# The Hawaiian Petroglyphs: Lessons from Incipient Levels of Pictographic Writing

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**Abstract**

*This paper demonstrates that the Hawaiian petroglyphs are an incipient level of pictographic writing with reference to Native American pictography, Egyptian hieroglyphs, Chinese and Japanese logography, and rongorongo. Ethnographic data show a developmental sequence from pictograph to logograph, then syllabography after the rebus principle is used to create phonetic elements. Representations of events from prehistory, such as the pictograph of the decapitated Kamalalawalu in Hawai`i, can be understood as pictographic writing by ethnographic analogy to indigenous peoples of the New World. Copperplate lettering is important evidence because Native Hawaiians committed it to lava rock in the same manner and spatial distribution as the petroglyphs themselves.*

**Key words:** pictographic writing, Hawaiian petroglyphs, *rongorongo*

To write is to scratch (Antonsen 1991:140), as are the incised, pecked and abraded petroglyphs of Hawai`i (Cox and Stasack 1970:38), and we write on paper, which is the papyrus of Egypt. This paper looks to the emergent era of Egyptian hieroglyphs in order to identify and understand the incipient level of pictographic writing found in Hawai`i.

By ethnographic analogy to *rongorongo*, the Polynesian writing system that developed from the rock art of Easter Island (McLaughlin 2004), it can be argued that the rock art of Hawai`i exhibits many of the characteristics of an incipient level of pictographic writing (Reichl 2008). This paper compares the Hawaiian petroglyphs to the earliest levels of Egyptian hieroglyphs in order to provide context for the proposition that the Hawaiian petroglyphs can be viewed as the early stage of a pictographic writing system. Such a system was developing and would have developed further if a phonetic system had not been introduced by Westerners.

This paper responds to the admonishment of Lewis-Williams (2002:8) toward "a radical re-thinking of what we already know," rather than "yet more data," in our study of incipient writing systems. I argue that we have overlooked an important clue: the existence of copperplate lettering.

## Ethnographic Context

"[H]e holds in one hand a paper on which is depicted one of his [stories], while in the other is the pointer with which he explains its meaning" (Mooney 1965:168). This is an ethnographic account of how people read pictographic writing, the act of reading a picture. The reference is to Asatitola, a Kiowa native American, in about 1890: "[h]is intellectual bent is further shown by the fact that he has invented a system of ideographic writing which is nearly as distinct from *the ordinary Indian pictographic system* as it is from our own alphabet" (Mooney 1965:168, emphasis mine). The Kiowa "produced sophisticated pictographs" (Gwynne 2010:216), called calendars in the literature, to record events during the latter half of the 1800s (Mooney 1965:163-71). Such evidence must be added to that of Kenneth Emory who wrote of "the road to writing through the development of symbols" (Cox and Stasack 1970: Foreword), and John F.G. Stokes (1908:126) who wrote that "it is not yet understood if the…Hawaiian petroglyphs are…a written language," making clear the possibility. David Diringer (1962) provides the theoretical underpinnings with his concept of embryo-writing, and validates a premodern but widespread acceptance of the existence of pictographic writing among indigenous peoples, an acceptance that runs counter to contemporary ideas.

As Diringer (1962:30) puts it, in such pictographic writing "the nouns are present, but…verbs, adverbs and prepositions are lacking." Additionally, such writing is not a phonetic representation of words in speech, but a representation of the thing which is the primary referent, and so there may be different ways of reading the glyph.

Can the Hawaiian petroglyphs be seen as an incipient level of writing? The key to answering that question lies in the riddle of the copperplate lettering. We see that Hawaiians copied Western lettering and located such incised copies in the same areas as they did petroglyphs, placing like with like. Copperplate lettering was the "final phase in petroglyph making," using as templates the "early printed material brought to the islands by missionaries" (Lee and Stasack 1999:11). While there were a few attempts at cursive script, most of this is block lettered, from angles suggesting the letters were seen by people gathered around a book, including the mirror image printing seen by one standing in front of the book holder. Hawaiians incised these Roman letters in places where conventional petroglyphs were already incised, putting this new writing with their own examples.

