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A SHORT ETHNOGRAPHY OF CUPULES

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Abstract. Globally we have quite limited ethnographic information about petroglyphs, about their emic meaning or purpose. Such information is even more limited for cupules, amounting to just a few fragmentary and very isolated accounts. The currently known examples are cited, their scientific veracity is discussed, and it is demonstrated through them that the endeavours of archaeologists to determine the meanings or significance of cupules are generally misguided. Such etic interpretation is impossible, and where it is attempted it is scientifically irrelevant, except for the cognitive scientist in studying the cognition of the interpreter.

Keywords: Cupule, Ethnography, Interpretation, Central Australia, California, India, Africa, Nepal

Most of the thousands of publications about cupules comprise some commentary on their meaning or cultural role — their significance to those who made or used them. Almost invariably, these speculations lack any scientific veracity; they are simply notions of the observers who completely lack any emic access to meaning, and in most cases have no idea of the ages of the rock art, or its provenience or cultural affiliation. Here we find a mother lode of archaeological humbug still awaiting detailed mining. Let us be quite blunt on this point: archaeology has not presented a scientifically based, or even plausible, explanation or interpretation of the rather unusual behaviour pattern manifested in cupules. That behaviour is documented in most of the world's rock art regions, and in some of them over enormous time spans. Cupules were still made in the early 20th century, in a very few places, and yet the ethnographically sound information collected about them is extremely sparse.

The most commonly mentioned archaeological interpretations of cupules could be grouped into a number of classes, based on these purported uses (but see more detailed discussion in the chapter on interpretation, this volume):

1. The preparation of paints.
2. Unspecified or specified cultic or magic rituals.
3. The pounding of medicines (mineral or plant), pigments or spices.
4. The placement of offerings ('*Opferschalen*'), including human blood and semen.
5. The depiction of star constellations.
6. The map-like depiction of topographic elements of nearby landscapes.
7. Board games.
8. A symbolism that is no longer recoverable.

Four of these explanations could at best only account for horizontal cupules and can therefore be excluded for all others, or at least vertical ones. Moreover, they are proposed without the facility of falsification, i.e. no evidence for them is presented, they are simply guesses. The explanation as patterns of heavenly bodies is particularly popular in China and parts of Europe, and is also offered without any tangible evidence. Star constellations, we can reasonably assume, are entirely random features, and it is then not surprising that they resemble other random or fortuitous arrangements. Large groupings of cupules tend to be cumulative, i.e. the marks constituting them were made singly and at greatly different times. That renders this explanation highly unlikely, and in all cases I am aware of, the resemblance with star constellations is only vague. For the vast majority of cupule constellations, no corresponding star charts have been proposed, and this notion appears to be without empirical basis as well as being unfalsifiable. It therefore is not a scientific proposition.

The explanation of random cupule groups as maps, popular in the Alpine regions of Europe, falls into the same category. It is untestable, has no ethnographic support, and is a priori unlikely unless all cupules were made at the same time. It is also reminiscent of other endeavours in seeking rock art explanations, in which various patterns are thought to be pre-Historic maps, apparently without justification. For instance, it has been proposed that the spatial configurations of French caves resemble the local topography surrounding those caves, and the Pleistocene animals depicted refer to their former distribution in the vicinity of the site. Such attempts to interpret the sites and their rock art lack any empirical basis.

