

The Challenge: Should Ceremonial Cairns and Field Clearing Piles be characterized by Diversity or Consistency?

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Abstract

Two different hypotheses for identifying and distinguishing agricultural field clearing piles from ceremonial cairns were discussed in the 2015 issue of the Archaeological Society of Connecticut Bulletin. This article tests both hypotheses against the period historical agricultural literature and photographs on field clearing and the anthropological literature on Algonquian and Iroquoian ceremonialism.

Introduction

This is a response to Lucianne Lavin's comments in the Editor's Corner, Brian Jones' hypothesis on field clearing stone piles and ceremonial stone piles, and Timothy Ives' article on professional archaeologists' theories versus non-professional archaeologists' theories that were published in issue #77 of the *Bulletin of the Archaeological Society of Connecticut*.

The Challenge

Seventy-eight years ago in 1938 William Goodwin, a Director of Aetna Insurance of Hartford, Connecticut submitted his first article on America's Stonehenge. It advocated the diffusionist theory. For nearly 80 years, archaeologists have been arguing with non-archaeologists about this subject. Dr. Timothy Ives, Rhode Island State Archaeologist, wrote an article on the subject in the *Bulletin of the Archaeological Society of Connecticut* (Ives 2015). In the same bulletin, Dr. Brian Jones, Connecticut State Archaeologist, proposed a hypothesis on the subject (Jones 2015: 65). Ives' article continues the old argument whereas Jones' article presents a professional challenge. In the same bulletin, Dr. Lucianne Lavin, the editor, made a profound statement. She wrote in her Editor's Corner:

"This science-driven process-oriented archaeological theory required rigorous application of the scientific method for site interpretations. Graduate students like myself were told that historical accounts, including oral traditions, were to be utilized only in forming hypotheses. The 'facts' of the site would come from scientific analyses of its artifacts and features" (Lavin 2015: 3).

Lavin was making a point that she was taught *firsthand* accounts found in primary sources like historic diaries, journals, books and photographs were superficial and should not be used to draw conclusions. Jones hypothesis:

“The Gages’ suggestion that ceremonial stone landscapes are more likely to contain a greater diversity of rock structures than agrarian piles is more problematic to me. Since ritual is generally defined as a series of actions performed in set manner, I would anticipate the practice of constructing ceremonial stone features to adhere to cultural rules resulting in consistent types of features, rather than a diversity of them. Diversity, in my opinion, is more likely to be expressed by non-ceremonial conditions and will be constrained instead by immediate local factors such as the size of the stone handled, the surface on which it [is] placed, and the individual actor him or herself. But if particular types of stone features appear to repeat themselves as consistent sets, we should be prepared to pursue this line of thinking further (Jones 2015: 65).”

Jones put forth a dual hypothesis. In doing so, he challenged the Gages’ diversity theory and proposed his own agrarian hypothesis. The hypothesis is logically based and sensibly thought out. It adheres to the prevailing archaeological theory that primary source materials should only be used as a guide. What do the primary sources reveal? Is there any pertinent information in them? As for consistent sets with Native American ceremonies, they exist but in what form? How strict were the rules? Was there any creativity or individuality involved, hence diversity? Can anthropological accounts taken down directly from the Native Americans be useful? The Challenge tests Jones’ hypothesis and the Gages’ theory simultaneously.

Agricultural Stone Pile Design

Jones hypothesized that agrarian stone piles should show diversity. The Gages used historic literature and, therefore, did not form a hypothesis as the information was available. Agrarian stone piles come in two types:

- (1) Multiple small stone piles found throughout fields
- (2) Single extra large stone pile on the edge of fields or on top of surface bedrock

Small Multiple Stone Piles in Historic Literature

“Cleared about six acres of rock heaps where they averaged about a heap of four to six bushels of small stones per square rod” (Massachusetts Board of Agriculture 1866: 3).

This is a first-hand account of how a farmer cleared his field. It explains several things: The stone piles were all the same design, same size, contained all the same size stones and were placed “per square rod” forming a grid pattern.¹

Historic Photograph of Multiple Small Piles in a Farm Field

The 1937 Michigan potato field photograph shows a uniform, consistent set of stone piles built on the ground (Figure1). Furthermore, it shows a continued common practice over a long period of time. The 1866 written account cited above cross-checked the 1937 historic photograph. The two sources confirmed groups of multiple stone piles have all the same design, same stone sizes and

¹ It should be noted that 19th century farmers did not have standardized definitions of stone sizes. Terms like “small stones” may be different from our modern conception of what “small stones” means.

are similar in overall size. There was no diversity; hence, it debunks Jones' diversity hypotheses for small *multiple* agrarian stone piles.



Figure 1. 1937 FSA photo showing a Michigan potato field with stone piled around stumps (Courtesy of the Library of Congress).

