working blade is at the broader end, the edge of which was first roughly hammer-dressed and then finished off by fine chipping (Fig. 1).

Among other objects were hammer-dressed and carefully polished adzes, oval in cross-section with slightly narrowed lateral faces; arrowheads with chipping on both faces; quite large scrapers made of flakes or other special fragments; and adze and scraper-like implements used as chopping tools.

Besides stone implements, the Tamsagbulag inhabitants also used bone tools on a large scale. They used bone for making arrowheads, knives and blades for composite knives and daggers. Without working them, they also made use of the ribs of animals, the ends of which were worn and polished through long use.

Some fragments of pottery were also found, thick-walled, grey in colour and decorated with deeply cut parallel lines. This pottery was unquestionably of local manufacture in as much as nothing like it has been found among remains from the same period in other parts of Central, North and East Asia. Thus, we have here features in the working of stone

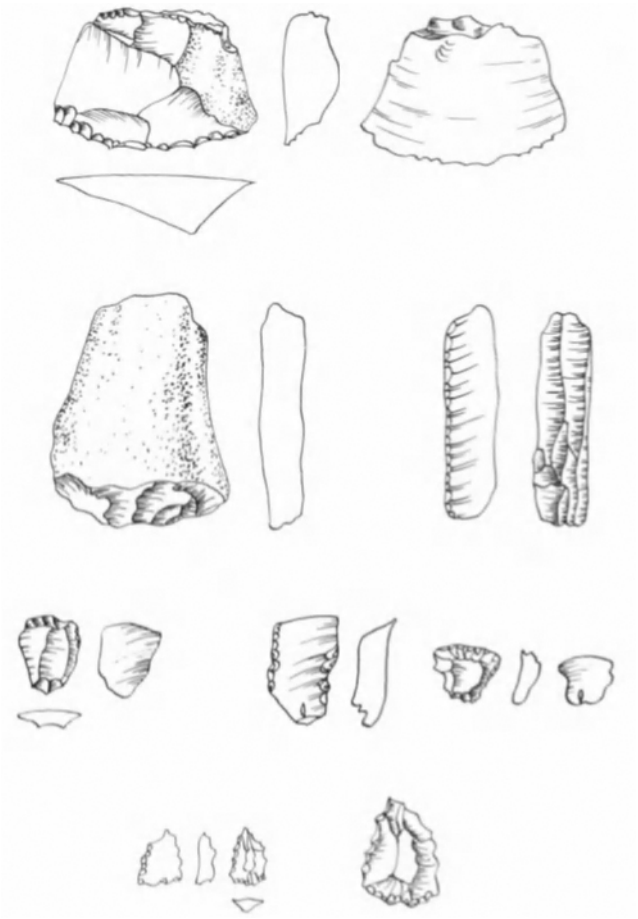

FIG. 1 Stone tools from Tamsagbulag

and earthenware that are specific to the Tamsagbulag culture alone, and distinct from the Neolithic cultures around it.

One of the most important problems in studying the history of the tribes of the Tamsagbulag culture is that of agriculture and cattle-breeding. Striking evidence of the emergence and full development of agriculture in the region in question is provided by the numerous specimens of pestles, grinders and graters for grinding grain; hoes for loosening the soil; millstones (with biconical centre holes having a diameter of between 10 and 15 cm) and weighting material for digging sticks.

Agriculture, the new branch of economic activity, played a tremendous role in the further development and advancement or the material culture of the Tamsagbulag inhabitants and in their economic life in so far as it provided man with new, continuous and inexhaustible supplies of food and in the methods of economic management. V. G. Childe quite aptly termed the emergence of agriculture and cattle-breeding and the technical

innovations it brought with it the 'Neolithic revolution', which, for the peoples of Tamsagbulag, occurred in the middle of the third millennium B.C.

All available information indicates that agriculture in eastern Mongolia emerged independently and had its origins in the active practice of food-gathering. The agricultural implements mentioned above are clear evidence of the fact that the inhabitants of Tamsagbulag engaged in primitive hoe agriculture. Consequently, the favourable climatic conditions and the presence of local varieties of wild plants that might have been the forerunners of later cultivated plants, such as paniculate and capitate millet, all provided the preconditions for the independent development of agriculture in the Tamsagbulag region. Agriculture combined with both food-gathering and hunting, evidence of this being provided by flint and bone arrowheads of various forms, and implements for working the wool of animals and animal bones found at the Tamsagbulag settlement. According to A. P. Okladnikov, hunting even had a specialized character.