Cox and Stasack (1970:52) point out that petroglyph activity ended in the 1860s. Before it ended, ships, anchors, guns, and various modern items were incised, increasing the lexicon. This is evidence that the making of petroglyphs was a living tradition, evolving to meet changing times until that was no longer possible due to the appearance of a phonetic system, population collapse, and severe acculturation.

Of the petroglyphs in Hawai`i, "[t]he fact that the human figures, symbols, and cryptic marks have so much consistency, both over a wide area and over a considerable period of time, is the best proof that they can not be casual doodles or frivolous drawings" (Cox and Stasack 1970:59). In other words, they had convention, significant because the definition of writing is human intercommunication by means of conventional, visible marks. Can we deny that the petroglyphs are accounts of Hawaiian life? "According to Hawaiian tradition the figure at the water's edge at Kahaluu, Kona, Hawaii, which is under water at high tide, would have a date of about 1600. It is said to represent the headless body of Kamalalawalu who was killed in battle by Lonoikamakahiki and sacrificed at the *heiau* of Keeku, which is nearby" (Cox and Stasack 1970:54). This petroglyph clearly represented, illustrated and was the writing of, a story.

**Two Sociocultural Settings**

The era during which the Egyptian hieroglyphs were in their incipient level of development is from late in the Predynastic through the Early Dynastic Periods (*c*. 3100 – 2650 BC), although the "inscriptions in question are too brief and limited in content to allow any meaningful analysis" (Davies 1987:9). During this time the demotic and hieratic phonetic varieties, called the cursive scripts because they abbreviate the original picture, did not yet exist. As a result only the hieroglyphs were used. Nonetheless, we know now that from almost the beginning, the rebus principle had been used to abstract signs from their meaning and use them for their sound value alone. Davies calls this the process in which "one thing is shown, and another meant" (1987:31). In American English today, the ubiquitous '4 Sale' sign is an example of rebus writing. The sign 4 represents not meaning but sound, because it is homophonous with the English word 'for.' In cyberspace h8 is used to write hate, with the sound from 'eight' standing in for the 'ate' in hate. These rebus representations come easily to anyone with knowledge of the spoken language and rudimentary writing ability, and we can expect similar creations to be a part of pictography. Mary de Laat (2009) suggests the readings of *rongorongo* glyphs come from words in the spoken language for the objects depicted.

In response to those who say the Hawaiian petroglyphs are exclusively art, not writing, it should be pointed out that the design of Egyptian hieroglyphic writing "simultaneously created a new style of art" (Fischer 1991:66). The idea of "embryo-writing" is Diringer's way of showing continuity between early pictographic writing and later phonetic scripts (1962:27-9; see also Senner 1991:2). Davies (1987:14) points out that, in the case of early Egyptian writing, the writing is itself interrelated with art because "the hieroglyphs are themselves miniature pictures." The purpose of such art and writing was to immortalize, to "make to live" for all time the thing represented: to make manifest the object. There is artistic convention in the Hawaiian petroglyphs (see Cox and Stasack 1970:53, 59).

*The Book of the Dead* has been an important feature of Egyptian literature throughout its history, and derives from "an infinitely remote and primeval time" (Budge 1967: xii), from prehistory as oral myth. The earliest versions of *The Book of the Dead*, which had been revised as early as the fifth dynasty, were "always written in hieroglyphics" (Budge 1967: ix). Later versions used the hieroglyphs alongside the hieratic script, which is a transcription of the hieroglyphs that facilitates the writing of them.