Historic Photograph of Single Extra Large Stone Pile on Edge of Field

The 1922 photograph shows a single extra large stone pile. It has extra large stones, semi-extra large stones, large stones, and medium stones (Figure 2). Stone sizes included Medium (7" to 11"), Large (12" to 15"), Semi-Extra Large (16" to 23"), Extra Large (2' to 6'). The extra large stone piles on the margins of farm fields exhibit the same criteria Jones put forth in his agrarian diversity hypothesis, but it only applies to the *single* extra large stone pile.



FIG. 137. A LARGE STONE PILE IN THE CORNER OF A CROP FIELD
 This stone pile occupies little land and does not interfere with cultivation. The stones are convenient for drawing if needed for improved highway

Figure 2. Single stone pile in the corner of a New York farm field (Myers 1922: 358).

Discussion

The photographs supplement the written literature in identifying two field clearing stone pile designs. They are the small stone mounds set up as consistent groups of piles, and the single extra large stone mound on the edge. The latter had been recognized and identified. The small piles were known but had slipped through without being identified as different from the extra large piles except for overall size. The facts had eluded everyone including myself. After recognizing there was a difference it raised a question. Why were the small piles made up of similar sized stones?

Historic Photograph of Unloading of a Stone Boat

A 1937 farm photograph holds a clue (Figure 3). It shows farmers in Wisconsin unloading a stone boat. The stone being picked up is a semi-extra large size. It took two men to lift. This is the clue. The effort the men are using to unload the stone shows they would not have walked across a field to place it in a small pile. Hence, the semi-extra large stones were placed on the stone boat where they were found in the field and then unloaded at the extra large stone pile or in this case where a stone wall was being built.



Figure 3. 1937 FSA photo of farmers in Wisconsin using a stone-boat (courtesy of the Library of Congress).

Extra Large Stones too Big & Heavy to Pick Up

Joshua Hempstead's diary is often cited for his entry, "Diging up Large Stones & Laying ym [them] on Small ones in order to Draw [drag] ym away in ye Winter when the ground is froze & Snow on it." He had two entries for that year with similar wording on 4/29/1742 and 12/4/1742 (Hempstead 1901). The large stone was too big and heavy to drag off the soft ground. That implies it was extra large. The entry states he laid the (extra) large stone on top of small stones. That implies a low bed - a single layer of small stones, not a mound of stones. An extra large stone could be rolled onto a low bed of small stones using crowbars. The small stones kept the (extra) large stone from freezing to the ground. Building a loose pile of stones with an extra large stone on top is not logical as the stone was too heavy and large to move in the first place on the soft ground. These were not piles; they were simply an (extra) large stone on top a layer of small stones.

The term "Draw" was used to describe how the stone was removed from the field. To draw was to drag the stone, as it was too large and heavy to pick up. Oxen and draft horses were used to drag the stone across the frozen ground.

Hempstead had three or four diary entries referencing (extra) large stones placed on top of small stones. The entries are consistent and show he repeated the same procedure, creating the same type of structure each time. Hempstead's diary was one of the Gages' sources. It shows consistency with agrarian practices.

Agrarian Stone Pile Construction

Small Stone Piles

- (a) Stones 6 inches or less in length were *not* picked up.²
- (b) Medium and large stones were picked up. They were the size and weight a man could carry by himself (Medium 7" – 11", Large 12" – 15").
- (c) Size: four to six bushels (approximately 3' diameter by 3' high) (Massachusetts Board of Agriculture 1866: 3).
- (d) Distance between piles: a rod (16 ½ feet) was the most efficient distance to carry individual stones (*Ibid.*).
- (e) Placement: Generally on the ground (Gage 2014); occasionally around stumps (Figure 1); occasionally attached to large boulders (author's personal observation).

The small mounds contained medium and large stones, what one man could carry. They had a similar overall size due to how far the stones were carried. Being spaced out they occur in groups of multiple piles. They were later disassembled and put in a cart and carried off by the load. Figure 4 illustrates common placement patterns for field clearing piles found in groups.

Extra Large Piles

- a) Semi-extra large stones (16" - 23"): their size and weight took two men to pick up. These were placed directly on a cart or stone boat in the field and carried to the extra large pile or stone wall building pile as seen in 1937 photograph (Figure 3). This was done because the stones were too heavy to carry 15 to 20 feet to place in a small pile.
- b) Extra large stones (2' - 6') were dragged out individually by work animals. They were placed directly in the extra large pile.
- c) Cart loads of medium and large stones were picked up and dumped in the extra large pile.

² This is an observation based upon talking with modern farmers, reviewing historic photos of field clearing, and examining historic field clearing piles. The only exception is field clearing piles created by dumping stones collected by mechanized rock pickers. These are usually easily identified by the uniformity of the stone sizes in the pile. These piles are generally very large in size.