To all this must be added fishing, and when we remember that, with agriculture, the most important feature of the Tamsagbulag economy was cattle-raising, there can be no doubt that this economy was a complex one. That fishing constituted a subsidiary element of the economy is evidenced by the finds of fish bones, while the presence of the bones of domesticated animals indicates that cattle-breeding was a fully developed activity.

Further study of the osteological material is required before we can positively identify the particular types of domestic animals, but there is sure evidence that among the large animals, horses and cattle had already been domesticated at that time (a whole ritual heap of bulls, for example, was discovered at Tamsagbulag). Nevertheless, we cannot exclude the possibility that many other kinds of domestic animals were bred, given the particularly favourable natural conditions that then existed in eastern Mongolia – endless stretches of steppe with excellent grazing lands and watering places.

The combination of agriculture with hunting, food-gathering and, to some extent, fishing was conducive to a sedentary way of life in sturdy dwellings sunk halfway into the ground. In addition, a whole ancestral 'microregion' grew up at Tamsagbulag, something that was unknown to the tribes who had settled in neighbouring territories. The Tamsagbulag dwellings were rectangular in plan and the ground around them, in which large numbers of animal bones and various tools were discovered, was usually very dark, almost jet black, in colour. To judge from one dwelling that survived completely intact, the Tamsagbulag house consisted of a foundation trench dug 50 to 80 cm into the ground, two connected rows of posts (one row abutting the walls of the trench and serving as the foundation of the wall frame and supporting the exterior binding, and the other placed in the centre of the dwelling and serving as a support for the internal binding) and a pyramidal roof. The

dwelling had no door (apparently, a smoke hole or a special opening in the roof into which a notched log was inserted took the place of a door).

The presence of durable, semi-subterranean houses, is eloquent testimony to the establishment of a settled mode of life within the tribal community of Tamsagbulag (one of the five dwellings excavated there was 35 m^2 in area). This is evidence of the fact that the tribes of Mongolia were not all itinerant hunters or permanent nomads throughout the long history of that country.

It is interesting to note that under the floor of one of the dwellings the grave of a young woman was found. It contained ornaments made of mother-of-pearl, stag's teeth that had been bored and strung on a thread and two bone daggers (one of them with interchangeable flint blades). The mother-of-pearl beads (some 200 were found) were fashioned from thin, flat, round wafers, pierced at the centre. A store of unfinished pieces, discovered in the inhabited parts of the dwelling, indicates that the beads were of local manufacture (Fig. 2). The woman was buried in a sitting position in a narrow pit. In general, one of the typical features of the Neolithic tribes of the Tamsagbulag and other regions of the Kerulen valley was the manner of burial. All corpses without exception were found in a contracted, sitting position, their face turned towards the west or east. The burial pit was so small and constricted that there was room for only one body.

Compared with burials found in other Neolithic cultures, those of the Tamsagbulag region are highly distinctive and nothing like them has been found in neighbouring territories or, at best, extremely rarely. In other words, the custom of burying the dead in a narrow pit, in a contracted sitting position was peculiar to this region and the fact that there was just this one burial site in our view testifies to the specific ethnic unity of the population of that period.

Thus, the Tamsagbulag culture is intrinsically different from contemporaneous cultures, from the standpoint both of the remains left of its economy and the way of life of its members, and therefore occupies a prominent and distinctly original place in the ancient history of this part of Central Asia.

The third stage, lasting from the end of the third to the beginning of the second millennium B.C. is represented in eastern and central Mongolia by sites at which flake trimming had been supplanted by bifacially retouched artefacts. Some sites of this type may be dated to the Early Bronze Age. This would be the case, for example, with the finds at Lake Khuityn-Bulag at a distance of 130 km from the town of Choibalsan along the road to Halhin-gol. Here the area between a string of lakes and their sources is straddled by a row of low *solonchak* hills thickly overgrown with dersen grass (*Lasiagrostis splendens*). The eroded slopes of these hills were found to contain accumulations of debris in the form of

FIG. 2 Bone necklace and beads from a grave at Tamsagbulag.

large fired and cracked pebbles. Scattered about these accumulations were large quantities of animal bones, chips, knife-shaped flakes and finished artefacts. Certain patches were found to contain calcinated reddish-coloured loamy sand dash, the remains of hearths.

The stone artefacts collected from around the hearths and at a small distance away from them were largely finished tools. The implements are mostly of chalcedony, flint items being much less common. The arrowheads are of three types: with a straight tang, with asymmetrical barbs and with a rounded base (laurel-leaf arrowheads). The arrowheads are quite similar in shape and fabrication technique to the Glazkovo arrowheads of the Lake Baikal region. All the arrowheads were worked by very fine retouching. In addition to arrowheads, the find included some ten scrapers and fitted knife blades. Some of the hearth-midden slag included baked copper droplets. The slag in question was definitely part of the find as a whole. The advent of these new materials, namely copper and bronze, is associated with the almost complete disappearance of flake cores and knife-shaped flake artefacts.

