

# CARING ABOUT CUPULES



ellen dissanayake

*Ellen Dissanayake is a lecturer and the author of “Art and Intimacy: How the Arts Began,” “Homo Aestheticus: Where Art Comes From and Why,” and “What Is Art For?” Her ideas about the psychobiological necessity of the arts have been influenced by her several lives as an undergraduate music major, a resident of several non-Western countries, and hours of reading in libraries from Oxford and the US Library of Congress to the universities of Ibadan (Nigeria), Peradeniya (Sri Lanka) and Papua New Guinea. This unconventional background, largely outside Western academia, has shaped her original approach to the various arts in her books, articles, and numerous talks to a variety of national and international audiences. She has spent the past seven years learning about and applying her ideas to the subject of geometric rock art and mark-making in general, resulting in the coauthored volume (with Ekkehart Malotki) “Early Rock Art of the American West: The Geometric Enigma” in 2018.*

Every life brings at least one utterly unexpected event that marks the beginning (or end) of a chapter or phase. In 2006, my telephone rang and an unfamiliar male voice with a German accent asked to speak to me. He described himself as a scholar and photographer of prehistoric rock art – what most people call petroglyphs or pictographs. He had read one of my books, *Homo Aestheticus*, he told me, and then went on to say “The rock art world needs your ideas.”

Of course I was flattered, but I was also perplexed. I had never looked a real petroglyph in the face and knew next to nothing about rock art as a field of study, much less a “world.” Art educators, art and music therapists, and people in the crafts (“makers”) had found value in a fundamental idea that I had developed over the years in three books<sup>1</sup>: a common characteristic of all the arts that I first called “making special.”

That unanticipated phone call was the beginning of a collaboration that I could never have foreseen on a subject that had never entered my mind. Some months later I was in Arizona for a lecture and made a side trip to Flagstaff to meet my mysterious caller (who also had a mysterious name, Ekkehart Malotki). As he described the project he had in mind, I realized (by intuition much more than reasoned conclusion) that, yes, I did have something to contribute. And finally, in 2018, after many years of sending draft pages back and forth and Skypeing, the two of us at last held in our hands a beautifully designed and printed book of nearly 300 pages with some 200 color images: *Early Rock Art of the American West: The Geometric Enigma*.<sup>2</sup> Yes, the rock art world may have “needed my ideas,” but my long apprenticeship in the field had also helped me develop a nascent realization about the importance of care, or caring, that I had not emphasized enough in my earlier work. The impetus for this critical new insight was a type of petroglyph that most aficionados or students of the subject ignore: the cupule, a hemispherical indentation pounded into a stone surface. More will be said about cupules in the following section.

*Early Rock Art of the American West* is a pathbreaker in its way. Never before has one book been entirely devoted to abstract geometric motifs carved on stone surfaces, in the American West or anywhere in the world, even though geometric marks – including (and especially) cupules – are the oldest and most common kind of human-made mark on every continent (with the exception of Antarctica, where no rock art exists). Our short explanation for this neglect by scholars and the public is that their lack of recognizable subject matter and any conventional kind of beauty makes it impossible to know why they were made or what they meant.



People want and need meaning. They are seduced by rock art because it is an enigmatic relic from the lives of people who lived centuries and millennia before us in ways that we can only try to imagine. The powerful beasts painted on the walls in deep caves of France and Spain are perhaps the most compelling subjects, but petroglyphs and pictographs at open-air sites in the New World are just as tantalizing, depicting a plethora of both animate beings (anthropomorphs, zoomorphs, phantasmomorphs) and inanimate objects, reflecting the natural and supernatural worlds. Rock arters, both amateurs and those more research-oriented, are like birders who travel to distant places to add to their life lists of new species seen with their own eyes and to record what they find through the medium of photography or drawing. For both groups, the quarry is inexhaustible.

Abstract geometrics are different from the marks that depict figurative elements. They include a slew of curvilinear and rectilinear configurations, such as circles (concentric, rayed, starbursts), spirals, dots, lines (parallel, undulant, serrated, meandering, zigzag), chains of diamonds, grids, rakes and ladders, wheels, arcs, crosshatches, chevron and herringbone elements, and squiggle mazes. They are frequently quite beautiful, being skillfully made and formally satisfying, and can even be breathtaking. But they are enigmatic (as the subtitle of our book states) and could mean almost anything. Your imagination (or guess) is as good as mine.