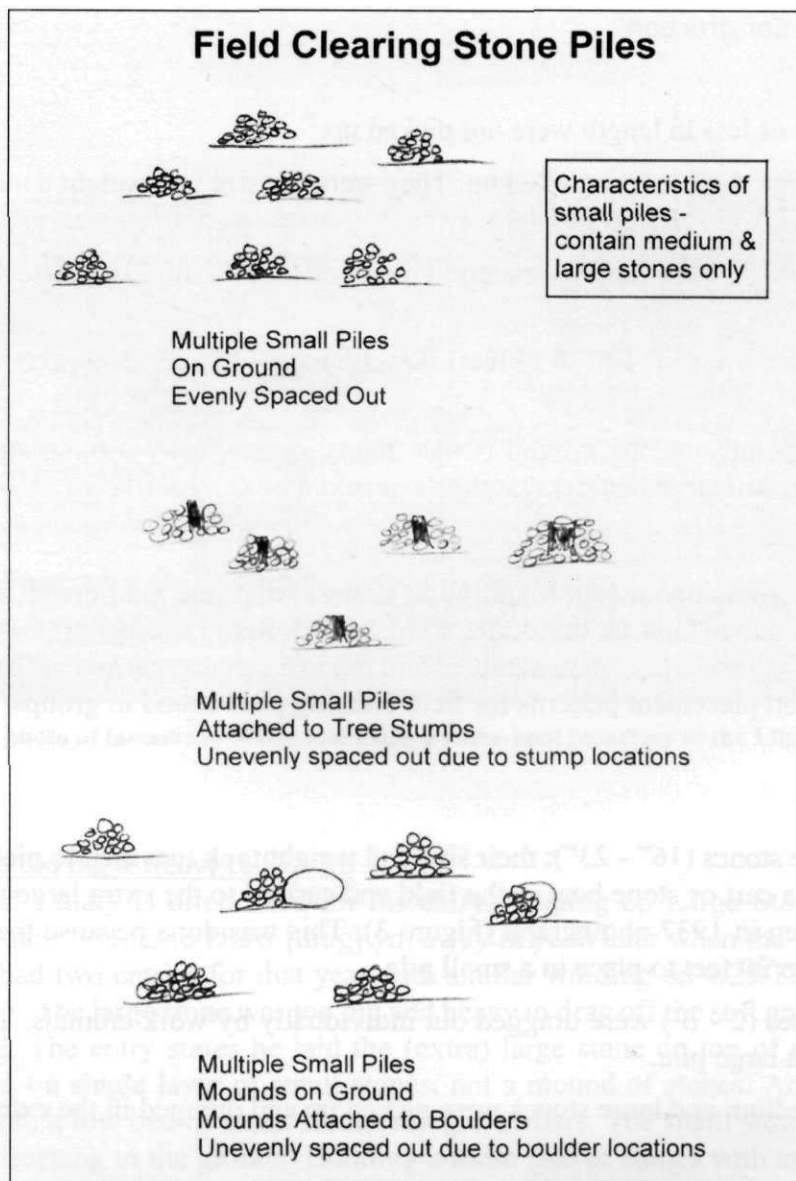


Figure 4. Three different placement patterns for small field clearing stone piles.

Discussion

The historic photographs and literature cross-check each other and attest to what took place on farms regarding the building of stones piles. These primary sources (i.e. period literature) were critical in figuring it out. The period material was used to the exclusion of a hypothesis as it provided actual facts. The facts though in plain sight were elusive for far too many years. Rebutting Jones' hypothesis forced the author to take another look at the agrarian stone piles. Seeing them again for the first time! All along the obvious was staring at us. The historic photos contained the hard evidence. As researchers we failed to see it. The small multiple field clearing piles are all the same design, same size and contain the same size stones. There is no diversity among them.