In its full development, Egyptian writing was a mixed system, and interesting to compare to the Japanese system today. That is, there are signs which provide meaning, although they might be read in different ways, and signs which are phonograms, read not for meaning but phonetic representations of sounds in the spoken language. For Egyptian the hieroglyphs were read for meaning, but early on they also began to be used for their sound value, and so determinatives indicated whether a sign was being used for its meaning or its phonetic value. The cursive and semi-cursive scripts, called demotic and hieratic, were not simple phonetic rendering of speech. Instead they were essentially transcriptions of the hieroglyphs that preserved their structure as a writing system. For Japanese today the Sino-Japanese characters are read for meaning and have multiple readings, while the cursive scripts, *hiragana* and *katakana*, are read phonetically without variation. It is extremely interesting that both Japan and Egypt created not one but two sets each of phonetic scripts: written Japanese includes both the *hiragana* and the *katakana* while Egyptian includes the demotic and hieratic varieties of phonetic writing, both in addition to logographs. For Japanese, there is a logic to current use: the *katakana* are reserved for the writing of foreign words and sounds, while *hiragana* are used to write Japanese words, with some exceptions. There is also an historic context.

In the case of the writing system of Egypt, however, it is thought that for centuries the logographs stood alone before any cursive or phonetic scripts were developed. The Chinese use a set of characters that are understood to be read for their sound value alone in order to write foreign names, etc. How soon did rebus writing commence? We probably can only estimate this to within several hundreds of years.

Davies (1987:35) tells us that most early hieroglyphic inscriptions are ambiguous, because the system "had yet to stabilize into its standard…form." It contained, for example, some hieroglyphs that were subsequently abandoned. And, there are examples of crude hieroglyphic writing done by those still learning (Davies 1987:35). We can predict the same for Hawai`i and the petroglyphs.

It is worth examining the two systems in the contemporary world that use logography: Chinese and Japanese. The system originated with the former, and Chinese writing fits well with a spoken language of monosyllabic morphemes and little inflection. In the case of Japanese however, the polysyllabic morphemes and productive morphology fit poorly with ideographs because the writing of ideographs cannot show inflection. As a result, Japanese use phonetic sets to write word endings and other inflection, and write only nouns and the roots of verbs with ideographs, referred to as Sino-Japanese characters. The phonetic sets are used to indicate levels of formality, verb tenses, the active and passive voice, and other such linguistic features.

There are multiple readings of Japanese characters, called forth in different written contexts: traditional Japanese words provide readings when the character is not grouped with other characters, and Chinese pronunciations provide readings when the character is used in combination with others, often in words that were borrowed from Chinese. However, the cursive scripts, called syllabaries because they each write a syllable, have only one reading. The character for ocean, for example, may be read as *umi* (the traditional Japanese word for ocean) or *kai* (the borrowed Chinese pronunciation for ocean, such as in the word *kaisui*, seawater). When either of those words is written in *hiragana* or *katakana* however, there is only one possible reading. So it was with the Egyptian hieroglyphs, which correspond in function to the Sino-Japanese characters. The cursive scripts were created as were the two Japanese syllabaries, but the Japanese syllabaries strip meaning away to become purely phonetic in their reading, while the demotic and hieratic scripts "structurally…remained fairly close to the hieroglyphic model" (Coulmas 2003:170). Interestingly, one of the early scholars of the hieroglyphs drew on analogy to the Chinese writing system in order to explore hypotheses (Davies 1987:52).

This means that the incipient level of pictographic writing can quickly include phonetic elements, and that the pictograph or logograph can be read or pronounced in multiple ways. The picture of a couch might be read as sofa, davenport, couch or etc, while the meaning, i.e., the primary referent which is to say the padded object we sit on, is unchanged.

Knowing this, the implications for the Hawaiian petroglyphs are clear: we predict primarily pictographic, perhaps logographic phenomena, and predict in addition limited phonetic elements. That is, we predict logographs, and possibly syllabograms. So, for example, the pictograph of turtle, *honu*, could be used to write earth, *honua*, if the *a* is represented by a second picture, just as the picture for sun, *ra*, was quickly used to represent that phonetic string in the writing of other words in hieroglyphics. We also predict variability in 'readings' of each glyph, while rough meaning is maintained.

