
The Rock Art of Mongolia

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Within a region — North Asia — remarkably rich in rock art sites, Mongolia represents one of the finest concentrations. As of 1998, approximately 75 rock art sites had been identified across Mongolia. It is safe to estimate that in the intervening years, that number has grown significantly. To date, however, relatively few of these sites have been carefully or thoroughly documented and almost none have received the kind of cultural attention they deserve on the national level or within the community of scholars and management and preservation specialists. The following comments are intended to introduce the subject of Mongolian rock art, and particularly that of northwestern Mongolia, to indicate the source of rock art's cultural value, and to alert serious observers of rock art to the threats that cultural tradition now faces.

A few preliminary words are appropriate to set the stage for this discussion. Rock art is found both within caves — where it is known as 'parietal' art — and in the open air; in the latter case it can be executed on bedrock or on boulders. There are two kinds of rock art known in Mongolia (just as there are around the world). *Pictographs* are made by painting or inking directly on stone surfaces. *Petroglyphs* are executed by percussive blows on or engravings into the hardened case of a stone surface. Although imagery may be found in the form of individual markings on a single stone surface, within Mongolia it is much more typical to find concentrations of such imagery. We may distinguish the extent of those concentrations by referring to a 'point,' i.e. where one finds

only one or a few images, or to a 'site'—characterized by a significant concentration of imagery. In cases where the rock art is extensive and integrated with other surface archaeology, it is appropriate to speak of a 'complex.' Within Mongolia, most rock art occurs within the context of sites, but there are also extensive complexes where rock art has been integrated with other surface archaeology. This is certainly the case within the Mongolian Altai.

Pictographic imagery is found scattered throughout the central and western regions of Mongolia. In most cases, however, it has only poorly survived millennia of weather and human intervention. Existing examples of this tradition from northern and central Mongolia indicate motifs associated with the Transbaikal tradition exemplified by rock art along the Selenga River (Okladnikov and Zaparozhskaia 1969). Motifs include frontal figures that appear to morph into large winged birds, enclosures filled with dots, and horses along 'trails.' Well-known examples of this tradition are found at Tol'zhgiin Boomyn and Bichigt Bulagiin, both in Hövsgöl *aimag*, and at Gachurt and Ikh Tengeriin-am, both in the vicinity of Ulaanbaatar. Although there is no agreement regarding the dating of the Transbaikal rock art tradition, it is probably safe to associate it with the early Iron Age and with peoples who depended for their livelihood on animal husbandry. At Doloon Uul, in Ömnögovii *aimag* and close to the Chinese border, are found paintings of masks and hands (?) that are reminiscent of a tradition known more widely in the Yinshan Mountains of China (Chen 1988).

The single example of surviving painted rock art in northwestern Mongolia is that of the Khoid Tsenkir Cave, in Khovd *aimag*. Located in the flat, arid steppe to the east of the Altai range and southwest of the large lake, Khar Uss, this cave has been known to local herders for thousands of years and to scholars for several decades. The cave was first published in 1972 by the Russian archaeologist, A. P. Okladnikov, who reproduced the painted images within the cave in drawings and colored facsimiles (Okladnikov 1972). Most scholars agree that some of the paintings there may go back to the late Paleolithic period; such a date is suggested by the possible representations of ostriches, a mammoth, and a (wild) camel. Unfortunately, both during and since the original documentation of the cave, the original imagery has been either effectively obliterated or else so repainted that it is impossible to judge the quality or the chronology of the original paintings. At this time it is not possible to tell what is original and what is not; and the over-painting and other intrusive and repeated attempts to 'clarify' the imagery assures that the oldest images cannot provide any reliable means for their dating — either by radiocarbon dating or by references to technique and style.