The other extensive area of north-eastern Central Asia with its own distinctive features as regards the development of Neolithic cultures is the southern part of Mongolia and the Gobi desert, where man was obliged to adapt to certain special conditions imposed by nature and the landscape. This region also exhibits three principal stages in the development of Neolithic cultures. The earliest complexes – those of the Late Mesolithic and Early Neolithic – are characterized by an advanced flake-tool technology and a large number of artefacts fashioned out of knife-shaped flakes. This enabled Nelson and later Maringer to refer to the microlithic character of the Mesolithic and Neolithic cultures of this region.[3]

The best-known of the sites discovered in the 1920s by the members of the United States expedition to Central Asia led by R. C. Andrews are those in the region of Baindzak or Shabrak-Usu in the central Gobi, where two cultural horizons were unearthed. The lower of these contained no pottery but was characterized by an abundance of wedge-shaped cores which have come to be called 'Gobi cores' by virtue of the Baindzak find. These and other types of cores (prismatic, conic, etc.) had been struck to yield knife-shaped flakes which were then transformed into a wide range of implements: scrapers, cutters, knives, and multipurpose tools. The layer contained small disc-shaped ostrich eggshell beads. The same area was subsequently revisited by a Soviet/ Mongolian archaeological expedition which refined the previously available findings as regards stratigraphy and collected new material.

Early site complexes in this area are associated with a range of ancient dunes covering the floor of what was once a depression of enormous size. The culture-bearing stratum is exposed in areas where the dunes have been blown away by the wind. The finds occurred in the form of hearth-centred clusters and smallish individual groups. Two horizons were identifiable, each of them reflecting a particular stage in the development of the Neolithic cultures in the region.

The more ancient of these was the Neolithic horizon extending below the dune base layer. This was characterized by stone implements and ceramics with parallels in the Early Neolithic cultures of the Lake Baikal region. Links with the preceding stage are present in the form of cores for the striking off of knive-shaped flakes as well as flake-type implements. In shape and production technique, these are very similar to their more ancient antecedents. The tools in question are scrapers, cutters, etc. Major changes in the culture are evidenced by the advent of pottery. The vessels are of semi-oval shape with a pointed bottom. The outer surfaces bear textile-imprints, some of the artefacts bearing the woven net impressions typical of the ceramic wares of the Lake Baikal region and Transbaikalye. Specimens of a similar type have been unearthed in other *taiga* and forest-steppe regions

[3] Nelson, 1926*a*, 1926*b*; Maringer, 1930.

of Siberia, as well as at sites in Manchuria and all the way to the Great Wall in northern China.

Links with cultures of the north are also evident from the presence of arrowheads, knives and hafted blades typical of the Neolithic of the Lake Baikal region and Transbaikalye. The Neolithic culture in question apparently took shape on the basis of the culture of peoples who had wandered out over this area during the Mesolithic, as well as that of the incoming hunters and fishers from the *taiga* and forest-steppe parts of Siberia.

The next stage in development of the Neolithic culture of southern Mongolia is less complex. The cultural horizons of this stage lie within the body of the dune deposits and are associated with fairly deep sand-covered burial grounds. Items fashioned from knife-shaped flakes continue to occur at this time, but are to a large extent superseded by bifacially retouched artefacts. The ceramics, too, are of an entirely different aspect: the vessels are thin-walled, well profiled with flat bottoms. Painted ceramics likewise make their appearance. The outer surfaces of pottery were often ornamented in black paint. Also present are sherds bearing traces of black ornamentation against a red background. In some settlements a dark paint was applied to a yellow background. Painted ceramics are fairly common in the Neolithic sites in the southern Gobi desert.

The period in question is also marked by important changes in economic life and activity. The settlements investigated yielded large numbers of grinding stones, mullers and pestles. Also significant is the fact that cultural artefacts of this time were often included in burials. Such finds were made with particular consistency in the case of the site near the Darigangi *somon* in the western Gobi. To the south of the *somon* several kilometres away from a large freshwater lake, are some extensive ranges of dunes. The depressions between the dunes were found to contain numerous Neolithic complexes. Differentiating between them stratigraphically and chronologically proved a very difficult task. The ceramic wares found at the wind-exposed sites were of three types: cord-impressed; smooth-walled with an evenly flared slightly thicker lip; and thick-walled vessels decorated with incised horizontal lines and appliqué torus moulding (‘cordons’). The stone items included both objects fashioned out of knife-shaped flakes and bifacially worked implements.