Another lesson from the Egyptians has to do with literacy in societies with incipient levels of pictographic writing. Davies (1987:27) estimates that only one percent of the population would have been literate "during most of the Pharaonic Period." The corresponding time period for the Hawaiian petroglyphs is the centuries after arrival, about 1000 AD, even though the motifs and technique predate arrival in the Hawaiian islands. Priests and healers are likely the only ones who advance the system, while Hawaiians not of the *ali`i* class were nonetheless capable of using pictographs to tell stories. The Kiowa Asatitola was a "priest and seer" (Mooney 1965:168).

During the writing-formative period both Egypt and Hawai`i developed in the absence of an acculturative influence. Each was without any strong sociocultural influence from the outside that could challenge their cultural accomplishments. In the absence of the stimulus diffusion of a phonetic system, and because their pictographs were meaningful and aesthetically pleasing to them, they slowly went through the stages of phoneticization, using rebus writing, that ultimately led to today's alphabets. The first alphabet, Semitic, was probably based on the phonetic elements, i.e., those keys to pronunciation, that appear in the Egyptian hieroglyphs (Coulmas 2003:194).

There is criticism of those writing systems today that contain logographic elements, those modern descendants of their pictographic origins. Davies (1987:35) speaks of the misplaced but "assumed superiority of alphabetic scripts over all others," and suggests that may not always be the case. In fact, in various times and places, pictographic writing was seen as superior to phonetic writing, just not in the West. This author was astounded to realize that scholars who insist Hawaiians had no writing were unable to offer a definition of writing that includes logographic/ideographic systems such as Chinese.

The driving force in the evolution of writing systems is thought to be parsimony. Each generation is less willing to learn thousands of complicated pictographs and so the marks used to remind readers of their pronunciation become the primary element. This assertion is unproven and flies in the face of the modern Chinese educational system, but appears to be true in the case of the West, including Japanese and Chinese diasporas. Few Chinese Americans or Japanese Americans are proficient with the writing systems of their ancestors.

**The Polygenetic Origins of Writing**

The origins of writing are not monogenetic, at least not the origins of logographic writing, although the case for monogeneticism may be made in limited ways for the advent of phonetic systems (Senner 1991:2). It now appears clear, having removed some of the haze of ethnocentrism from our view, that writing is an inevitable product of increasing cultural complexity, and that any people will progress through the same stages as they develop socioculturally. Early accounts held that writing was an accoutrement of civilization, despite the glaring examples of countries such as fourth century Japan which lacked writing of any kind, and the pictographic writing of indigenous peoples under colonial rule. Taking specifics from typology of sociopolitical development, the roots of writing may lie in the cave art of foragers, i.e., hunters and gatherers, but florescence into pictographic, then logographic writing systems requires more than the tribal level of sociopolitical development, and probably requires the chiefdom level, in which genealogy, the subject of most of the earliest systems of writing, becomes increasingly important. This is not inevitable, as the Japanese case suggests, but in most cases as a people elaborates its culture over time, writing will come about as an independent invention, along with "urbanization, division of labour, and a surplus economy" (Coulmas 2003:192). A concern with genealogy and a surplus of resources would probably be sufficient.

However, "conditions surrounding the emergence of scripts are far more complex than the earliest historical records indicate" (Senner 1991:9). It appears that the Greeks had no strong need for writing, and may have used it primarily to show off. However, people have pride in genealogy and showing off, i.e., competition among clans, may be of singular importance as historians of Easter Island have shown.