Given the information regarding rock paintings in the northern Chinese Altai recently offered by Wang Binghua in this journal, it is quite possible that there were once many more pictographic sites in western Mongolia, as well as elsewhere across the country. If they did once exist, it is probable that all have been destroyed by exposure to time and weather. By contrast, the petroglyphs — i.e., imagery pecked or engraved into a rock surface — are much more persistent; this tradition is consequently far better known. Scattered sites in the Gobi region reflect pictorial traditions of the Bronze and Iron Ages, with naturalistic scenes of hunting,

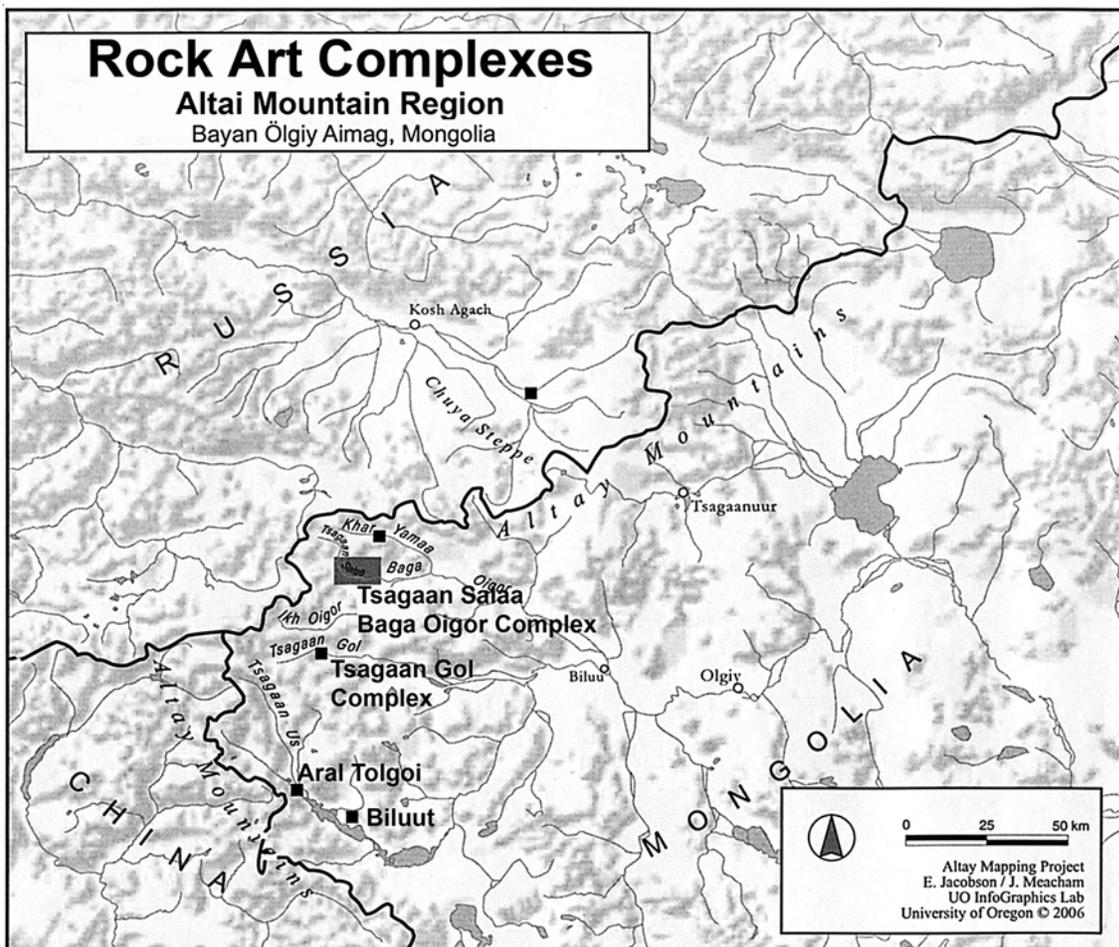
herding, individual animals and human figures. Unquestionably, the sites that have been published to date (e.g., Tseveendorzh, Batchuluun, Batbold 2004; Tseveendorzh, Batbold 2005), represent only a small number of those that remain to be identified, surveyed, and documented. Larger concentrations of petroglyphs have been found further to the north, along the Chuluut River valley; many of these have been published, albeit incompletely and generally inadequately (Okladnikov 1981; Novgorodova 1984, 1989). The Chuluut petroglyphs are of particular interest since they include images of an archaic 'bird-woman' type that is otherwise well known only through the petroglyphs of Kalbak-Tash, in the Russian Altai Republic (Kubarev, Jacobson 1996).