Another group of Neolithic complexes was discovered between the above-mentioned lake and the Darigangi *somon*. The Neolithic finds here occur in clusters scattered over a fairly wide area. Stratigraphically these are bedded in well-composted ancient buried soil containing large amounts of vegetational residue and covered over with sand. Remains of dwellings have been found here. The finds include grinding stones, mullers, pestles, and hoe-like tools used to work the soil, no ceramics were found, even though the stone items were typologically close to contemporaneous finds from the southern Gobi.

Studies of Neolithic sites in Mongolia have made it possible to answer some of the questions concerning the beliefs and arts of the ancient population. All the graves found in eastern Mongolia testify to the unity of burial customs over a considerable area, and therefore to a certain ethnic unity of the people in question. Skeletons were found in a seated position, facing either westward or eastward. The burial pit was of small size and so narrow that it could contain only one sitting body. The graves for the most part yielded very little, and only the one in dwelling No. 1 at Tamsagbulag contained ornaments and bone daggers with inset blades.

The Neolithic tribes of eastern Mongolia have left traces of animal worship. Tamsagbulag yielded a cluster consisting of the skull of some smaller animal, beads of decorated bone, and the canines of a maral, or Asiatic red deer (*Cervus elaphus*). Another cluster contained the bones of a large animal gathered and packed into a special shallow pit. This burial probably related to an animal cult.

Knowledge about the arts as practised by the Neolithic tribes of Mongolia is still rather meagre. Decorations found in the eastern areas include maral canine pendants and shell beads, while those from southern Mongolia have been known to contain ostrich eggshell beads, some of them with geometric ornamentation. The peoples of Mongolia used tens and even hundreds of thousands of ornamental patterns. Chronologically these belong largely to the Bronze and Iron Ages. On the other hand, reliably dated Neolithic rock pictures are virtually unknown, even though it remains highly likely that any number of ancient rock-face 'art galleries' were in fact created in Neolithic times. It is apparently to this period that the rock pictures at Ulzit-Somon in the central part of the Gobi may be attributed. The sand-scoured, flat shale surfaces are covered with dozens of chiseled representations of animal and human figures. Many of the pictures are coated with the same dense patina of 'rust' as the rock surfaces on which they were executed. The most ancient subjects show wild stallions with exaggerated genitalia. These images no doubt express the ancients' notion of the fertility of animals – the chief source of sustenance of the hunting tribes of the distant past.

The question of the economic activity of the Neolithic tribes of Mongolia is an exceedingly interesting yet difficult one. Students of the ancient cultures of eastern and Central Asia have for a long time thought of Mongolia as having been a land of nomads. But materials collected over the past few years point to more complex processes. Already in the Early Neolithic, and possibly as early as the Mesolithic, ancient tribes in Mongolia were actively engaged in gathering vegetable foods, which logically should have led to the cultivation of plants. Climatic conditions were certainly conducive to such a development, as in the past Mongolia received much more rain than it does today. Well preserved traces of

erosion provide clear evidence of this fact. Further testimony of the erstwhile abundance of water in the Mongolian steppes is afforded by the large number of dried-out stream beds, traces of ancient shore-lines, and saline lakes. The increasing aridity of the climate appears to have proceeded at different rates in various periods, but it is certain that in the fourth and third millennia B.C. the climate of eastern Mongolia was more humid than at present. One piece of evidence for this is the ancient bed of the Tamsagbulag river, which once flowed into Lake Buirnor at its south-western extremity. The width of this dry bed is 100 m, and abundant waters once flowed along it.[4]

The very prevalence in Mongolia of large and long-lived settlements with semi- subterranean habitations allows us to state with confidence that agriculture was destined to become the basis of the economy of such settlements, since, apart from agriculture, Mongolia offers no source of food which could be relied upon to provide sustenance for a sizeable settled community. Both hunting and fishing in Mongolia were associated with periodic nomadic migrations, and it was agriculture alone which could have provided a constant and reliable supply of food. Another indication of agricultural pursuits is provided by the agricultural implements such as grinding stones, mullers, pestles, hoes, digging-stick weights found at the Tamsagbulag and other settlements of eastern and southern Mongolia. Despite its relatively unsophisticated character, agriculture in the Middle and Late Neolithic was, it seems, a more effective source of food than hunting and fishing.