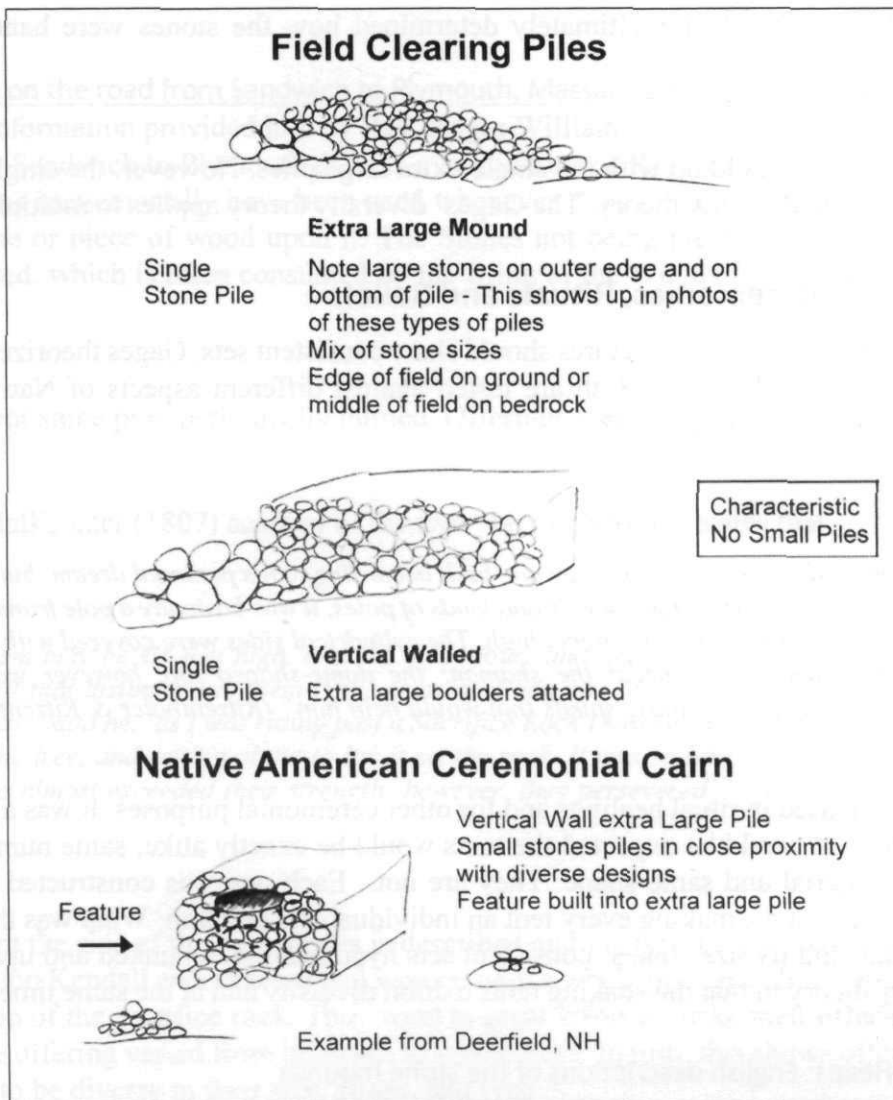


Figure 5. Extra large single field clearing piles in comparison with Native American extra large cairn part of a cairn group.

The extra large single stone piles, one per field, are diverse as they contain all the various sized stones taken out of the field. These were single piles. They were constructed on the far edge of fields, or on exposed bedrock in a field. They contained a mix of stone sizes which determined the overall size. The base was either the ground or bedrock. The piles were made up of the different sized stones removed from the field: extra large stones, semi-extra large, large and medium stones. Thus their overall size, size of stone, and base varied from one field to another.

It all makes sense when sorted out on a practical level, taking into consideration what a man could physically pick up and what he could not. We are so far removed from the actual activity it is hard to work out what took place. Jones' diversity hypothesis for field clearing sounds good until put to the practical test. He failed to consider the stone sizes and weights in regards to physically

handling the stones. That factor ultimately determined how the stones were handled, not the person.

His diversity hypothesis held up with the single extra large piles. However, the single pile has no bearing on the Gages' diversity theory. The Gages' diversity theory applies to multiple stone piles.

Native American Ceremonies, Rituals and Beliefs

Jones hypothesized ceremonial structures should show consistent sets. Gages theorized ceremonial structures should show diversity. Both are tested against different aspects of Native American religious beliefs and structures.

Shaking Tents

"The conjuror used a special tent or wigwam, built according to his personal dream, but while it varied somewhat in shape and in number and kinds of poles, it was basically a pole framework about three feet in diameter and seven feet high. The cylindrical sides were covered with skins, birch bark, or blankets to conceal the shaman; the dome-shaped top, however was left uncovered for the entrance of those spirits that would help him" (Ritzenthaler & Ritzenthaler, 1970: 103-104).

Shaking tents were used in ritual healings and for other ceremonial purposes. It was a specific type of ritual; therefore, it would be expected the tents would be exactly alike, same number of poles, same covering material and same shape. They are not. Each one was constructed according to individual shaman dreams, making every tent an individualistic creation. What was the same were the basic structure and its size. Jones' consistent sets hypothesis is debunked and upheld as is the Gages' diversity theory in that the shaking tents exhibit diversity and at the same time consistency.