I am only aware of a few sound ethnographic explanations

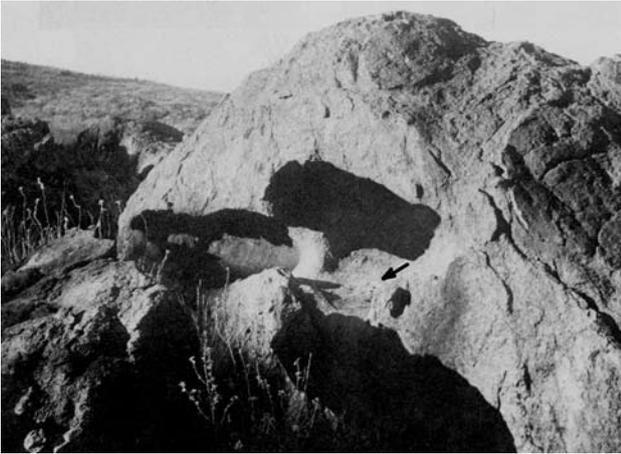


Figure 1. The Tukulili increase site near Nantaguna springs, Northern Territory, Australia. The precise emic significance of the cupules has been recorded (1940 photograph by Charles P. Mountford).

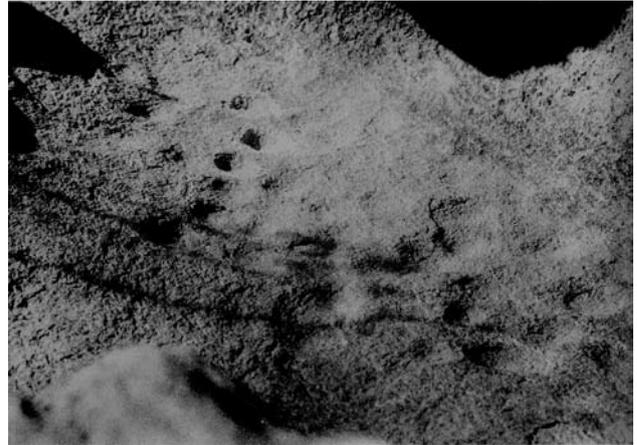


Figure 2. The cupules of the Tunalili increase site (photograph by C. P. Mountford).

of cupules in the world literature, of which one or two are probably ‘derived’ interpretations, and another two are of little help in formulating anything approaching a generic explanation. Only Mountford’s (1976) observation of 1940 and perhaps a few American examples meet the strict requirements of a scientific interpretation, and it is limited to a very small number of cupule locations. The first case concerns the story of the death of Tukulili, the cockatoo-woman, a creation myth collected in the Northern Territory of Australia (Figures 1 and 2). Her totemic body, a large boulder near Nantaguna springs, bears in a recess around sixteen horizontal cupules. They are the result of *pulkarin* rituals conducted to cause the pink cockatoo (*Cacatua leadbeateri*) to lay more eggs (Figure 3). This is accomplished through the mineral powder rising into the air as the cupules are pounded. The dust represents the *kuranita* of the rock and, as it is thus released, it fertilises the female cockatoos. *Kuranita* (life essence) can rise like a mist into the air from any ‘increase site’, impregnating a specific plant,

animal or natural force the site is associated with, through its release by an appropriate ceremony. It then increases the supply or strength of that entity, which can range from a plague of head lice to bring down on one’s enemies to the supply of an edible tree gum. It has also been suggested (Taçon et al. 1997: 947) that some cupule sites near the Mann River in eastern Arnhem Land are related to Green Plum Dreaming ceremonies but there is no evidence that this was their original use.

In Mountford’s example the cupules are clearly not the intended result of the exercise; the fertilising dust is the crucial element (Figure 4). The cupules are an incidental but the only surviving consequence of the ritual activity in question, and what we need to be most aware of is that this authentic interpretation of cupules could never be determined archaeologically. This example is not just one of the very few scientific explanations of any cupules in the world, it also shows the general impotence of archaeology in explaining archaeological phenomena. Without the



Figure 3. The pink cockatoo (*Cacatua leadbeateri*).