Unquestionably we have only begun to develop an understanding

of the petroglyphic tradition of Mongolia: though much is already known, it is certain that many sites have yet to be identified and studied. This is particularly true in the case of the Altai mountain region of western Mongolia. Within that region, the largest and richest concentrations of rock art are found in mountainous Bayan Ölgii aimag (see map). These sites and complexes are located within the valleys that descend from the high ridge separating Mongolia from Russia and northern China, along the shores of the great lakes Khurgan and Khoton Nuur, as well as within valleys further to the east: around Ölgii, the sacred mountain Tsengel' Khaikhan, and scattered along the valleys of the Sagsay and Khargantin Gol drainages.

Ancient artists sometimes used the granitic boulders that are heaped up on moraines descending

from the high mountain ridge. That material, however, is generally of poor quality, its internal core tending to soften and its external, coarse-grained layers tending to exfoliate over time. For that reason one frequently finds that the outer layers of worked granitic boulders — such as those scattered across the valleys of the Ikh and Baga Khatugiin Gol — have simply fallen away, leaving only 'ghosts' of the original imagery. The vast majority of surviving rock in the mountainous region has been pecked into the sandstone (metagreywacke) characteristic of bedrock in the high Altai. Expressed primarily in the form of outcroppings and secondarily in the form of boulders, this sandstone has been hardened by the long process of mountain building characteristic of the Altai Range and subsequently polished and scraped by the glaciers that filled the high valleys until approximately 16,000 years ago.



The resulting surfaces are frequently smooth and textured by the movement of glaciers. Their color is highly varied, ranging from green-blue, to a rich tawny hue, to a coloration that is almost black, and to deep reds or rose tonalities. This varied discoloration of the surface — what is usually referred to as patina — results from the dynamic interaction of the rock substrate's mineral character and the nature of air or water borne substances. The particular beauty of the Altai sandstone's coloration in combination with the textured traces of glacial movement has created surfaces that are, in effect, elegant 'canvases.' The beauty of this material may help to explain the extraordinary abundance of rock art imagery throughout the high Mongolian Altai.

Petroglyphs were typically executed by either a direct or indirect method. 'Direct' pecking refers to the use of a single, hand-held instrument to strike directly on the rock surface. 'Indirect' pecking refers to a two-handed method, whereby a 'hammer stone' is used to strike a second pecking instrument made from stone or metal. The apparent use of the direct method of pecking is frequently seen in both the oldest petroglyphs in northwest Mongolia and in those of a relatively recent period. The tell-tale signs of such a pecking technique include large, irregular pits in the stone surface and rough contour lines. Indirect pecking generally offers greater control and was certainly the method of choice in the case of all finely textured and contoured images. Since within the Altai region the landscape is almost literally paved with stones, the identification of the instruments used for pecking the imagery would be difficult if not impossible. With the wearing out of one hammer or pecking stone it would have been very simple to find others. Judging from the texture of contours and silhouettes, however, it is possible to determine if the percussive instrument was

fine or coarse pointed, just as it is possible to determine artistic quality in the working of the stone surface.

In approaching the rock art of Mongolia (or, for that matter, of any other region of the world), one should bear in mind that the images were originally white and would have been far more visible, even from a distance, than is the case today. That white coloration results from the crushing of the surface rock crystals as a result of direct or indirect blows. A considerable period of time has to elapse before the white coloration of the pecked images begins to darken down. Judging by style and subject, we can estimate that within the Altai region of Bayan Ölgii it takes approximately 3000 years for imagery to begin to lose its white coloration. Extremely old images may become as dark as the surrounding hardened 'skin' of the stone. In this respect the patina (discoloration) of the images may indicate age; but that is only one clue, among many, regarding the chronology of the rock art and has to be used with considerable caution. The mineral character of the substrate, the pitch of the

surface, and the nature of the immediate environment all qualify the rapidity with which a pecked image could become repatinated.

Within the mountainous region of northwestern Mongolia, petroglyphs are often found in small concentrations that coincide with the present-day winter dwellings of local herders. This coincidence indicates that protected places, nestled into the slopes and draws of mountains, have been used for temporary habitations for thousands of years. A particularly striking example of this is found in the Khar Yamaa valley (Tseveendorj, Jacobson, Kubarev 1997) where present-day winter dwellings coincide with concentrations of imagery dating back to the Bronze and early Iron Ages (for an analogous example, see Fig. 1). The rock art in this



Fig. 1. Present-day winter dwelling on south-facing slope in the Baga Oigor valley near a major group of petroglyphs.



