

North American petroforms: questions of their chronological and cultural placement

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Abstract

Evidence is emerging that some prehistoric boulder arrangements in North America may be of considerable antiquity. Their iconography and cultural associations are reviewed. New findings are presented and interpreted.

Résumé – Les « pétroformes » d'Amérique du Nord : débat sur leur chronologie et leur attribution culturelle

Il semble de plus en plus évident que certains arrangements artificiels de blocs rocheux rencontrés en Amérique du Nord pourraient avoir une grande ancienneté. Nous en montrons l'iconographie et les associations culturelles. Nous présentons également des trouvailles inédites et leur interprétation.

Resumen – Las “petroformas” de Norteamérica: preguntas acerca de su emplazamiento cronológico-cultural

Según nuevas evidencias, algunas formatizaciones de rocas (llamadas petroformas) en Norteamérica tienen una antigüedad considerable. En esta ponencia se hace una reseña de su iconografía y sus asociaciones culturales. Además, se presentan e interpretan nuevos hallazgos.

There is no simpler form of producing imagery than the arrangement of stones on a surface. It seems likely that most human groups through time have undertaken such an effort, whether for play, or aesthetic compulsion, or the enactment of profound ritual or ceremony. Research into these phenomena has exploited the energy of lifetimes and has fueled the curiosity of generations. The monumental works of the Old World, exposed to empirical scrutiny more than 200 years ago, remain the focus of advanced science today.

Not so in the New World. Despite the existence of equally fascinating complexes like the Tie Creek Site in Central Canada (Fig. 1) the intriguing geoglyphs of California (Fig. 2), and the monolithic features of New England (Fig. 3), comparatively little has been brought to science. This is unfortunate, a product, perhaps of the preoccupations of archaeological theory in the Americas –precluding (or denying)

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phenomena for which no long term body of research has been established. While the traditional aspects of prehistoric studies have thrived and contributed, petroform research has not attracted mainstream practitioners, possibly because the commitment to the mainstream is a lifeline. There is a danger in straying beyond the boundaries. And, like those historical conflicts from which the world has painfully found enlightenment, the phenomenon has often been judged to not exist.



Fig. 1. The Tie Creek Petroform Site in Eastern Manitoba. This is Feature 3, a large circle with a triangle in its center. It is linked in boulder lines to 6 more features. Lichen has invaded at least 25%, on two occasions. View to East. *(Photo Jack Steinbring 1967.)*



Fig. 2. An anthropomorphic geoglyph near Blythe, California.

Fig. 3. A massive pedestalled monolith in Rhode Island.
(Photo Norman Muller.)

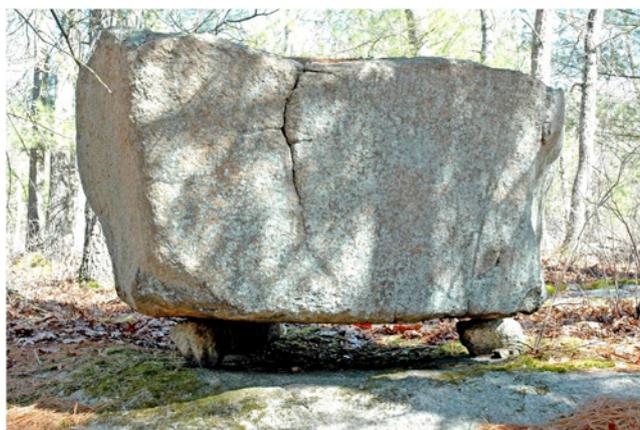




Fig. 4. An aerial view of Tie Creek Feature 1, a huge rectangular figure containing very large boulders weighing 500 pounds or more. (Photo Provincial Government of Manitoba.)

Well, it does exist, and it is old. The Tie Creek Site (Fig. 1 & 4) in eastern Manitoba is the largest iconographic petroform site in North America (Steinbring 1970: 223), covering some nine acres and exhibiting seven boulder features to include a large rectiform, a bird whose wings are boulder piles, a circle with a triangle in it (Fig. 1), and a complex of lines linking the features. Investigations of this colossal site have been essentially confined to recording, with a detailed mapping by A.P. Buchner (1983a, 1983b, 1988), boulder counts, and attempts at ethnographic comparisons. While there is a small wooded area within the site, with some soil buildup, no excavations have been undertaken. One great conservation effort has, however, been completed. In the 1970's, the Provincial Government of Manitoba erected a steel fence, secured in solid granite, all around the site. It remains safe for further study. If this had not been done, roving snowmobilers and large game animals would eventually have seriously displaced boulders.