Needless to say, agriculture was not practised throughout the territory of Mongolia, and some tribes continued to live by other appropriate economic systems. However, the transition to agriculture constituted an important step towards the further progressive development of the material culture of the tribes of Stone Age Mongolia. It is even conceivable that along with the advent of agriculture, animal raising began at this time in Mongolia, although the formation of an animal-raising society proceeded at a greater pace in the next stage, that is, during the Bronze and Early Iron Ages. The shift was probably linked to increasing aridity of the territory, as well as the arrival in Bronze Age central and eastern Asia of mobile pastoral tribes from the west. It was only in the second millennium B.C. that the nomadic way of life, which eventually would bring about such major changes in the day-to-day existence and activities of the peoples of Central Asia, began to take root in Mongolia.

The tribes of Kazakhstan constitute a distinctive cultural-historical milieu which had little to do with either the Neolithic people of Central Asia to the south or the tribes of the southern Urals and Siberia to the north. The Mesolithic period in Kazakhstan is known only through isolated finds. These finds indicate that microlithic flint industries, practised

[4] Murzaev, 1952 p. 128.

by tribes hunting herds of large game, occurred there at that period as they did in Mongolia. A considerable number of Neolithic sites have been unearthed and investigated in southern Kazakhstan.[5] One of the most thoroughly investigated Stone Age sites in this area is the Karaungur cave located on the right bank of the small river of the same name. The site is multi-layered, its upper horizons belonging to the Mesolithic and Neolithic. The industry of the Neolithic inhabitants was based on flake tool-making.

Knife-shaped flakes were used to fashion elongated end-scrapers, points, arrowheads, and other articles. Flakes with lateral indentation and blunted edges have also been found. Microlithic flakes with worked and unretouched blades which fitted into bone or wooden hafts are present in abundance. Other implements worthy of mention are axe or adze-type tools, pestles and scraper knives.

A material in common use by the Neolithic tribes was bone, of which they fashioned awls, piercing tools, eyed needles (the prototypes of modern needles), scrapers, and other implements for working animal hides. Among the rare items, both from the point of view of purpose and of the care taken in finishing, is a calibrated bone gauge, adornments made of drilled shell, tooth ornaments with short scratches, bone pendants and beads, and sculptured figurines carved from animal phalanges.

The clay vessels found in the Neolithic horizon had rounded bottoms and weak profiles. The upper portions of the vessels were decorated with incised points, pits and figures applied with a serrated die.

Neolithic sites in southern Kazakhstan have been studied along the Berkutta river, as well as along lake-shores and in the vicinity of springs. Most of the Neolithic sites are characterized by the extensive use of knife-shaped flakes for the fabrication of implements. The Neolithic sites of southern Kazakhstan generally have much in common with the Kelteminar culture (Fig. 3).

Another somewhat distinct group is comprised of the Neolithic tribes of central and western Kazakhstan. The most abundant finds have been made in the valleys of the rivers Karaturgai and Kenzebaisai, by springs, as well as along the shores of ancient lake basins. As in other parts of Kazakhstan, the most characteristic feature of the Neolithic in this region is the extensive use of knife-shaped flakes as primary work-pieces coupled with the persistence of microlithic forms. The most widespread cores are prismatic or wedge-shaped, well prepared for the striking off of knife-shaped flakes. Multiple flake scars are evident over the cleavage front.

The Neolithic sites of the Karaturgai river valley are characterized by smaller-sized thin, narrow flakes. Most of the struck fragments bear traces of secondary working. The

[5] *Istoriya Kazakhskoy SSSR* Vol. I, 1977.

FIG. 3 Kelteminar culture of southern Kazakhstan.

finds include flakes sharpened by retouching from the dorsal side and along the edges and bevelled ends. Flakes with one or more lateral indentations are also not unknown. The scrapers are mostly of the end type. Wide use was made of sectioning, flakes being used to produce inserts for composite implements with a bone or wooden haft as the basic element. On the other hand, classical implements of geometric shape are relatively few in

number. In addition to flaking, the stone workers of the sites in question made wide use of chips (primary flakes) for fashioning implements. Chips were used to make scrapers, points, cutters, drills and other articles. Arrowheads were made of flakes with only their points finished by retouching, as well as of special billets. The latter were retouched on both faces. Bifacial retouching was also employed in making dart- and spearheads.

The sites also contained ceramic items. These are largely sherds of vessels of parabolic shape with a slightly flared lip and a smoothly widening body. They are decorated with a comb die, as well as by scoring imprinting (pitting), and gouging.