Trailside Stone Heaps: English descriptions of the stone mounds

Monument Mountain in present Great Barrington, Massachusetts (Butler 1946: 3-4):

1734 Rev. John Sergeant noted "large heap of stones" built on the ground.

1762 Rev. Ezra Stiles noted "eighteen feet long, six feet high and somewhat hollow in the middle"; drawing shows a well-formed depression at the top of the mound.

1796 Rev. Gideon Hawley noted "The largest heap I have ever observed, is the large collection of small stones on the mountain between Stockbridge and Great Barrington."

1823 Rev. Timothy Dwight noted "The monument was then about six or eight feet high in the form of an obtuse cone, and had been formed by the 'slow accumulation of rocks thrown upon it one at a time by passing Indians."

Permanent stone pile: its height and shape changed over a hundred year span. In its earlier years it was constructed with a depression in the top. In its later years the Indians filled in the depression and created a domed top. Trailside offering cairns continually changed appearance while in use.

Stone Mound on the road from Sandwich to Plymouth, Massachusetts

Based upon information provided him by Rev. Roger Williams, Rev. Stiles wrote in 1762 "that on the road from Sandwich to Plymouth there is a large Stone or Rock in a place free of Stones; and that the Indians immemorially have been used whenever & as often as they pass this large Stone to cast a Stone or piece of wood upon it. The Stones not being plenty, pieces of Wood is most commonly used, which is often consumed by the firing of the Woods for Deer" (quoted in Butler 1946: 4).

Non-permanent stone pile: periodically burned. Offerings were a mix of stones and wood.

Edward Kendall's later (1807) account of the two "sacrifice rocks" states that

"One of them may be six feet high, and the other four; and both are of ten or twelve feet in length ... All that distinguishes them is the crowns of oak and pine branches which they bear ..." 'One day,' said he, 'as I was riding past a Sacrifice Rock I saw two Indian women dragging a young pine tree, and setting about to lay it on the rock. It was so large and heavy, that the undertaking almost exceeded their strength; however, they persevered'" (Quoted in Simmons 1986: 254).

In this account the size of the base stones is described and the type of tree, oak and pine is stated. On one occasion Kendall encountered two women with a whole pine tree almost too large for them to place on top of the sacrifice rock. They went to great effort to make their offering. This shows the size of the offering varied from branches to whole trees. In turn, this shows offering stones had the potential to be diverse in their size, shape, and type.

Mashpee

According to Dr. William Simmons, "Speck visited Mashpee in 1907 and uncovered new information regarding roadside memorials. According to his aged Mashpee informants, these sites mark locations where people encounter spirits of departed Indians (Cheepi or tcipai)." Simmons quotes Speck's findings:

"A religious practice grew out of the belief, viz., that of erecting great square flat-topped lodges covered with brush at certain points along their accustomed roads or paths. At these the Indians used to stop and deposit some piece of property or food, or else pour out a libation of whisky. Such Mashpee of to-day as are superstitiously inclined still observe the custom of throwing a twig or branch upon the rotting frame-work, or on the former sites of these spirit-lodges, whenever they pass by" (Simmons 1986: 254).

Speck's work shows the Mashpee built lodges to make their various offerings in the form of property (physical objects), food, whisky and later tree branches. The offerings span a wide range from solid to liquid and perishable to permanent. It is the widest selection of offerings used with trailside offering structures.

Discussion

Rev. Hawley "observed in every part of the country, and among every tribe of Indians ...heaps of stones or sticks." Trailside stone heaps as they were historically called were a common ritual among all the tribes so they should show consistency, i.e. same design, same type of offering and same foundation. Instead some were built on the ground, others were built on top of large boulders, and some used specially built spirit lodges whose descendents in turn later used these old collapsed lodges. The choice of offering varied from stone, to sticks to brush to whole trees to property (physical objects) to food to whiskey. Ceremonies and rituals have set rules, but as the shaking tent and trailside cairns prove, there was creative liberty resulting in diversity. Jones' hypothesis of consistent sets is debunked as the trailside structures show diversity in type of offering, type of structure and size of offering. The Gages theory of diversity is upheld.

Spirit Beliefs

In 1929 Diamond Jenness spent seven weeks interviewing Native Americans living on Parry Island about their social and religious life (Jenness 1935). He had six principal Native American informants ranging in age from 37 to 90. There was a chief, a medicine-man who belonged to the Grand Midewiwin or Medicine Society, a woman -- Mary Sugedud, full blooded Indians of the Ojibwa and Potawatomi tribes and one Ottawa Indian, all of whom were living long term on Parry Island in Georgian Bay, Canada.

Jenness presented several different beliefs regarding serpents. The first account from Mary Sugedud reads:

"The chief enemies of both man and thunder are the water-serpents, which can travel underground and steal away a man's soul. The boss of all the water-serpents is Nzagima, one of whose contests with thunder is the theme of a well-known myth." "After the serpent had burned to ashes they ordered the girl to take some of the ashes and use them for medicine. 'This will be your medicine,' they said. 'Even though a man be at death's door these ashes will restore him.' The girl became a great medicine-woman and lived to a very old age. Often she restored the dying to life, and was summoned from great distances to heal the sick" (Jenness 1935: 35-36).