Fig. 2. Circular altars in Baga Oigor valley, below a hillside with a concentration of petroglyphs.

valley typically includes realistic or stylized animals, hunting and herding scenes, as well as a few scenes of combat between archers. Along the valley floor are many surface structures typical of what one finds throughout this mountainous region. These include large mounds with elaborated 'walls' and adjoining circular altars (Fig. 2, preceding page); simple mounds that may indicate burials; large standing stones, often set in stone 'frames'; and Turkic enclosures, often associated with the carved stone images of Turkic warriors. Khar Yamaa can thus be considered a rock art complex that includes several sites of concentrated petroglyphs.

One of the largest concentrations of rock art in northwestern Mongolia is the complex of Tsagaan Salaa/Baga Oigor (Jacobson, Kubarev, Tseevendorj 2001), located along the left and right banks of the Tsagaan Salaa (White Fork) before its confluence with the Baga Oigor (the Small Uighur) and further along the left bank of the Baga Oigor for a total length of approximately 30 km (Fig. 3). Some of the images are pecked into granitic or sandstone boulders scattered at the base of the slopes and bordering the rivers. The majority, however, are pecked or

engraved on the outcroppings that occur across the face of the slopes. The imagery is generally denser close to the valley floor, but it continues up the slopes on the north side of the rivers for a distance of several hundred meters. (Small concentrations of rock art on the right bank of the Baga Oigor were not included in the definition of the complex nor in its 2001 publication.)

The rock art complex of Tsagaan Salaa/Baga Oigor is not only of unusual size; it is also of a remarkable age. A few images of mammoths indicate that the complex dates back to at least the late Pleistocene, before mammoths disappeared from this region of North Asia. Many images of aurochs (wild cattle, *Bos primigenius*), horses, and argali (wild sheep) also appear to date from a very early period. They are rendered with a static, profile monumentality and with the simplification of legs and the rounded treatment of abdomens familiar to many Westerners from the open-air site of Foz Coa, Portugal, or from Paleolithic cave art in France and Spain. By the early Holocene, mammoths had, of course, disappeared and were not again represented in the complex. On the other hand, many images of elk (*Cervus elaphus sibiricus*)

and moose (*Alces alces*), executed in a style of monumental realism, indicate the early Holocene development of forests sufficient to support this species. A few images of bear, also, and many of aurochs, horses, and caprids reflect a conception of zoomorphic representation pointing to a pre-Bronze Age date. The earliest images of hunters, usually frontal and with great clubs or spears, may mark the advent of the Bronze Age. The only image type from western Mongolian sites that appears to reflect a spirit world is found in the Tsagaan Salaa/Baga Oigor complex. This image has a bell-shaped body and horns. Sometimes it has feet, sometimes it appears to be giving birth to an animal or infant child, but it never has recognizable features (Jacobson 2002).

The complex of Tsagaan Salaa/Baga Oigor is especially rich in rock art imagery from the middle and late Bronze Age. Often suggestive of complex narratives, scenes from that period may be of animals alone or they may be filled with representations of hunting after wild cattle, caprids, or elk, archers in combat, or herds of animals accompanied by herders (Fig. 4, next page). Wild and domesticated yak make their appearance as do scenes of family caravans. These characteristically include domesticated yak with household goods loaded on their backs and led by women (on right in Fig. 3). Caravan scenes are frequently accompanied by hunters, as if to suggest the hunting grounds through which families made their way to new pastures. In many cases the large yak carry baskets in which the children or the family are riding. On rare occasions we see these caravans attacked, as in a raid.

Images of family caravans, like those of men driving wheeled vehicles, reflect the increasing transhumance of local populations in the late Bronze Age. This major shift in life styles probably



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Fig 3. Petroglyphs in the Baga Oigor Valley.