This has been called the unidirectional theory of writing development: from pictograph to logograph, and then, after the rebus jump to phonetic representation, from syllabograph to alphabetograph (Senner 1991:13). People have never developed a pictographic system when already in possession of a phonetic one. Of the earliest writing in Mesoamerica, "its nature and the history of its development parallel in important respects those of the early systems of writing in the Old World" (Lounsbury 1991:203). These are pictographic origins, logographic development, and then phonetic elements brought in using a rebus principle.

For our purposes, the power to realize large construction projects, such as was the case in Egypt, is politically equivalent to the power to realize the construction of an ocean-going sailing canoe, provision it, and manage it for a time period of uncertain length, then provide political organization for a group of settlers.

In either case, the leader must have absolute decision-making power and the power of life and death over underlings. This equivalence might portend further parallels in the area of writing.

The reading of *rongorongo* may have been accomplished (de Laat 2009). Even though "it is difficult to confirm at the moment that the suggested approach indeed allows us to achieve the long awaited phonetic decipherment of *rongorongo*" (Horley 2009:167), there is less and less doubt that *rongorongo* is writing, so the independent invention of writing can also be seen in the Pacific region, and more specifically, Polynesia. "Monogeneticism is…no longer considered a viable theory" (Coulmas 2003:192). Notice that Mary de Laat (2009) is not speaking of a mixed system of ideographs and phonetic elements, but a primarily phonetic one – however the disyllabic and dedicated glyphs do suggest some ideography. In contrast, even after millennia the Egyptians continued to use some logographs for their meaning and not for their sound value. If true then *rongorongo* passed through pictographic and logographic stages, went through a mixed system period, and then ended by being a system of purely phonetic syllabographs, all in an alarmingly short period by comparative standards. One would expect greater simplification of the glyphs: if each glyph expresses merely a single sound, why must one write out a whole picture? In Rapa Nui, a pictographic system was quickly made into a phonetic one, strengthening the idea that much of this development took place in early contact times after stimulus diffusion.

Looking at the origin and development of writing, however, the natural development of a writing system from pictographic, logographic, and then on to a phonetic system probably requires one to two millennia. Few societies have enjoyed that much time without the emergence of an external acculturative influence. Egypt did so because of its extreme antiquity. Hawaii did so because of its geographical isolation.

Because of the thousands of years required, and because people do not know what it is that they are in fact creating, most peoples of the world have given up their attempts at pictographic writing when contacted by groups that already have a phonetic system. In this way they skip a stage that involves hundreds of years of motif creation. The "attested development…is from a logographic to a syllabic stage" (Gelb 1963:79). That is, from representation of whole words in the language, logographs, themselves based on pictographs which represent the objects themselves, to a representation of the sounds in syllables of the language. In the colonialist world, the colonial power arrived with a phonetic system, excepting Japan as colonial power with its logographic-based system. The colonial period interrupted the development of indigenous pictographic systems worldwide, including among Amerindians and Hawaiians (Reichl 2008). "Picture-writings from prehistoric times have been found throughout the world" (Diringer 1962:30), and scholars of writing see them as part of the process of the development of writing.

The experience with writing of the Cherokee has been widely discussed (Fischer 1991:66; Gelb 1963:206 – 7; Coulmas 2003:69). According to Gelb (1963:206), Sequoyah saw English writing and understood it in principle, although he could neither read it nor speak English. He worked to develop first a pictographic system, building on indigenous motifs, then discarded that idea in favor of a phonetic syllabary after realizing more fully how English script worked. Is this also the history of *rongorongo*? Although it is the best known, Cherokee is prototypical of many other Amerindian systems such as Cree in which indigenous pictographic development, probably including logographic uses, was replaced after contact by a phonetic system (Coulmas 2003:69). We are reminded of Mooney's (1965:168) mention in passing of the "ordinary Indian pictographic system," and that of Asatitola. Based on the sign language of the tribes of the plains, it features pictographs that represent signed gestures. In addition, "a part is frequently put for the whole, and numerous…auxiliary characters are added, until the result is a well-developed germ of an alphabetic system" (Mooney 1965:168). After teaching his sons the system, Asatitola used it to communicate with them while they were away in a religious boarding school, via pictographic letters. It is worth noting that Asatitola used dotted lines to show progression in his story, recalling the lines of marching men in the Hawaiian petroglyphs (see Lee and Stasack 1999:22).