Far to the east in New England, petroform and related sites are being found and investigated. Their characteristics, at times, suggest considerable antiquity, and they form a distinct pattern in their environment. They are mostly on hills in relatively remote areas, and they have only recently been examined and reported in the literature (Muller 2009).

Eastern Sites

For the past twenty years, a small group of researchers have been investigating the remains of enigmatic, carefully built drystone structures that are found all along the eastern United States, from Maine to Georgia. These impressive looking constructions consist of a variety of structures, such as walls of unusual shape (Fig. 5), cairns, platforms (Fig. 6), and more subtle varieties of stone structures. The archaeological establishment has largely ignored these features for various reasons, one being that stone alone is just about impossible to date. The structures offer practically nothing in the way of dateable artifacts, unlike habitation sites. As if this were not enough, archaeologists by and large have also dismissed them as nothing but the creations of colonial farmers, because they do not accept that the Indians built things of stone before the 17th century. Thus, researchers face a barrier of disinterest (Muller 2010: 30).

Fortunately, this barrier is beginning to erode. Sites and features are being discovered which are raising doubts about the idea that American Indians had no stone building technology. This change is occurring due to some important technological innovations, such as the introduction of digital photography and the rapid transmission of information over the Internet. Features are being photographed, measured, described and catalogued according to type, and their distribution is being recorded. For example, large flat topped cairns now termed “platform cairns” (Fig. 6), are being discovered from Maine to the central Atlantic states. Variations of the cairn class are found in the mid-west and as far west as California (Rogers 1966: 32). Bryant & Kridelbaugh (2004: 11) identify them in the Ozarks and point out that some contain burials. Loubser notes a pattern of “stone piles” in the vicinity of petroglyph sites in his highly detailed report (2010: 10, 108) of rock art sites in northern Georgia.



Fig. 5. An unusual wall and cairn in Pennsylvania. (Photo Norman Muller.)



Fig. 6. A platform cairn in New England. (Photo Norman Muller.)

Because of the design, workmanship and wide distribution, the Eastern petroforms appear to represent a broad cultural response to the landscape, one that is unlikely to be interpreted to be the work of colonial farmers. By pointing out how similar features are found at sites many miles distant from one another, a pattern emerges which, with some dated contexts, further erodes the view that prehistoric Native groups had no stone building technology until they were taught this by the Europeans.

Determining what Feature is associated with what other Feature can lead to entirely new discoveries. We find this at a large cairn site in Rochester, Vermont, where some 150 cairns and other stone constructions of various shapes and sizes are found scattered over 50 acres of hilly wooded terrain in an upland setting (Fig. 7). In the mid 19th century, this area was part of a colonial farm, but a careful deed search and a review of letters and daybooks relating to the farm activities, have uncovered no relationship between the two. The stone constructions predate any farming activity.

Scattered among the various cairns are some that have flat and round-topped vertical slabs placed in front of them, rather like headstones in cemeteries (Fig. 8-9). Eight examples have been found thus far at this one site, and others have been found elsewhere. There is certainly a distinct relationship between the two: one obviously emphasizes the other. The same phenomenon occurs in the mid-west, where the slabs are called “Manitou Stones” or “Spirit Stones” (Bender 2000: 20; Brown 1908).



Fig. 7. A "swayback" platform cairn at Rochester, Vermont. *(Photo Norman Muller.)*



Fig. 8. Imbedded stone slabs as outliers to a cairn in Taylor County, Wisconsin. *(Photo Jack Steinbring 2010.)*



Fig. 9. Vertically embedded outlier by a stone wall at the Delaware Water Gap. (Photo Norman Muller.)