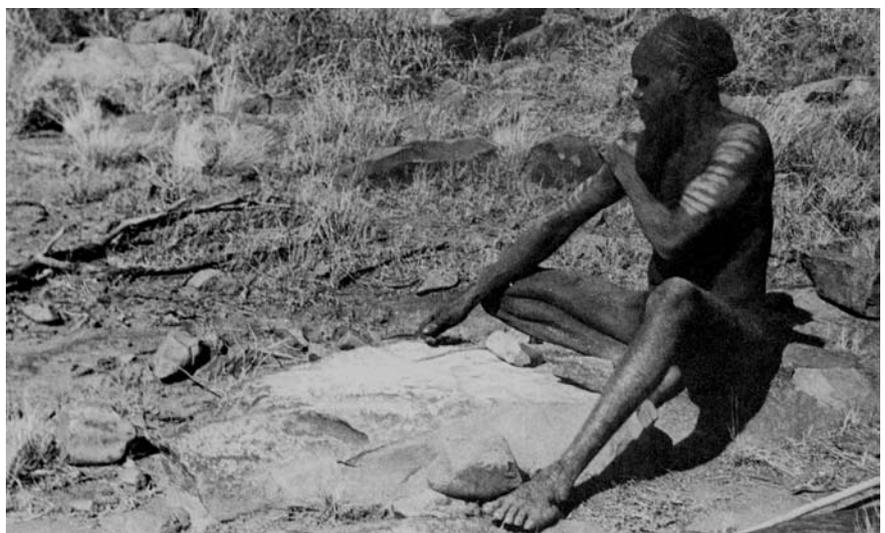


Figure 4. Stone powder from increase site being used for body decoration.



Figure 5. Renewal/reuse of a cupule on a lithophone or rock gong, Pola Bhata, Madhya Pradesh, India, in 2004.

recorded ethnographic observation, an archaeologist could never expect to formulate the authentic explanation. All correct interpretations of the residue that archaeologists chose to call archaeological remains are just as remote and unfathomable (i.e. emic) as is the interpretation of the cupules at Tukulili's site.

A second ethnographic explanation of cupules on a limited number of specific rocks comes from California and was recorded early in the 20th century by Barrett (1908: 164–165, 1952: 385–387; see also Loeb 1926: 247; Gifford and Kroeber 1937: 186; Heizer 1953; Grant 1967: 106; Hedges 1983a, 1983b). Specific boulders bearing collections of cupules were visited by Pomo women to conduct fertility ceremonies. These rituals, intended to lead to conception, involved the collection of the 'fertilising' dust created in pounding the cupules. The rock is either steatite or chlorite schist, the powder was made into a paste which was usually applied to the woman's skin, or, in one case recorded, was inserted into her vagina to achieve pregnancy through the rock's magical essence. However, the cupules at these sites tend to be outnumbered by incised grooves, and Hedges (1983b) rightly emphasises that the ethnographic explanation of the Pomo 'baby rocks', as they are called, should not be extended to other cupule sites (McGowan 1982). Nevertheless, one cupule site used in fertility rituals has also been reported from New Mexico, Mother Rock on To'wa yäl'länne (Corn Mountain) near Zuni Pueblo (Stevenson 1887: 539–540; also Fewkes 1891: 9–10). There, the pregnant woman would collect the mineral powder 'into a tiny vase made for the purpose' and deposit it in a wall cavity, if she desired a daughter (Stevenson 1904: 295).

The parallel development of the concept of a fertilising effect of the mineral powder resulting from pounding cupules is

certainly an interesting observation, but it can easily elicit unwarranted extrapolation to other sites. Other ethnographic indications in the western United States provide very different explanations. The Klamath of southern Oregon are said to have renewed cupules in order to summon the wind to change the weather (Spier 1930: 21). Similarly, the Shasta of California sought to influence the weather: they incised straight parallel grooves into selected 'rain rocks' to increase or decrease snowfall, and they pounded cupules to induce rainfall and wind (Heizer 1953). This also brings to mind the northern Australian custom of cutting sub-parallel grooves into bedrock to 'make Old Man Rain bleed' (Arndt 1962: 171). Again, it is evident how similar cultural practices can be developed independently, without any contact. Parkman (1992: 367) speculates that the percussion sound of pounding cupules could have been intended to 'attract or replace thunder'. He notes, in support of this contention, that 'among the Kashaya Pomo, women grinding acorns in their mortars took special precautions to prevent unwanted rain'. Apparently they prepared shelters to muffle the sound, so as not to summon rain unintentionally (Alvarez and Peri 1987: 12). Similarly, the Shasta covered their rain rocks in order to prevent rain (Heizer 1953). Parkman (1988) offers one further explanation for cupules, in describing rock slabs at Takimitlding and Medilding, California, as Hupa 'calendar stones'. It appears from his description that contemporary Hupa believe the stones to have had some astronomical role, but the consultants were unable to explain the actual function of these features and the interpretation, like others listed here, cannot be regarded as secure.