Neolithic sites unearthed in the vicinity of springs and ancient lacustrine basins in the Kenzebaisai river valley contained not only the products of the flaking technique, but also implements fashioned out of chips (primary flakes) and special billets; in fact, 43 per cent of the scrapers were made out of flakes and 54 per cent out of chips. In the case of sites in the Sari-su river basin and by Lake Sari-zen, the proportion of splinter-based scrapers reaches 88 per cent, while at Karaganda–15 site with its clear-cut stratigraphy Layer VI contained scrapers 93 per cent of which were fashioned out of chips. All the sites in this area are also characterized by the common occurrence of microlithic implements, including trapezoidal shapes and inserts.

A distinct group of Neolithic finds is constituted by the sites situated in the ancient valley of the Syr Darya and the Aral Sea region. Many of these were situated in wind-blown areas, while quite a few others lay buried under sand. The sites of this region may be thought of as occupying an intermediate position between the Neolithic of the northern steppe regions of Central Asia and the Trans-Uralic region. They have features in common both with the Kelteminar culture, and with the cultures of the southern Trans-Uralic and the eastern portion of the Aral Sea region. Many of the artefacts of the Neolithic sites of the Aral Sea region were made out of knife-shaped flakes; such articles included scrapers, cutters, piercing tools and arrowheads. Knife-shaped flakes were also used to fashion hafted blades. Flakes with one or several lateral indentations and flakes with a blunted spine and bevelled edge are also present.

Scholars concerned with the Aral Sea region have distinguished between two chronological stages, the Neolithic and the Eneolithic. The artefacts found at the Neolithic sites of Saksaul'skaya I and Agispe do not number among them bifacially worked arrow and dart heads; on the other hand, they include trapezoidal inserts and numerous small regular knife-shaped flakes. Later sites such as Saksaul'skaya II are the first to include bifacially flaked arrowheads.

The ceramic wares at the Neolithic sites in question are varied. Neolithic discoveries in the Zhalpak area have been found to contain large vessels with clearly distinguishable

necks, as well as hemispherical cups. Their bases are either flat or rounded. Decoration was applied with a serrated die or by incision. The Kosmola 4 and 5 sites included thin-walled vessels made of well-fired paste with an admixture of gravel. The wares were ornamented by scoring, pocking, reed impression and incising. The ornamentation was applied sparingly and in several rows. Smaller vessels with flat or rounded bases have been found at later sites such as Saksaul'skaya II. The lips are well profiled and flattened along the top. Ornamentation takes the form of serrated die impressions, straight and wavy incised lines, and pocking to produce various geometric figures.

Interesting materials relating to the Neolithic of northern Kazakhstan and the area bordering the upper reaches of the Irtysh river have been collected in recent years. It is very important to note that the preceding Mesolithic stage has been studied more thoroughly in this area than in the adjoining regions.[6] The Mesolithic in northern Kazakhstan, just as in the central part of the Trans-Uralic region and western Siberia, was not characterized by the production of asymmetric, geometric trapezoids and segments. Such inserts as occur take the form of blunted-spine flakes or the less common parallelograms and endface-worked artefacts. Sites in this region are characterized by long rounded chip scrapers and endscrapers which predominate over flake-type implements. Many of the features characteristic of the previous stage survived into the Neolithic of eastern and northern Kazakhstan.

The recently discovered settlement of Boatai in the Petropavlovsk *oblast*' region in northern Kazakhstan is of particular interest for the study of the dynamics of the cultural and economic development of the steppe tribes. It was a permanent settlement of semi-subterranean dwellings having an area of 40–70 m^2 and wooden roofs smeared with clay daub. On the basis of the large number of flint tools present, including microliths, Boatai may be dated to the end of the Neolithic, possibly to the fourth–third millennia B.C. An examination of the remains of animal bones indicated a clear form of economic specialization; 99 per cent of the bones were the bones of horses. These people were possibly hunters specializing in wild horses and may even have begun to domesticate them, though no indication of this has yet been found in the osteological evidence. However, as a result of an expert analysis carried out in Leningrad by G. F. Korobkova, primitive cheek pieces, which constitute clear evidence of the bridling of horses, were identified among the bone artefacts. At all events, the economy of the steppe pastoralists and nomads who played such an important role in the history of Central Asia originated in communities precisely of the type living in Boatai.

[6] Zaybert and Potemkina, 1981.