In 1974, archaeologists discovered a Maritime Archaic stone burial mound at L'Anse Amour, along Labrador's south shore. Underneath the boulder mantle, archaeologists discovered the skeleton of a youth covered with red ochre, along with tools and other artifacts. Radiocarbon dating of charcoal found in the grave revealed a date of 7500 BP, making this the oldest dated stone mound ever found in North America. But what made this mound special, was a flat, round topped stone slab that was imbedded in the sand in front of the mound. Archaeologists involved with the excavation had ignored this. William Fitzhugh, chairman of the Arctic Studies Center of the Smithsonian Institution, believes the standing stone was an integral part of the mound. However this stone is no longer there. By 2004 it had been stolen! When Fitzhugh viewed the association of similar stones and cairns at sites in New England, he accepted their connection. Of course, there is no way of knowing from surface inspection whether any of the cairns at the Vermont site represent burials, but the combination of the cairns with the flat stones invites comparison, and suggests that one of these features would be a good candidate for excavation to determine the date of the mound and its cultural affiliation. Imbedded stone slabs are also noted by Bryant & Kridelbaugh in the Ozarks (2004: 10), and are known at a large cairn site in Taylor County, Wisconsin (Fig. 8). Excavations had been planned for the large cairn site at Rochester, Vermont for October 2010, however, the Abenaki declared the site a sacred area, and the investigations were called off.

Standing stones do not always signify burials. Some examples have been found leaning against stone walls (Fig. 9) in the Delaware Water Gap of Pennsylvania. The wall is topped with large rounded cobbles of quartzite placed every three meters or so. Quartzite is not found on the ridge, but one can find it scattered among the boulders in the Delaware River some 100 meters below. This suggests that the act of

moving them is less likely to be the work of pragmatic colonials than that of Native people on a ritually governed mission.

Other geological features that are widespread throughout the Northeast are glacial erratics, which are water rounded and sand abraded boulders deposited by the Wisconsin glaciers as they receded and melted some 15,000 years ago. They are either found alone, perched on ledge outcrops, propped up at one end by smaller stones, or completely supported by two or more smaller stones (Fig. 3). The latter have been called “pedestaled boulders” by some researchers. Geologists have a natural explanation for all these examples. Yet the recent discovery of a pedestaled boulder forty feet down in an Ontario lake has led to another possibility. In 2005, David Bishop, a naturalist at Haliburton Forest in Ontario, was cruising MacDonald Lake in a small submarine, when he spotted a large boulder on top of a ledge. Looking closer, he realized that the boulder was supported by two smaller stones, and that each of the support stones were shimmed. Because the support stones were angular in shape, and shimmed, a natural explanation was rejected. An underwater archaeologist dove to the Feature and concluded that the erratic was manipulated into place. Geologists believe that the boulder was on dry ground between 7000 and 9000 BC when a severe drought affected the region, lowering the water level by that much. In fact, an entire line of boulders resembling an animal drive was found (O'Shea & Meadows 2009: 2, 2010; Lepper 2010: 4).

Similar manipulated erratics on land have been found at Rockport, Massachusetts. Many examples are known from Europe, particularly in Sweden and Russia. Support stones in some cases are piggybacked, adding to the prospect that they may be man-made configurations.

The intentional movement of large boulders at the Paleo-Indian Adkins Site clearly proves this behaviour at around 11,000 BP (Gramly 1988: 101).

Sites in the Midwest

There are numerous sites in the Midwest with apparent concentrations in Wisconsin (Steinbring *et al.* 2003; Steinbring 2001: 6; Lewis 1889: 159, 1890: 269, 1890: 269, 1891: 19), Minnesota (Fig. 10), Iowa, and the Dakotas (Todd 1912: 208; Kehoe & Kehoe 1959: 117; Abbott *et al.* 1982). Some of these sites consist basically of cairns. While it is debatable that cairns constitute “rock art,” some of the cairn sites do additionally contain typical figurative petroforms. And, it is clear that an iconographic model often characterizes cairns, the shape adhering to a model of symmetrical (Fig. 10) mounding (Koenen personal communication 2010) of a uniform size. In Minnesota, these cairns achieved a very prominent character, especially the ones situated on the top of hills. In northern Wisconsin, there are several of these cairn sites, one containing over 100 cairns situated on the top of glacial kames (Fig. 8). The Chippewa Lobe moraine, of which these kames are part, was deposited some 14,000 years BP. Since there are no erratics present in the site area, the prospect of collecting erratics for these many structures before the thin soil buildup, cannot be dismissed. It is well known that the adjacent region in Minnesota was ice free at 14,500 BP, and early humans may well have moved through this area since they were later trapped in a periglacial embayment in northwestern Ontario (Steinbring 2004: 140). There is no evidence that these early groups constructed cairns in the region, but there is a substantial concentration of petroforms in the adjoining area of eastern Manitoba (Danziger & Callaghan 1986: 59). Mostly these