Another correct ethnographic interpretation of cupules I can offer is illustrated in Figure 5. Here, a properly knowledgeable person demonstrates the use of a cupule, one of several dozen at the site that were still being renewed

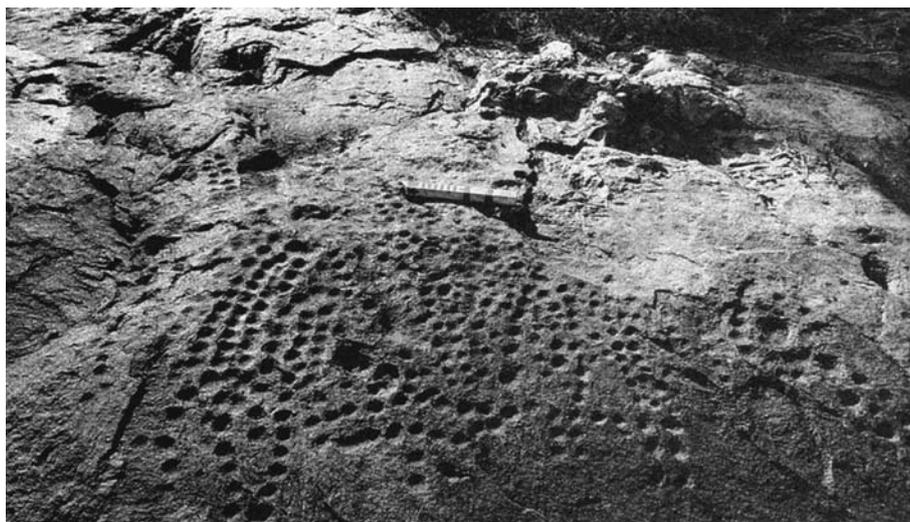


Figure 6. Kebaroti site 1, southern Kenya. Photograph by O. Odak.

recently. The elongate quartzite rock he squats on is a lithophone, the use and purpose of which were explained and demonstrated to me. In this instance, the cupule is again incidental, and — as was the case in the previous examples — its relative position to other cupules is irrelevant; it does not represent astronomical observations or whatever else ethnocentric observers like to invent. Another ethnographic interpretation of cupules as marking lithophones is reported from Burkina Faso (formerly Upper Volta, western Africa; Trost 1993: 94). On the other hand, there is anecdotic information suggesting that along the Ganges, especially in Punjab, Indian women desiring to become pregnant pour sacred water into cupules, once again linking the rock art to fertility. A similar observation has been made by Lombry (2008) who reports from the Congo the use of cupules to mix red paint made from haematite powder derived from a *mangwa gumba* (a polished haematite axe), which was then

used to render a barren woman fertile. Lombry also mentions the preparation of war paints (*nbuka vura*) in Congolese cupules.

A further, but different ethnographic interpretation concerns the Kebaroti site complex and the Lanet site in southern Kenya. Here, Odak (1992) reported a number of cupule pavements which the local Kuria people have interpreted to him as *boa* game boards. It appears, however, that the cupules predate these people and that their interpretation is not that of the makers, but is one imposed on pre-existing rock art (Figure 6).