A second account reads:

"There is current also on Parry Island, however, a very different account of the great serpent, which makes it not the enemy of the Ojibwa and the patron of sorcerers, but through the agency of mede' medicine-men, a benefactor. In this account there are two great serpents, a male, Nzagima, that is black and has horns like a deer, and a female that is white. The usual name for both is simply mishiginebik, 'big snakes.'" (Ibid: 39).

A third account reads:

"One old man, John Manatuwaba, even identified it with the earth-manido of the mede' society, Nokomis ("grandmother," a title that to Georgian Bay Ojibwa outside the Midewiwin society signifies the moon); for he claimed that the serpent, manido lived under the earth, and through the many subordinate manidos at its command controlled or guarded all the trees and plants" (Ibid: 40).

The fourth account reads:

"The majority of the Parry Islanders, however, have never seen the Midewiwin rites. They believe that the society existed primarily for witchcraft and that the mede' was above all else a sorcerer. Any manido, therefore, that the mede' claimed to employ was by that fact evil. Then Christianity, with its teaching of the "fall of man" through the serpent, put its seal on this interpretation, which is the one most prevalent today on Parry Island" (Ibid: 40).

Discussion

The first account speaks of the chief water-serpent who is the enemy of man and thunder. The fourth account explains why the evil/malevolent serpent belief has become entrenched in the culture. The second account shows a belief in a benevolent serpent. The third account also speaks of a good serpent whose domain is the Underworld which is under the ground versus under the water. The different accounts show a wide range of beliefs in a super/chief serpent spirit. Most talk about a single serpent but the second account identifies two serpents (male and female). This account placed deer like horns on the snake and brought in two colors, black and white.

Some people adopted the imported Euro-American Christian beliefs and integrated them into their old beliefs. Other people continued with their old beliefs. What existed was a common belief in a chief serpent spirit that was expressed in different ways. Jones' consistent hypothesis is debunked as the different beliefs in the same serpent spirit show wide diversity. The Gages' diversity theory is upheld.

Ceremony – The Sun Disk Rite

This is an Iroquois Long House ceremony described by anthropologist Frank Speck in his book *Midwinter Rites of the Cayuga Long House* (1949):

"In the Sun Ceremony, an appeal to the sun and thanks for his beneficence of warmth and stimulation of plant growth are voiced by the man singing the Adowa, or individual thanksgiving song. The procedure followed by the performer of the Adowa rite is to chant the song while walking slowly forth toward the center of the floor, generally with his hands folded behind him, repeating it several times if he desires, until he has covered enough space to be in full view of the assembled company. Then he ceases his song to pray aloud and to express his thanks for blessings, general or specific, as they occur to his mind. His short prayer concluded, he resumes his chant, advancing while singing, to another spot, at which he pauses and prays again. The Adowa is impressive. There is no rule governing the number of repetitions of the chant or the distance around the floor covered; all is a matter of option with the performer."

"In the Sun Ceremony the Adowa is conducted with a specific feature—a symbolical staff held in the hand of the prayer-maker, representing the luminary toward which spiritual attention is directed. This symbol of the Sun—a hardwood (oak) disk 6 inches in diameter and ½ inch thick, bearing in red and yellow paint the simple lineaments of the human face, as shown in Plate X E. Another specimen has on the opposite side of the disk a red circle in the center with rays reaching to the margin (Pl. XII B). The disk in use at the Sour Springs Lone[g] House is surrounded by a rim of 12 light gray and white feathers, those of a bird of prey only, inserted in holes, and is set upon a round staff 3 feet in length and ¾ inch in diameter. The Sun-disk is held in the right hand of the first worshipper to chant his Adowa, and is elevated while he chants and prays. Upon resuming his seat the singer passes the staff to the worshipper at his side and it is passed on around the Long House from east to west, and on again, in the direction of the sun's course. This singer uses it in the same way, should he desire to chant; if not he passes it to his neighbor. So it passes around the room" (Speck 1949: 137-8).

Sour Springs Long House: back of disk has a small circle with sixteen spokes radiating out and nine birds of prey feathers. (Description based on illustration and photograph of a former sun disk in the Museum of the American Indian – see Speck 1949: fig.10 & plate X). The one Speck described was the current one in use when he visited.

Onondaga Long House, Six Nations Reserve: back of disk has a medium size circle with eight lines radiating out and fluffy white feathers around the entire perimeter of the disk (Description from a photograph – see Speck 1949: plate XII).