### **what are cupules for?**

Cupules, the most mysterious and most neglected of rock markings, are also the earliest and most common human-made marks all over the world. They are *not* what most people would call beautiful. In fact, despite variations in size, depth and clarity, it might even be said that if you've seen one, you've seen them all. They are made by repetitive pounding or grinding with another stone, leaving a concave depression that looks like a container or cup. Occasionally one sees a single cupule, but typically they occur in groups – of scores or sometimes even hundreds.

Cupules are definitely enigmatic. Why would anyone make one, not to mention a flock of them? Experiments in replicating cupules at Daraki Chattan in central India reveal that many thousands of blows with a hammerstone would have been necessary to create even a shallow cupule in the hard granite matrix.<sup>3</sup> One cupule replication took more than six hours spread over two days and required the use of ten hammerstones of hard quartzite. The activity would have demanded physical



stamina, skill, planning and time and was clearly not the byproduct of casual activity.

Some cupules were likely utilitarian, as is suggested by the residue of plant and animal remains in some Australian samples.<sup>4</sup> Some might have been used to collect rainwater or fill with other liquids. But not all cupules are on horizontal surfaces. A great many of them are actually found on slanting boulders or even vertical walls.

A few firsthand reports from indigenous cupule makers about their intentions are known – and in some of these accounts, the resultant finely ground powder was the reason for making the cupule. Among the Pomo Indians of California, a paste made from the powder was applied to the abdomens of women who wished to become pregnant and, in one recorded case, was inserted into a woman’s vagina so that intercourse immediately afterward “positively assured fertility, because of the magic properties of the rock.”<sup>5</sup> In the 1930s, an Australian ethnographer recorded information from an Aboriginal cupule pounder who told him that the boulder represented the totemic body of the Pink-Cockatoo-Woman, Tukalili, and that the dust produced from pounding the cupule released her life essence, fertilizing the surrounding land.<sup>6</sup> Other firsthand accounts have informed researchers that cupules were made for weather control, especially rainmaking: the thunderous sound produced by pounding the “stone drum” of the boulder was believed to attract real thunder.<sup>7</sup>

Speculations by non-natives are numerous and sometimes quite creative; I don’t have space to describe them all here. However, taking a cue from the thunder-making explanation, I have suggested that rather than the mere making of a cupule, it was the *sound* that was of importance, at least in some cases, and the cup-shaped depression was simply the result of the process. Perhaps deliberately striking a stone surface acted as a summons – a sound signaling that people should assemble. And if it prompted immediate gathering, pounding a cupule could have communicated that something important was going to happen here, or was happening here – or record that something important had recently happened. That is, a cupule or collection of cupules could have been a focus for later ritual participation or merely evidence of participation in the past. Simply striking a rock for its sound may not have resulted in a precisely made cupule, but if the cupule were to serve as the permanent record of an event, added to other previous cupules, its careful crafting might well have been considered essential. Indeed, some cup marks could have been created in order to make already important or sacred places even more special.

Whether or not my speculation about *sound* being the motivation for producing a cupule is accurate, cupules themselves, whatever they meant to their makers, are clear evidence of the effort that produced them. Once in existence, they become a permanent record of their making, a testament for all time to the fact that a person or social group cared enough to create them. And, as I suggested, the activity of making them seems to have been as important as, if not more important than, the finished product. This makes them different from most other rock markings, in which the activity was a means of creating a meaningful geometric or representational image. Although we will probably never know the motivation for making a cupule, or its meaning, *its very existence inadvertently indicates that it had to do with something the maker cared about.*

### background: the arts and evolution

Before continuing to explore the relationship of caring, making and meaning, some background is relevant.

Like my first and third books (*What Is Art For?* and *Art and Intimacy*), my second one, *Homo Aestheticus*, explored questions about the evolutionary or prehistoric origins of the arts in general: what is (or was) art for? Where did the arts come from? How did they begin, and why? In these books, I said nothing about rock art but wrote more generally about what made something (in any medium) “art.”