Fig. 4. Mythic scene (?), with elk, moose, figures and small animals. Bronze Age. Tsagaan Sala II.

emerged gradually during the second millennium BCE, as forests retreated in response to the gradual reversion to a drier, harsher climate. Paleo-environmentalists believe that by approximately 3000 years before the present, the climate and environment of this part of Mongolia had become as we know it today. In effect, by the late Bronze Age the environment appears to have forced a gradual transition from sedentary hunting and pastoralism to a herding-dependent economy. In addition, the appearance of horse riding in the late Bronze Age — vividly recorded in the rock art of Tsagaan Salaa/Baga Oigor and other sites — supported the transition first to transhumance and then to a semi-nomadic life style. In imagery dating to the Late Bronze and Early Iron Ages, we see, also, the appearance of an increasing stylization in the treatment of animals. Deer (elk) images, especially, reflect that trend: their bodies are often rendered as extremely elongated, their legs thin, even vestigial, the heads drawn out into the form of a long bird beak, and their antlers exaggerated into great waves stretching back over their spines (Fig. 5). These highly stylized formulations are exactly those known more frequently from the

great 'deer stones' of central and north Mongolia. Their appearance here, in northwestern Mongolia, appears to reflect the intrusion of a new population at the end of the Bronze Age, bringing with it the tribal emblem of a deer. From where these people came, however, and who they were remains unclear (Jacobson 2001).

The great period of Tsagaan Salaa/Baga Oigor rock art seems



Fig. 5. Stylized deer, birthing women, hunt scenes and dwelling. Late Bronze Age. Baga Oigor II.

to end with the early Iron Age. While there are many images later than that, including some images and even inscriptions from the Turkic period, they are not as impressive as the earlier material. Nonetheless, the history of representation covered by this extraordinary complex extends over as much as 12,000 years. For that reason alone, but also for the outstanding quality of much of its art, this complex serves as a remarkable cultural heritage; it has appropriately been proposed for inclusion in the list of World Heritage Sites.

The rock art complex of the Upper Tsagaan Gol is even larger than that of Tsagaan Salaa/Baga Oigor and no less marked by imagery of outstanding quality. Moreover, its combination of a distinctive physical landscape, extensive rock art, and numerous ritual sites make it one of the most complex concentrations of prehistoric and early historic art within North Asia (Jacobson, Tseveendorj, Kubarev 2002). Located in a high, narrow valley just under the glaciers of Tavan Bogd, the knot of mountains at the

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Fig. 6. View toward Tavan Bogd, Upper Tsagaan Gol.

junction of China, Mongolia, and Russia (Fig. 6), the complex is wrapped around a boat-shaped,



Fig. 7. Horse herd. Bronze Age. Upper Tsagaan Gol.

sacred mountain named Shiviit Khairkhan. To judge from the manner in which its flanks are adorned with both rock art and surface structures, Shiviit Khairkhan was the focus of



Fig. 8. Young men and bulls. Late Bronze Age. Upper Tsagaan Gol.

reverence in the distant past, just as it is in the present.

In general, the rock art of the Upper Tsagaan Gol reflects the same cultures and economic transitions one sees at Khar Yamaa and Tsagaan Salaa/Baga Oigor. There are, however, a few significant differences:

perhaps because of its proximity to the high mountains,

there is no rock art here that can confidently be dated to the late Pleistocene; that is, no images of the megafauna that disappeared at the end of the Pleistocene. On the other hand, we have identified a number of stone artifacts of Paleolithic form as well as many images of elk, argali, wild goats, horses and aurochs that by style and technique

of execution indicate a pre-Bronze Age date. Tsagaan Gol is particularly rich in art of the Bronze Age; the complex includes some spectacular panels of hunts and herding, as well as of carts and riding (Figs. 7, 8, 9).

The many representations of highly stylized deer dating to the late Bronze Age and the fact that these images are frequently pecked directly over earlier, Bronze Age imagery, raise significant questions regarding social change in that period (Jacobson 2000) (Fig. 10, next page). In addition, there are many panels from the Turkic period that count



Fig. 9. Cart. Bronze Age. Upper Tsagaan Gol.

among the finest preserved from that period (latter first millennium CE) within North Asia. These scenes include large riders, riders hunting wild goats, and even riders carrying their eagles or falcons for hunting.