The best-studied sites of eastern Kazakhstan are the settlements of Ust'-Narym, Trushnikovo, Malo-Krasnoyarskaya, etc.[7] Of these, the one to have received most attention is the Ust'-Narym settlement, where excavations have yielded the remains of an elongated light habitation, roundish midden and debris pits, twenty-five hearths and fires, two burials, and large numbers of stone and bone artefacts, ceramic wares, and fauna.[8]

The stone industry at the site involved primary and secondary core preparation and core cleaving. Most of the cores are of the types from which knife-shaped flakes were struck (prismatic, cone-pencil, edge-like, etc.). The implements found here were fashioned largely from knife-shaped flakes. Artefacts of geometric shape (trapezoids and segments) were entirely absent. The implement types include scrapers, knives, knife inserts, small saws, sickle inserts, drills, piercing tools, arrow- and spearheads as well as other items. The ancient inhabitants of the settlements also used a wide selection of chopping instruments, including adzes, axes and chisels.

The small number of bone articles unearthed included awls, eyed needles, and a needle-case with a herring-bone ornament. The bone dagger, whose longitudinal grooves still held unretouched flint blades, was a unique find. The handle of the dagger was ornamentally carved. The same settlement likewise yielded a fragment of a knife or dagger with a single groove.

In addition to hunting weapons, the Ust'-Narym collection also includes artefacts related to fishing, among them the fragments of a composite fishhook made of a soft grey stone of the steatite type with annular incisions at both ends. Such hooks were widespread among the Neolithic tribes of Siberia.

Several inserts for sickles, which were important tools for ancient gatherers and agriculturalists, were identified by expert analysis among the flint tools at Ust'-Narym. The preconditions for the transition to new forms of economy were being established also in eastern Kazakhstan.

The artefacts found at the Ust'-Narym settlement have much in common with those of the Neolithic period in Siberia. There are close similarities in the fact that stones were split directly and in the shapes of many core types, as well as in implements such as scrapers, shaving-knives, bifacially worked arrow and dart heads, knives and daggers with inserted blades, fish-hook shafts, and numerous other items.

The Ust'-Narym complex nevertheless has many distinctive features of its own which set it apart from the Neolithic sites of Siberia and reflect a kinship with the sites of south-eastern Soviet Central Asia, and especially with those of the Kelteminar culture. This is

[7] Chernikov, 1959.
[8] Korobkova, 1969.

evidenced by arrowheads and bifacially worked microflakes blunted by fine counter-retouch, as well as flakes with bevelled upper edges. Some of the Ust'-Narym vessels are ornamented in a way that is characteristic of the later complexes of the Kelteminar culture.

The foregoing attributes point to the very distinctive status of the Ust'-Narym complex. While preserving some of the features already found at more ancient sites, it was strongly influenced by two extensive ethno-cultural domains – that of southern Siberia and that of the Kelteminar people.

The best-known of the northern Kazakhstan sites are Pen'ki 1 and Pen'ki 2, located 200 km north-east of Pavlodar bordering the present Omsk region.[9] The more ancient of these sites is Pen'ki 1. Most of the cores here are wedge-shaped. Knife-like flakes were used to fashion scrapers, drills, shaving knives, inserts for composite implements, knives and arrowheads. The extensive use of the flake-splitting technique and the presence among the collected materials of trapezoids, indented flakes, and flakes with a blunted spine and an end bevelled by retouching, renders this complex similar to the inventory of Layer IV at Jebel. However, the bifacially worked arrowheads, miniature disc-shaped scrapers, and knives with bifacial edge-retouching suggest that the site in question is of more recent date. In contrast to Jebel, the finds do not include either arrowheads of the Kelteminar type or tanged arrowheads fashioned out of flakes. Typologically these arrowheads are closer to those of the Neolithic sites of Siberia and the southern part of the Ural region.

The site likewise contained potsherds. The thick-walled vessels had pointed bottoms and were decorated largely by pocking and comb-scraping to produce various ornamental compositions. With respect to both vessel shape and ornamentation the ceramic wares resemble those of the Neolithic period in the Urals to the north and of the Kelteminar culture to the south. The site contained the remains of a dwelling 15 m long and 7 m wide with its longitudinal axis lying in a north-south direction. At the centre of the dwelling was an oval hearth of 2.5 m diameter. Two smaller hearths were placed by the north and south walls.

The stone inventory of the Pen'ki 2 site, corresponding to the end of the Neolithic and beginning of the Eneolithic, reflects continuity in the stone tool-making tradition. But at the same time some differences are apparent. The fact is that this stage is marked by a considerable increase in the number of chip (primary flake) based implements, with a corresponding decrease in the use of knife-shaped flakes. The vast majority of the arrowheads were bifacially worked. Inserts were rarely employed.