Discussion

The Iroquois Sun Ceremony was described because it had consistent sets that Jones indicated would show up in a ceremony. In the first part the performer is governed by basic moves and a specific chant that is repeated but is not regulated as to the number of moves or times the chant is sung. In the second part a Sun disk symbol is used. Speck pointed out and showed in photographs that each long house had its own version of the sun disk. These disks varied in number of spokes and number of feathers. He went on to point out not every worshipper got up and sang.

Among the inconsistencies there were consistencies. Jones' consistent sets hypothesis is upheld and debunked as is the Gages diversity theory due to the fact that the Sun Ceremony integrated consistent parts and inconsistent parts.

Conclusion

The challenge was used to test "Diversity versus Consistent Sets" in regards to ceremony and agrarian field clearing piles. Who was right? Jones' diversity hypothesis for groups of multiple agrarian stone piles is debunked due to the fact they exhibit all the same design.

Jones' "consistent sets" hypothesis implies it can be used to identify Native American ceremonial sites. There are consistent sets (parts) to every ceremony. Where his hypothesis breaks down is in

the parts that permit individual creativity, hence inconsistency (i.e. diversity). This expressed itself in two sun disks with different numbers of spokes and feathers. In addition, though the feathers must come from a bird of prey, and they can be short fluffy under feathers or long wing feathers. This diversity debunks Jones' consistent sets hypothesis.

The Gages say their diversity theory will identify Native American ceremonial sites. Their theory does not imply unlimited designs and structures. It works with a standard set of designs and structures. Based on field documentation, these groups of stone piles exhibit repeated use of specific designs in different combinations. Therefore, they incorporate inconsistency and consistency seen in the historical records with ceremonies. Furthermore, it works on the premise of an annual ceremony repeatedly held on the same site.

Diversity is based on many variable factors: (1) How many people making stone offerings made a difference on how many stones are in a cairn, similar to the trailside cairns; (2) Individual cairn preferences i.e. two stones, three stones, etc. equate with varied number of feathers on a sun disk; (3) Purpose of the cairn; (4) Number of cairns built per annual ceremony; (5) Number of people attending a ceremony; (6) Number of years a ceremony was held; (7) Type of ceremony. The variables have to be factored in. A ceremony like the Sun Disk Ceremony leaves very little physical traces, whereas ceremonies held at stone cairn sites leave numerous physical traces. Those traces were continually altered year after year creating their own diversity. In reality, there should be *no consistent sets* of cairns. They should show *diversity*.

On top of the above and of specific interest to this challenge are northeastern trailside cairns. They utilized different offerings and structures for the same purpose. This shows a specific ritual can be expressed in diverse ways. This adds another layer to the diversity of cairn sites. There is sufficient evidence to support the Gages' diversity theory. Diversity is the key component to identifying Native American ceremonial sites.

Independent Findings

After this manuscript was submitted for publication, it came to the author's attention that three researchers independently came to the conclusion that the diversity of stone structures, their abundance, and their spatial distribution (random)³ at a Native American pre-contact site were characteristic of ceremonialism. Christopher Morgan Ph.D., Robert Bettinger Ph.D., and Mark Giambastiana, conducted a professional archaeological survey of a site located at 3,609 meters (11,840 feet) in elevation in the White Mountains of California (Morgan *et al.* 2014). The site

³ The authors never explicitly describe the distribution of the structures using the term "random" but this finding can be determined through examining the site map. The authors did note in their analysis the absence of spatial organization in terms of the site not matching the spatial distribution of known sites like game drives, hunting ambushes, and villages.

contained 216 stone structures and additional features, the majority of which were concentrated in an area covering 0.7 hectares (1.7 acres).