Speaking of the incipient level of Chinese writing, and making clear that "one would expect the earliest writing to be pictographic in nature," Keightley (1991:188) affirms that "a use of pictures is…at the origin of writing systems throughout the world," even if we can never be sure whether or not a pictograph has acquired phonetic expression. Thus, "'pictograph' can be an ambiguous analytical category" (Keightley 1991:188). For this reason it is difficult to estimate the beginnings of rebus writing for any particular writing system.

Gelb (1963:29) describes native American rock art on the shore of Lake Superior as the record of an expedition. Like many depictions found in Hawaiian petroglyphs, it is not a depiction of expedition in the abstract.

Instead it is the story of a particular expedition, and was used in the telling of that story. The obvious parallel in Hawai`i is the pictograph of the headless Kamalalawalu (Cox and Stasack 1970:54) mentioned earlier, still telling a story.

We can sum up as follows: there is no reason not to expect the development of a pictographic system among the Hawaiians, and every reason to expect one, given their isolation from the world's phonetic systems and their increasing concern with genealogy. Just before contact times they achieved the sociopolitical level of chiefdom, which is not significantly different from that of a kingdom (see Buck 2009:93), and is attendant to writing in most societies.

Many peoples of the world have developed systems of writing, including Polynesians, when isolated by distance or antiquity. There is also no reason to expect the early development of writing to survive culture contact with an acculturative power, one that has a phonetic system of writing. As such early systems were lost among native Americans (Gelb 1962:79), so it was with Hawaiians. For purposes of comparison with Egyptian hieroglyphs, it is sufficient to point out that the origins of Egyptian pictographic writing were indigenous, just as were those of Easter Islanders (McLaughlin 2004), and if we accept it, those of Hawaiians. Logographs have been borrowed, as Japanese did from Chinese, but pictographs are not known to have been borrowed, even between Egypt and Sumeria, and even when both were concurrently constructing logographic scripts (see Coulmas 2003).

**Lessons from Other Systems of Writing**

Sumerian cuneiform is credited with being the world's oldest writing system, even though it is contemporaneous, have begun just slightly earlier, with Egyptian hieroglyphs. Cuneiform was in evidence "at the end of the fourth millennium B. C." (Schmandt-Besserat 1991:27). Precursors of cuneiform include two separate systems of accounting, called plain and complex tokens. Importantly, "each type of token gave rise to a different type of sign in the Sumerian script" (Schmandt-Besserat 1991:27). Both plain and complex tokens were perpetuated "by pictographs in the Sumerian script expressing common commodities" (Schmandt-Besserat 1991:29). As a result of this insight, we can predict that incipient Hawaiian pictographs might have precursors in rock art as well as in the cupules called poho clusters (Lee and Stasack 1999:64).

The need for a system of accounting among the Sumerians then facilitated writing. It is said that "an economy involving the planning of subsistence over the seasons would require record keeping" (Schmandt-Besserat 1991:30). This need for accounting may be significantly different than the case of Hawai`i. In Sumeria, both plain and complex tokens were "part of the same mnemonic device used to organize and store economic data" (Schmandt-Besserat 1991:33). Complex tokens have closely related motifs of animals, later incised as Sumerian pictographs. The two parts of the process are (1) tokens "used to count different merchandise", and (2) "the introduction of abstract numerals" (Schmandt-Besserat 1991:39). The cupules referred to as poho clusters might be seen as counters, and the circles around them, abstract numerals (see Cox and Stasack 1970:53; Lee and Stasack 1999:64).