I offered five observations that suggested that human beings are predisposed to create art (or engage in the arts) – that is, that art is worthy of being considered a biological adaptation, or, as people say now, “in our DNA.” First, every known society or culture from prehistory to the present has engaged in some, and usually many, kinds of art – song, dance, performance, literary and poetic language, as well as paintings, carvings and other visual artifacts. In other words, art was and is universal. Second, an inclination to create art is manifested in young children, who from very early in their first year spontaneously (without instruction) move in time with music and sing (along or alone). As they grow older, they like to make marks with their fingers and hands (in spilled milk on a high chair tray or with paint or colored marker on a page). They play with the sounds of words and enjoy rhymes and vivid verbal descriptions. They happily dress up in costumes and masks, and make believe. Third, the arts obviously give pleasure (reward) to those who watch and participate in them, a sure sign that they were biologically advan-

tageous. Evolution has made certain that we are attracted to things that are good for us, like tasty energy-giving food (rather than grass or leaves); the companionship of intimates (rather than being alone or amidst strangers); feeling healthy, safe, and warm; giving and receiving love; tending infants; and being liked and praised (rather than criticized or rejected). Fourth, the arts are costly. That is, they use time, energy and resources (for construction, practice, rehearsal, participation) that could be employed for more obviously survival-related activities, even resting and relaxation. And fifth, the arts are integral to many if not most cultural events. They are conspicuous in any kind of celebratory ritual or ceremonial activity.

But why would engagement with the arts be selected for – that is, become part of our genetic makeup? What do the arts accomplish for us that they are so conspicuous, particularly in traditional and subsistence societies? In contemporary societies, arts are generally add-ons. We do them in our spare time, and they are often electives or extras in school curricula. Except for professional artists and performers and a few individuals who are somehow driven to artistic practice, most people consider the arts a luxury rather than a necessity. They *cost too much* in time, effort and resources.

In approaching these questions as an evolutionary theorist, it is important not to think of the way we live today but to try to imagine the lives of people who lived many hundreds of thousands of years ago, when human nature (our biologically instilled predispositions and emotional needs) was being laid down as an adaptation to our way of life.

Our earliest hominin ancestors were essentially wild animals, living in small groups as foragers and hunters. Their activities were motivated by the strongly felt need to secure (as far as possible) the physical and psychological necessities for their lives – food, health, safety and comfort, status, predictability, sexual partners, healthy offspring, and social relationships that were reliable and reciprocal. We today still need these things, but the institutions in our societies provide ways of getting most of them without having to deal directly with the natural world, using our hands and bodies to acquire or make them.

Despite differences in ancestral environments (forests, deserts, plains), the general ways of life of foragers share important characteristics. All live in what the linguist and polymath Thomas Givón has called “societies of intimates” (to be contrasted with “societies of strangers,” the larger and more complex groupings that began to develop slowly in different parts of the world around 12,000 years ago and depended on agriculture).<sup>8</sup> These foraging nomads’ mode of subsistence requires a restricted territory and a small group size – in some cases fewer than fif-

teen people, though occasionally as many as 50 or even 150. At either end of this population scale and at all stages in between, individuals have face-to-face acquaintance with each other. There is cultural homogeneity and stability and an egalitarian social structure with consensual leadership and kinship-based social cooperation.<sup>9</sup> In general, work is not specialized except in the sense that some tasks require the physical strength of males, who are also more mobile than females who bear and tend young. These are obvious differences from the way we live today, in stratified, pluralistic, technological societies. We work at jobs to get money to purchase needed material goods and to display to strangers our worth as friends and partners.