The notion of the use of some cupules in board games is, however, promising elsewhere. In NNE Congo, Lombry (2008) observed the use of cupule arrangements in a pursuit game called *mangara* as recently as in the 1950s. In relation to geometrically arranged cupules in Nepal, Pohle (2000: 199–202) discusses the possibility that they were used in *uluk* and *rama rildok* games, and she accepts that many of the cupule arrangements relate to the latter game (Pohle 2000: Tafeln 1.1, 14–16, 18.1, 28.2). *Rama rildok* is a mancala game, to which Bandini-König (1999) also attributes cupules at Hodar, in the uppermost Indus valley, and Fu (1989: 179) mentions the same for Chinese sites. Cupules supposedly or actually used in board games form geometric alignments or groupings (cf. Lombry 2008: Fig. 4) and occur on horizontal rock panels. The ethnographic foundation of interpretations as elements of board games requires further investigation, but it appears to have been demonstrated in some cases.



Figure 7. Cupules at Moda Bhata, Rajasthan, India, examined by microerosion analysis in 2002.

There is scientific evidence from numerous sites that cupules were re-used after they were first created (Steinbring and Lantaigne 1991; Huber 1995), sometimes many millennia later. For instance, one specific cupule at Moda Bhata, India (Figure 7), which was initially pounded about 9000 years ago was briefly re-worked about 7200 years later (Bednarik et al. 2005: 182). Many similar examples are known, and it is clear that pre-existing cupules were often incorporated in the beliefs or practices of later people. This raises yet another warning, namely that it would be premature to equate the perceived ‘age’ of a cupule with its full antiquity: many cupules were no doubt initially created long before their most recent retouch event, and if the latter is extensive enough, no traces of earlier surfaces are likely to remain within the cupule. It is therefore then wrong to refer to the age of such marks, it is better to think of it in terms of its most recent use evidence, and in terms of this

being a minimum age. Many cupules, especially the oldest known in the world, occur on particularly erosion-resistant rock types, such as quartzite, gneissic granite and even crystalline quartz (Bednarik et al. 2005).

One more ethnographic interpretation of cupules is available from Zimbabwe. Several granite lithophones are described by Huwiler (1998: 148), who reports that they are locally called *mujejeje*. These occur near burial places and were still used recently to communicate with ancestors interred in the vicinity.

Of these very few ethnographic interpretations of cupules, only the Australian example, some of those from the western United States, and those regarding lithophones can be regarded as fully secure. Interpretations as game boards may be plausible in some cases but need to be investigated more comprehensively. Other than that, we lack adequate ethnographic information to establish the former meanings of cupules, and all those explanations formulated by archaeologists lack scientific credibility.

In summary, we have limited ethnographic information that in some of the tens of thousands of cultural traditions that can be said to have existed since the first known cupules were made, they served for purposes related to fertility and to increase rituals, and we know with certainty that many cupules designate lithophones (see chapter on these phenomena). However, faced by the immensity of numbers of cupules ever made (very probably many times their surviving number) and of the enormous time span accounting for them, it is obvious that these glimpses are of very limited value in explaining the general phenomenon. Rather, these snippets of explanations appear to be incidental to some other principle. In particular, they raise unanswered questions that imply some unknown cultural dimension in these extremely limited cases we have reasonable explanations for. In all the secure ethnographic interpretations, there is no obvious need for the marks to assume precisely the very specific form of cupules. There is some merit in the assumption that, for lithophonic cupules, impact was focused on a very specific point because it yielded the best sound. However, even this is limited to some specimens, whereas on most lithophones there are numerous markings, all consisting of perfectly formed cupules, i.e. percussion was not just *focused* in their production, but was *highly focused* and quite intentionally so. None of the rare ethnographic explanations we have offers a reason for cupules to take the specific shape they have, or the fact that many or most of them seem to follow the principle of achieving greatest depth with smallest possible diameter. In short, the available ethnography of cupules does not explain the phenomenon satisfactorily.

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