It is clear that the earliest signs used by the Sumerians were pictographic. They were easily associated with the object or animal they represented. Over time, as the motifs came to be drawn on clay with a stylus, the pictures were abstracted and stylized, eliminating most curved lines and details. "The visual arrangement of signs…was not standardized until late…" (Green 1991:49). In fact, "throughout the history of cuneiform, sign sequence…was irregularly written" (Green 1991:50). Thus we can not expect that incipient levels of Hawaiian writing would be written regularly.

Many of the Hawaiian petroglyph sites are grouped along political borders, of *ahupua`a* (Reichl 2008:121). The earliest writing of Old Irish, called ogham characters, is often found on stones that "were boundary markers" (Lehmann 1991:160). This boundary location is an important aspect of Hawaiian petroglyphs, and should be the focus of further analysis.

**Rock Art, Altered States of Consciousness and Pictography**

The literature of early rock art outside of Hawaii contains significant ethnographic divergence from the Hawaiian experience, due to the altered states of consciousness, sometimes enabled by a hallucinogenic pharmacology, employed by shamans of the Old and New Worlds, and the resultant entoptic phenomena, leading to patterns in the lines and motifs of the rock art itself (Lewis-Williams 2002:127; Rudgley 1993:20-1).

In other words, much of Old and New World rock art was produced by shamans while they experienced altered states of consciousness, sometimes with the use of hallucinogens (Harner 1973). The resultant types of drawings, essentially congruent with those identified as entoptic by Lewis-Williams (2002:152), include from Rudgley (1993:17) the following:

1. cross-hatching
2. parallel lines
3. groups of dots
4. zigzag lines
5. nested curved lines
6. meandering lines

These in fact, perhaps due to coincidence, can be seen employed in various writing systems. The zigzag lines are a perfect match with the picture of water in Egyptian hieroglyphs, the n in the ubiquitous *seneb,* meaning health (Zauzich 1992:16). (We don't actually know the vowels of that word because Egyptians wrote only consonants.) The nested curves are very similar to the character for river in Sino-Japanese writing, and a group of dots is used to represent the radical for water. Parallel lines find use in the writing of numbers in several systems.

The ethnographic divergence comes from the fact that that Hawaiians had a different healing tradition (see Gutmanis 1976), and their society lacked hallucinogens of any sort, although no society lacks the ability to reach hallucinations or altered states through meditation, stress or regular repetitive movement. Kava, a mild narcotic, is thought to be the only consciousness-altering substance used by the Hawaiians (Malo 1951), but has no hallucinogenic properties.

The data from outside of Hawaii indicate that the religious context, and that of healing, are the most likely to incubate and give birth to writing, regardless of whether altered states of consciousness are achieved. And, in fact, when 'life is in the mouth, death is in the mouth,' the exact recitation of a chant is critical. In this situation, memory is pushed to human limits, and people begin to create mnemonic devices, such as embryonic writing.

As in Likeke McBride (1997:23), "Kapi`olani…trudged…to the summit of Kilauea where the volcanic fires flamed unceasingly. A priestess of Pele confronted her there with a piece of *tapa* from which she began to recite the edicts of the volcano goddess. When Kapi`olani in turn looked at the paper the priestess held and couldn't comprehend the symbols, she denounced it as a fraud, and went on to defy Pele and declare herself a Christian." This account speaks volumes.

There may be further evidence of embryonic writing in the healing arts of Hawaii. A casebook of healing events written by a "medical *kahuna*" in the 1870s includes stylized drawings of the patient, a human figure (Gutmanis 1976:159). In addition, the figure of a human being was incised onto the ground, then the outline filled with pebbles to represent the innards for purposes of teaching to heal. These are the steps toward writing that any people will take, and sheds considerable doubt on the Hawaiian exceptionalism thesis: we can not say that Hawaiians are not a literate but an oral people.