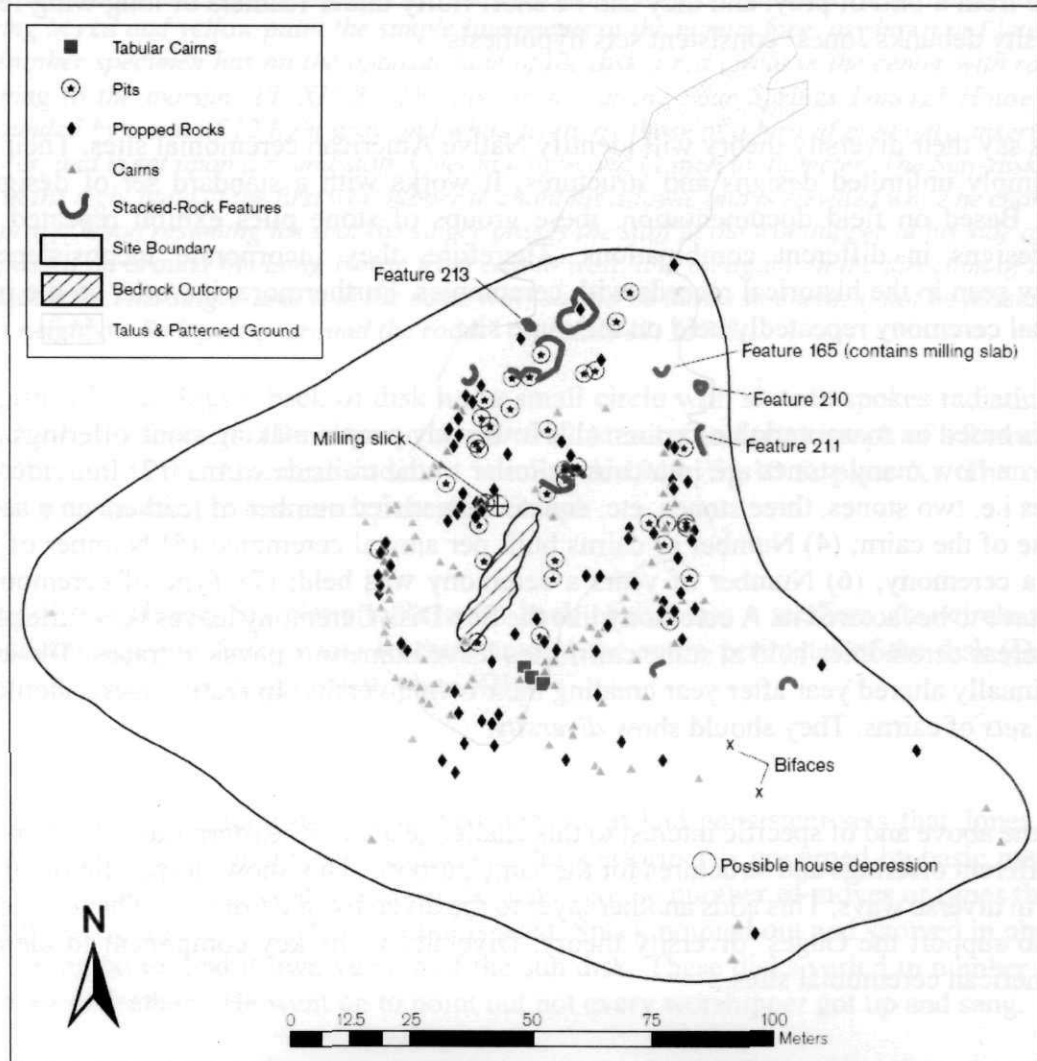


Figure 6. Map of the stone structure site in the White Mountains of California. Courtesy of Malki Museum & reprinted with permission of the authors.

The site was distributed around an exposed bedrock outcrop at the top of a knoll. The outcrop was surrounded by broken stone (talus) which spread down slope. The site's natural and man-made features were carefully mapped (Figure 6). They documented two different types of cairns, propped boulders, pits (man-made depressions in the talus), walls described as "circular, U-shaped, J-shaped, linear or amorphous arrangements" (Morgan *et al.* 2014: 167), and rings. Only three artifacts, all pre-European contact, were found. One depression interpreted as a potential Native American house depression was found away from the concentration of stone structures. Lichenometric study of ten structures indicated a construction date between "A.D. 1510 and A.D. 1760" (*Ibid*: 170), which predates Euro-American activity in the region.

The authors compared the stone structures and spatial layout of the site to known village sites and hunting sites in the northern California and Nevada region. High altitude villages had stone ring house foundations, middens, and lithic chipping debris. The absence of middens and lithic artifacts eliminated a habitation site explanation. Hunting sites made use of pits, shaped walls, and cairns to create a game drive and ambush point. The layout of the site did not meet the criteria for a game drive or hunting ambush. They also evaluated the potential of 19th century sheep herding related structures. Only one structure resembled documented shepherd structures. The utilitarian explanations were eliminated.

The authors' review of the ethnographical and archaeological literature found these types of structures were used by neighboring cultural groups for ceremonial purposes and were associated in some cases with vision quest rituals. Although there was no evidence of vision quest activity at this site, they argued the site was used for unknown ceremonial purposes. They noted that mountains and higher altitude locations were associated with or considered sources of *puha* (spiritual power). They also pointed out that sky world was a significant part of regional Native American cosmologies. Pulling together all these different lines of analysis and inquiry, they concluded:

"In summary, the quantity, diversity of types, and distribution of features at the Campo Borrego site argue strongly for a previously-unrecognized ceremonial component" (Morgan et al. 2014: 173).

The authors of the study independently came to the same conclusion as the Gages: Diversity of structures with random spatial layout ARE characteristics of Native American ceremonial sites.

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