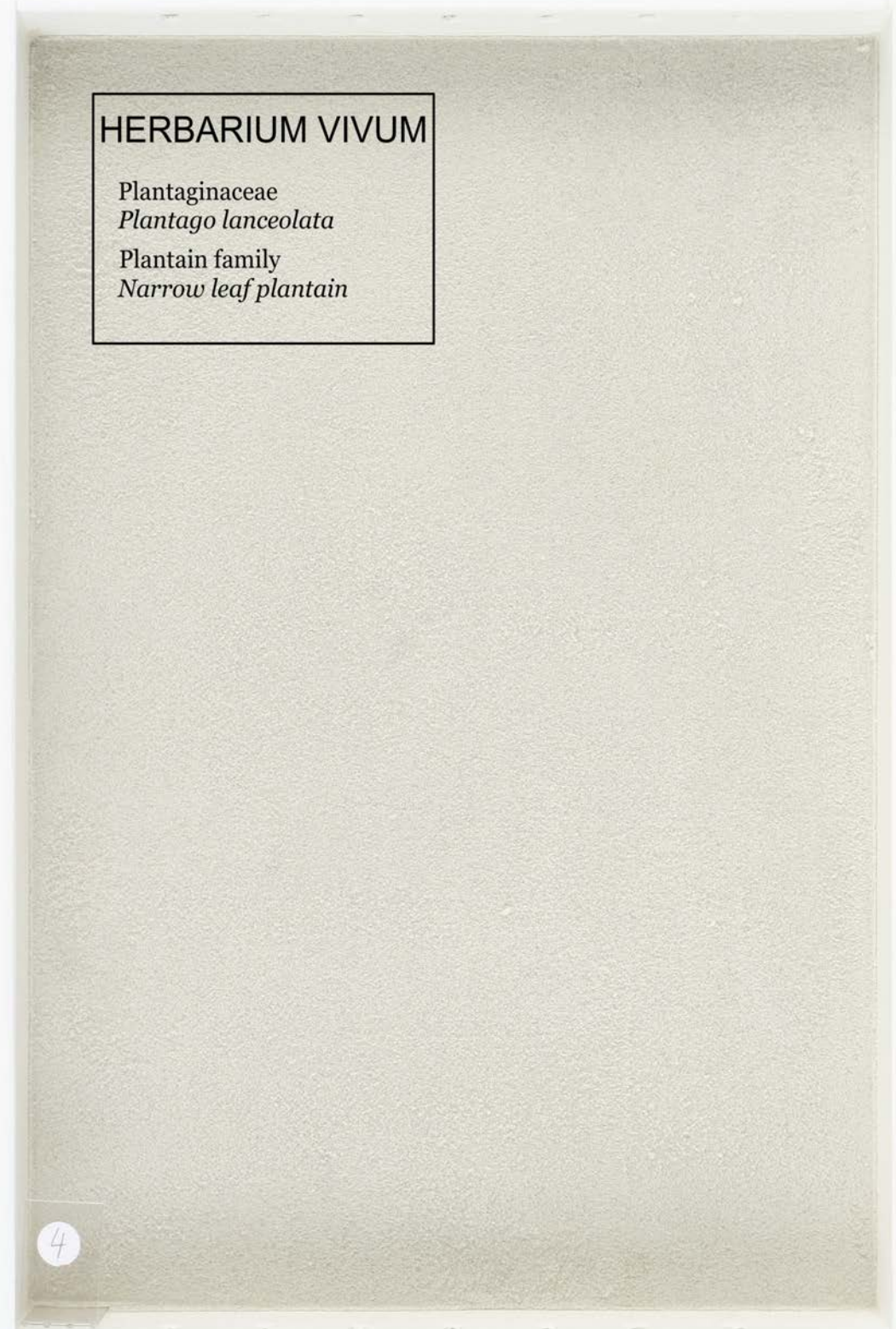
Earlier I said that we consider the arts to be too costly – something to postpone until we have more money, more time, more leisure. But in traditional small-scale societies of the recent past (and presumably the archaic prehistoric societies that lived in similar ways), the arts came first, even when resources were limited. They were considered essential, inseparable from the ritual ceremonies that are characteristic of all such groups, especially in times of uncertainty.

It is primarily in ritual ceremonies that we find the arts in premodern societies (and in our own, although modern societies also have arts in museums, books and magazines, and private collections, and on digital devices and in theaters and concert halls). We can ask why that should be.

### rituals and arts

A society's rituals are its major occasions for making ordinary reality extraordinary or special. Visually arresting costumes, masks and other body ornamentation, altered and embellished artifacts and surroundings, chanting, dancing, singing, drumming, altered language, and performing – they all transform ordinary bodies, objects, environments, movements and utterances. We can call these *extra*-ordinary behaviors “arts,” and most rituals, whatever else they may be, can be considered as “collections of arts,” for without these transformations it is hard to imagine what a ritual ceremony would consist of.

Why did humans invent rituals? I suggest that as our large-brained ancestors were increasingly able (unlike other animals) to remember the good and bad happenings of the past and wished to affect the good or bad things that might occur in the future, they were emotionally moved to do something to insure a good outcome to their ventures. All societies have rituals, and most of these are intended



to affect biologically vital states or circumstances whose attainment is uncertain – to assure or celebrate such goods as food, safety, health, fertility, prosperity, and successful transitions through important life stages: birth, puberty, marriage, becoming a man or mother, widowhood, death.