are figurative (Fig. 11), but with the occasional cairn. The petroforms in this area are normally outline in type, but there are a few solid ones which could be construed to be cairns. One of these has appended “legs” making it a solid-bodied “turtle.” There are many turtles and snakes among the fifty-plus petroforms in eastern Manitoba –all in remote country, an area of the Canadian Shield easily classed as one of the world’s last major refugia (Fig. 11). It is generally believed that the ancestors of Algonkian speaking populations, especially adapted to the Shield, were responsible for Shield rock art, including petroforms. Empirically, the case is stronger for rock paintings. Curiously, there is a negative correlation between petroforms and rock paintings in eastern Manitoba and Northwestern Ontario. Explanations for this so far are unconvincing (Steinbring 1980: 244-245).



Fig. 10. A cairn-like Feature near Redwing, Minnesota. It was the last surviving Feature in a concentration of cairns. (Photo Albert Johnson, ca 1950.)

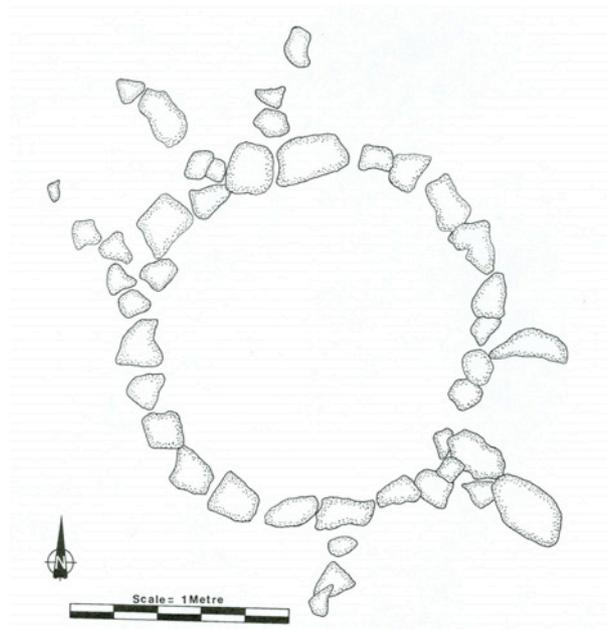


Fig. 11. A turtle petroform near Basket Falls in Whiteshell Provincial Park, Manitoba, Canada. This is one of many features at the site with uniformly sized boulders arranged on open granitic surfaces. (Drawing from Danziger & Callaghan 1983: Fig. 22.)

In South Dakota a rather spectacular petroform site near the town of Blunt was discovered on April 25, 1883 (Helmick 1897: 170). This site consisted of prominent stone cairns, stone circles, and a huge well-formed serpent over 300' long.

In the Midwest where a relationship between archaeological remains and petroforms can be construed, there is often a potential Archaic link. This is fairly strong at the Peachy Petroform Site (Fig. 12) near Rosendale, Wisconsin where surficial recoveries are typologically Archaic (Steinbring *et al.* 2003: 116). This site is typical of many, being within a well preserved Oak-savannah remnant containing oaks well over 200 years of age. Being also on low ground (completely flooded at times), the prospect of a drier climatic episode at construction seems likely. The period of best fit would be the Altithermal, quite consistent with the Archaic typology of local lithics at about 6000 BC. Late Archaic is more clearly established on archaeological grounds with the remains of petroforms antedating mound construction at ca. 1000 BC in several areas of the Mid-west. The earliest of these cases appears to be in Minnesota where there also exists a significant concentration of cairns, especially along the upper Mississippi River. The remnants of petroforms beneath Woodland mounds in Minnesota and Wisconsin excavations point to at least pre-ceramic provenience for petroforms in those areas (Steinbring *et al.* 2003: 117).



Fig. 12. Excavation of Feature 4 at the Peachy Petroform Site (47 FD 515) in Fond du Lac County, Wisconsin. This Feature had been badly damaged by land clearing. Excavator is Glen Oechsner. (Photo Jack Steinbring 2004.)