About 45 km directly to the south and within a closed border zone is found the site of Aral Tolgoi, located at the western end of the great lake, Khoton Nuur (Tseveendorj, Kubarev, Yakobson [Jacobson] 2005). This is a region of northwestern Mongolia that uniquely retains, even today, an extensive relic forest from the early-middle Holocene. Compared to those we have already mentioned, this site is quite small, taking the form of a single, whale-shaped hill where imagery is located almost entirely on the eastern half of the ridge. Despite its relatively small size, however, this site is of exceeding importance: it represents the finest and largest open-air collection of Paleolithic rock art within North Asia, unsurpassed by any other documented site. The early date of this material is indicated by a fine image of a rhinoceros, an animal that, like the mammoth, disappeared from this region approximately 11,000 years before the present. Images of ostriches, also, are of particular interest since they must date back to a period previous to the emergence of forests in the early Holocene. Other images of considerable age include aurochs, elk, horses, argali, and wild goats



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Fig. 10. Stylized deer. Late Bronze or Early Iron Age. Upper Tsagaan Gol.

(Fig. 11). Many of these images are rendered with considerable simplicity, grace and monumentality, but many are also extremely difficult to see. Perhaps because of glacial action in the Pleistocene, and due to the much more humid conditions in this far western valley over the last few thousand years, the bedrock on which the images are pecked is crumbling and frequently covered with lichen. (Even more destructive are the thousands of sheep and goats that cross this hill every day, their small, sharp hoofs impacting surfaces already weakened by age and weather.) In assessing the significance of Aral Tolgoi, it must be related to the small concentration of Paleolithic imagery at the site of Kalgut, on the Ukok Plateau (Molodin, Cheremisin 1999) and to the Paleolithic imagery of Tsagaan Salaa/Baga Oigor.

Within the Khoton Nuur basin is also found the site called Bilüüt, a series of three hills on the north shore of the lake (Kortum et al. 2005). The pecked imagery at this site reflects an extension of the cultural traditions so vividly represented at the two large complexes to the north. Perhaps the most impressive images from

Bilüüt include several unusually large, early Iron Age horsemen. Many representations of groups of large yak are also found here; these reflect the herding economy of the late Bronze Age. An area of scattered petroglyphs is also found south of the lake and within the border zone closed to the public. A number of the compositions there are of outstanding quality, some suggesting a date within the late Pleistocene. A large number of petroglyphs are found scattered on the

boulders of a great moraine (Khara-Boreg) at the east end of Khurgan Nuur. In summer of 2005 we identified and began the documentation of another major



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Fig. 11. Archaic elk with overlaid images. Pre-Bronze Age. Aral Tolgoi.

complex of rock art east of Tsengel' Khaikhan Uul. Although much of the material at this isolated site reflects a cattle-herding culture from the late Bronze Age, there are also many images of horned, anthropomorphic figures — male and female — in postures suggesting dance or birthing. The darkened patina of these images, their apparent execution with a large blunt instruments, and the exceedingly damaged aspect of the surfaces on which they are found indicate a pre-Bronze Age date. In addition, there are many concentrations of rock

art along the north-south valleys of mountainous Bayan Ölgii. Many of these have been noted by local rock art enthusiasts; too many have been badly damaged by local herders and thoughtless tourists (Fig. 12). The fate of these sites, as of the large complexes described above, is a subject for serious concern.

When the great rock art sites of northwestern Mongolia are considered on a larger regional scale, they are seen to have clear associations with the Bronze Age, Iron Age, and Turkic cultures responsible for major complexes in the Russian Altai. One finds, also, associations with rock art of the Minusinsk Basin, but these are weaker and include only a few pre-Bronze Age references. The art of the early Iron Age of the so-called 'Scythian Period,' affirms relationships between this large region, the Sayan Mountains, the Russian Altai, and even with the Tianshan of Kazakhstan and Kyrgyzstan.