Psychologists confirm that humans are fundamentally motivated to achieve some level of control over events, resources and relationships that are significant to them and become distressed when this control is lacking.<sup>10</sup> Individually, humans (like other animals) appraise circumstances in their lives in terms such as “Is it pleasant or unpleasant?” “How much effort does it require?” “How much control do I have over it?” “Is it legitimate?” and “Is there an obstacle to overcome to get (or avoid) it?”<sup>11</sup>

It is reasonable to suggest that existential anxiety – leading to emotional investment in or “caring about” vital needs that are in possible or definite danger – was the motivating impetus for the invention of ceremonial ritual. Writing about the Trobriand Islanders (of present-day Papua New Guinea) in the 1930s, anthropologist Bronislaw Malinowski noted, “Wherever there is an important human activity, which is at the same time dangerous, subject to chance and not completely mastered by technical means – there is always for the Trobriander a magical system, a body of rites and spells, to compensate for the uncertainty of chance and to forearm against bad luck.”<sup>12</sup> It is an anthropological truism that rituals occur at times of transition and uncertainty.<sup>13</sup>

Perceived uncertainty produces fear and anxiety,<sup>14</sup> thereby releasing stress hormones such as cortisol, which over time has numerous harmful consequences.<sup>15</sup> These pernicious effects are reduced when individuals have a sense of control over uncertain circumstances.<sup>16</sup> Like all primates, humans come together when under threat or other stress.<sup>17</sup> Acting as a group is more reassuring than doing nothing or acting alone.<sup>18</sup>

Therefore, it is not at all surprising that humans should behave in regularized or patterned ways when stressed. Simplified and repeated movements and sounds can be easily coordinated among members of a group. Participating in temporally coordinated and integrated multimodal (facial, vocal, gestural) behaviors has positive effects on the reward centers of the brain – those that release endorphins and endogenous opioids whose emotional effects include trust, confidence, bonding, elation and even feelings of transcendence.<sup>19</sup> These neurochemicals also reduce the stress hormone cortisol, thereby relieving feelings of anxiety.<sup>20</sup> Ancestral humans did not need to realize consciously that their coordinated actions of vocalizing and moving together during or in anticipation of a fraught or dreaded event

promoted affiliation and congruence in adult social life.<sup>21</sup> Engaging in highly coordinated action in pairs and groups is widespread among humans and many other animals. Even without deliberate orchestration, individuals tend to behaviorally match the actions and postures of others.<sup>22</sup> Communal feeling is literally embodied by the mutual coordination that is enacted.<sup>23</sup>

### what i learned from cupules and other geometric marks

My ideas about the development and purpose of the various arts have themselves gone through an evolution over several decades. I started with an intuition that the arts were essential in our lives and must have been a biological adaptation, as described in the five observations at the beginning of the background section above. From reading scores of anthropological monographs about individual small-scale societies, I realized that the arts were essential to ritual ceremonies and understood that at the time of their prehistoric beginnings, participation in them was essential – an idea that is not part of our notion of the arts today. And after I learned about the neurochemical effects of coordinated activity with others (which produces adaptively relevant feelings of trust, confidence, bonding, elation and transcendence), everything came together. My conclusion was that if we lacked these feelings or were not susceptible to the art/ritual behaviors that produce them, we would not have been successful as a species.

Rock art, which is visual and static, does not easily fit into this scenario. The markings are not the product of ongoing coordinated joint action, as are the movement and music of a ceremony, but rather the outcome of individual actions. Their contribution is to add specialness, extraordinariness, and what I have most recently called “artification” (the evolved behavior of making and participating in the arts) to a ceremonial occasion, creating and emphasizing the vividness, persuasiveness and believability of the cultural messages (myths, symbols) that inhere in the ceremony. Just saying “We need food” or “I hope my baby’s birth will be successful” is hardly sufficient to appeal to the higher powers that individuals hope will respond to the importance of such things and be persuaded to help. Mark-making can additionally artify the environment or surroundings as well as participants’ faces, hair and bodies, adding to the panoply of magnificence.

The occasions for ceremonies concern the literally vital needs of the group – what they need to survive. Evolution has made all animals concerned with these goods, motivated to *care about* them. Humans have evolved to show how much

they care through extravagant behaviors (the arts, which are integral to ritual ceremonies). I have said that we are a species that was *Homo aestheticus* before we were *Homo religiosus* or even *Homo symbolicus*.<sup>24</sup>

All rock carvings, including cupules, require motivation, planning, commitment, strength, endurance, skill, patience, and *caring* (the source of these other abilities), and the finished result communicates for all time – embodies – those qualities. Early in my studies I came across a sentence that I have never forgotten: “What we do not care about we neither pay attention to nor remember.”<sup>25</sup> I have thought of it many times; although it sounds simple, I believe that it is profound and true. Thanks to my acquaintance with cupules, I have put a coda to that statement: *People do not make art about things they do not care about*. I claim that this is true of all artification in all humans.

#### notes

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- Although I have never forgotten that sentence, I have not been able to find it in print. I reached its author, the distinguished psychologist of emotion Phoebe Ellsworth, who could not remember where it appeared. She suggested that I credit it as a personal communication.