In excavations at the Peachy Site in Wisconsin (Fig. 12), a sequence of activities was discerned. The initial activity at that site appears to have been a compacting of the lowest part of the post glacial soil development. Since there is no evidence of domestic life, such as hearths, animal bone, stone tools, and so forth, the compacting

is interpreted as the result of congregation, perhaps dancing. This theory is strengthened by the presence of post molds of a size consistent with Plains votive poles –poles from which trophies or sacred objects were suspended. It is interesting to note that the boulders forming the excavated petroform were placed over the post molds, thus making this a later activity. Bits of red ochre were found in all levels, usually suggestive of ritual. Only small smoothed bone chips were found. These have not been dated, but they are clearly not typical garbage bone. Small fragments of bison bone have been excavated as part of offerings at the Herschel Petroglyph Site in southwestern Saskatchewan (Steinbring & Buchner 1997: 76-77). That site also contains a long boulder line and neatly regular tipi rings. The orderly rings are thought by some to be of ceremonial use, since breaking camp destroys the orderliness.

Throughout the Northern Plains, the phenomenon of "Medicine Wheels" links petroforms with archaeoastronomy. Extensive studies of the orientations found in these features have led to a whole sub-division of archaeological science (Eddy 1974: 1035; Brumley 1988) in addition to a large body of archaeoastronomical knowledge, some firm ethnology of medicine wheels and other petroforms of the Plains has been developed (Dempsey 1956: 177; Eddy 1977: 147).

The Far West

In the far west, Malcolm Rogers (1966) suggested the San Dieguito I Phase for the extensive boulder arrangements he saw in the desert near San Diego. The lithics of that complex included a lot that would be difficult to classify unless one wished to speculate about Mousterian culture –in America. Few are that brave, although the Solutrean has entered recent debates. Rogers was highly conservative in his dating, and was rudely contradicted by his long-time assistant, George Carter, who got fired for it. Carter went in the opposite direction, proclaiming, from his Texas Street Site finds that human groups entered the Americas 50,000 years ago, and that the San Dieguito Phase was an early and direct descendant of them. Some have said that the materials from the Texas Street Site could be found in anybody's driveway. Like everything else in this world of clattering debate, the answer very likely lies somewhere in between. At this time in the history of American archaeology a reexamination of the San Dieguito culture could conceivably yield guess dates in the 9-10,000 years BP range.

A rare attempt to ethnologically interpret cairn sites was made in Oregon by Caldwell & Carlson (1954: 441). They were able to document "stone piling" as a practice during the Vision Quest.

One of the most impressive current investigations of cairn sites in North America is being conducted by Darcy Mathews, a Ph.D. candidate at the University of Victoria in British Columbia. Mathews has examined hundreds of stone burial cairns on southern Vancouver Island (Fig. 13). He has produced a richly detailed description and analysis of this phenomenon in the Strait of Georgia region (Mathews 2006). The cairns in many cases consist of stone cairns covered with earth. Some may be at least several centuries old.



Fig. 13. An earthen covered stone cairn in southern British Columbia. There are many hundreds of these cairns and most are known to be burials, there are many hundreds of these. (Photo Darcy Mathews, University of Victoria.)

Conclusions

The petroform phenomenon spreads widely across North America, and probably covers many thousands of years. Since its basic simplicity, stones aligned or in a circle, constitute a boulder counterpart of the “pit and groove” style commonly touted as the earliest marking behavior in the New World, so might petroforms be very old. However this simplicity also may lead to infinite reinvention. Configuration alone cannot be used to establish chronological placement. To the archaeologist, this means excavation and the application of empirical dating methods.

A few archaeologists have overcome the stigma of relating empiricism to the aesthetic, and are making valuable contributions to what Bednarik calls “*Rock Art Science*” (2007), and what many now refer to as “The Archaeology of Rock Art”. These are not the same but they are close enough to greatly help each other for the common good.

Through archaeological insight, we can now predict that early man in the Americas probably arranged available stones in some way that suited his spiritual or practical aims, or both. We know that early groups engraved boulders, on rock formations, some in situations that suggest deep antiquity. The exit to the Alberta Corridor, a major continental avenue of early migration, has heavily eroded and deeply patinated engravings on monoliths which probably reflect initial human movements in the Americas (Steinbring 2004). From there throughout human history in the Americas, groups stopped to arrange stones, some efforts small and expedient, others elaborate and complex. But, it is a virtual certainty that all groups throughout all of this time did something symbolic with the stones around them.

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