While our understanding of this material is only at a beginning phase, it is already clear that the rock art of the Mongolian Altai, as well as that across Mongolia, serves as a priceless document for the study of the prehistory in the heart of Eurasia. Rock art constitutes the clearest source material for a consideration of cultures and



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Fig. 12. Petroglyphs defaced by red paint near a herder camp, Khatuugiin Gol (not far from Bayan Ölgii).

traditions that cross national boundaries and paleoenvironmental regions. In terms of its scientific value, rock art should be considered to have a documentary value no less significant than materials retrieved from archaeological excavations of burials and settlement sites. But it is also true that rock art is neither pure art nor archaeology: it mediates between the two disciplines, revealing styles, subjects, and values held in common by large communities and cultures while at the same time disrupting general cultural rules with the insights and expressive clarity of individuals. Rock art is, in other words, both art and archaeology, both image and 'text.'

Around the world and within Mongolia, rock art has been attracting increasing attention over the last few years and on the part of both scientists and amateurs. For this reason it is important to review the proper ways to handle this material so that it is preserved for the benefit of future generations. While rock art has traditionally been studied using a variety of approaches, we are now keenly aware that many of these approaches have ultimately proven to be extremely destructive. It is all too possible, in other words, to love rock art 'to death.' First one must realize that even though rock appears to be solid and in some respects 'eternal,' it is not: any rock surface, pecked or otherwise, is in a constantly dynamic process of decay catalyzed by time and the elements. Pecked surfaces, however, have a particular fragility. The very act of pecking or engraving images has resulted in a breaking of the hardened 'rind' or case, opening the surfaces to the in-seeping of water and the intrusion of vegetation. Temperature change, freezing and thawing, further weakens the pecked surfaces, as does the millennial growth of lichens. Observers of rock art will frequently note, perhaps, that the crushed surfaces of whole images

have simply dropped out of the stone surface, leaving 'echoes' or 'ghosts' of the original. This is, in fact, a natural process and can probably not be stopped: indeed, we know of absolutely no way in which it can be delayed. But the process is radically hastened by human activities. Walking over the pecked images weakens the pecked surface and should be avoided. Cleaning the surface, except by the light brushing away of superficial dirt and pebbles, is also no longer considered to be acceptable. Lichen growth should never be removed or disturbed. While we may not yet be able to exploit lichenometry as a rock art dating technique, it will likely be possible to do so in the future. Lichens are, also, like ivy: once the growth has taken root on stone it serves as a kind of protective covering, while pulling it away or scrubbing it off tears up the organism's tendrils and the rock crystals in which they are embedded. The destruction of rock art sites in the neighboring region of the Russian Altai is a case in point: at several of the most important sites, in researchers' enthusiasm to record the images they had found, they scrubbed the surfaces of the stone free of all lichen. As a result, too many of those surfaces are now falling away, obliterating the very images the researchers wished to record.

The third process that must be avoided is recording the images by any kind of rubbing technique. This has traditionally been the preferred way of recording rock art, and we still see serious scientists as well as amateurs using this approach. Again, however, we also see the destructive results in many sites of the Russian Altai as well as elsewhere in the world. The physical pressure required in making rubbings only further weakens the 'cleaned' surfaces. The ink or similar substance used to make the rubbing invariably seeps through the paper and contaminates the chemistry of the stone surface. Briefly put: neither

researchers nor rock art lovers should ever record rock art by any intrusive methods. The best recording method is photography, although one may also employ a tracing technique, using a heavy, clear plastic sheet over the imagery. Used in conjunction with soft felt pens, this method of copying is probably quite harmless.

The rock art of Mongolia, and especially that of the Mongolian Altai, is a precious resource for the study of prehistoric societies and their culture. Given its outstanding quality and quantity, it is curious that this material has not been extensively studied until relatively recently. As indicated earlier, this situation has been changing; but emerging attention brings negative as well as positive results. On the one hand, one might assume that the more attention rock art receives, the better its chances of preservation. Unfortunately, while many local herders and officials decry the increasing destruction and theft visible in rock art sites throughout Mongolia, there has until recently been little political will and no financial backing to address this situation anywhere, and certainly not in the richest region of rock art — the Mongolian Altai. The increasing attention of tourists brings with it, also, intended or unintended impacts: damage inflicted by individuals with selfish interests or by those (far more numerous) who admire the images pecked onto rocks but do not realize the negative impact of human feet, human hands, or inappropriate (intrusive) means of reproduction. Indeed, it behooves all who honor this extraordinary tradition to encourage its preservation: both through our own actions and through our communications with others.

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