The vessels here are largely thick-walled and flat based. They are ornamented with pock and comb marks to produce composite triangular motifs. Both Pen'ki 1 and Pen'ki 2

[9] Chalaya, 1972.

contained artistic artefacts and adornments. Interesting items found at Pen'ki 1 include two well-polished fangs (probably pendants) and two beads. One of these latter was fashioned from half of a mother-of-pearl bivalve shell and the other out of stone. A 14 cm long representation of an elk's head was found at Pen'ki 2. The animal is shown with jaws open and ears laid back. Such artefacts are most typical of the Neolithic of the Urals and southern Siberia.

A small number of burial sites have been discovered within the territory of Kazakhstan. Those that have been studied are located largely in the northern part of this region. None of these graves had any external signs by which they might have been recognized. The most interesting grave investigated is located near the village of Zhelezinka, 100 km from the Pen'ki site. Burial was preceded by cremation of the deceased. Besides these remains the grave contained a sickle-shaped frontal piece of a head-dress fashioned out of bone, and a necklace consisting of animal teeth and large shell beads. Implements included an adze, an awl, arrow-and spearheads of bone, and three jar-shaped clay vessels with rounded bases. The same grave contained two phalanges of a kulan (a kind of wild ass) stained with red ochre. The burial rite bears witness to the complex notions about an after-life which must have been held by the tribes in question, and affords evidence concerning their beliefs.

Questions of the genesis of the Neolithic cultures of Kazakhstan, their local variations and their relations with adjacent regions are indeed complex. This being the case, it is important to bear in mind that the preceding Mesolithic stage had not been studied with any thoroughness, the total absence of carefully investigated multi-layered reference complexes compounding the difficulty of the issues raised. It is clear, however, that the shaping of these cultures was influenced in a major way by the tribes of the Kelteminar culture. Links with Kelteminar are most palpable in the sites of southern and especially western Kazakhstan. A considerable effect on Neolithic cultures there was also exercised by tribes from the north, that is, from the southern Ural Mountains and western Siberia. The links stand out with particular clarity in the Neolithic complexes of northern and eastern Kazakhstan. Important parallels in the production technique and shape of stone implements are also apparent in the Mesolithic and Neolithic complexes of the Caspian Sea hunter-fishermen. Thus, the Neolithic in Kazakhstan was far from being homogeneous. Most of the Neolithic tribes of the large region encompassing Soviet Central Asia, Kazakhstan and adjacent territories, led a mobile way of life, and the ancient complexes incorporate numerous elements testifying to their stability and extensive contacts with neighbours.

The economic life of the Kazakhstan tribes was likewise differentiated. In the earlier stages the tribes in this territory were mobile and engaged in hunting and fishing. The advanced Neolithic in eastern Kazakhstan shows the beginnings of agriculture. It is highly

likely that animal raising became widespread among them in the Late Neolithic-Eneolithic period. In time, with the coming of the Bronze and Iron Ages, pastoralism was to evolve into the major economic activity.

Conclusion

The Neolithic period in the northern part of Central Asia witnessed the prodigious development of cultures that made extensive use of microlithic techniques for the manufacture of some tools. Groups of tribes using these techniques occupied areas in differing kinds of terrain and practised a mixed form of economy based on different combinations of hunting, fishing and gathering, depending on their ecological environment. A stable economy encouraged the people to put down roots, and we find a whole series of permanent settlements in this area.

But changes, particularly in methods of procuring food, were beginning to take place among the Neolithic tribes in the northern part of Central Asia. The settlement of Boatai in northern Kazakhstan and the Tamsagbulag culture in eastern Mongolia are particularly interesting and important in this connection. At Boatai, tribes hunting herds of hoofed animals were specializing in the capture of horses and had possibly begun to domesticate them. These were vital preconditions for the transition to pastoralism in the steppes and, in a sense, Boatai is a precursor of the renowned nomadic cultures of Asia.

Recent studies show that the eastern part of Mongolia, by virtue of its favourable geographical position and climatic conditions, was the birthplace of one of the sedentary agricultural cultures of Central Asia. The discovery of the Neolithic culture in Tamsagbulag is significant because it provides evidence that the inhabitants of this particular region changed over, at the same time as other cultures in neighbouring provinces, from a food-gathering to a food-producing economy. Until quite recently, in fact, apart from the collections of stone artefacts, which had been found on the surface, there had been virtually no evidence of the existence of early purely agricultural settlements in the full meaning of that term. The discovery is also significant because it throws a good deal of light on the complex historical evolution of Neolithic man in Mongolia in the period between the fifth and third millennia B. C. The study of the Tamsagbulag culture shows that a vital role in that culture was played by the numerous settlements with their characteristically constructed dwellings, burial practices and other features.