**Awareness and Systematization of Writing**

It seems clear that in its earliest stages, societies that develop pictographic writing are initially unaware that they are doing so. They may think of their activity as art or the keeping of records. Nonetheless, the motifs that they develop by stylization are an essential part of the process of creation of pictographic writing. Pictographic writing requires a lexicon: the abstracted shapes of objects important in that culture. "The idea of writing emerged bit by bit, only gradually revealing its potential" (Coulmas 2003:191). Thus we can only expect contemporary or historic Hawaiians to have a developing awareness of what writing was and what it would ultimately be. Initially it would be thought of as art. While unable to anticipate the ultimate forms that writing takes, as we are today in fact given the radical changes in writing in the online world, Hawaiians did recognize another type of writing when they saw it, an assertion that is made clear by the fact of copperplate lettering.

Early levels of pictographic writing do not look like writing because they lack systematization. In reference to early Chinese writing, Keightley (1991:189) notes that "scribes might spell the same word with a variety of different…graphs, a variety of different 'rebuses'." Incipient pictographic writing may not look like writing for another reason: early on the motifs are stylized until they become easily recognizable. Fischer (1991:66) describes the stylization of the motif known as the swaybacked falcon over time: it becomes more abstract.

The existence of boustrophedan (as the ox plows) writing means that the same piece of writing contains graphs that are oriented in what we would consider to be upside down orientation. The standpoint of the reader is not systematized, so that the reader is expected to read from any and all angles. This suggests that the Hawaiian petroglyphs can not be ruled out as writing because they are variously oriented. In fact, as the example of Asatitola suggests, the pictographs would have been pointed to by the teller of the story, as he or she walked over and among them, providing listeners with the order as the story is told. It is now clear that picture recitation of stories is an ancient practice, dating to at least 325 B.C. (Mair 1988:17), and universal in scope (Mair 1988).

It is clear that our method of reading, top to bottom, left to right, is a cultural product. Other ways exist. In fact, early writing often relies on knowledge of the order that is learned separately. In other words, the order is not systematized. Friedrich (1957:5) writes that order in reading for early systems is "not fixed." For this reason, the random placement of the petroglyphs is not evidence that they were not writing.

Early systems are often attempts to record names and genealogy. The content of *The Book of the Dead* is of interest because it is likely that early uses of pictographic writing cross-culturally have parallels in content. And in fact, Egyptian hieroglyphs certainly and Hawaiian petroglyphs probably center around genealogy, the political leaders, and the gods. Much of their content, however, is history, such as that of Kamalalawalu. On the other hand, the impetus for writing in Sumeria was record keeping: we can expect divergence in purpose.

**Conclusion**

We can see that there are striking similarities between the Hawaiian petroglyphs and early levels of Egyptian hieroglyphics. When we look at what is known of the earliest Egyptian writing, we find a number of points of comparison. First and foremost, we find the creation of a lexicon, essentially pictures that represent a list of nouns, with which culturally appropriate statements can be made. As Diringer (1962:30) explains, "the nouns are present, but…verbs, adverbs and prepositions are lacking." Before the collapse of petroglyph making, new lexical items were being added, such as guns, ships, etc. We note an absence of systematization or order, representing a process in which the order of reading the glyphs is shown by a story teller. We also see ambiguity, varied levels of skill, the evolution of motifs over time and the creation of new motifs to reflect social and cultural change. Finally, we see a level of awareness that can not anticipate the later forms that writing takes: a lack of awareness of writing creation even as writing is being created. In terms of demographics, it is predicted that only a small elite group, of priests and healers, would be involved in advancing the system. However the average Hawaiian would be capable of telling a story with the pictographs. The copperplate lettering shows a partial awareness of writing, a recognition that what Westerners used to make things manifest was in essence the same as what Hawaiians had used to make things manifest.

Finally, if we take a definition of writing, "human intercommunication by means of conventional visible marks" (Gelb 1963:12), and use it to consider Cox and Stasack's (1970:59) assertion in reference to the Hawaiian petroglyphs of "so much consistency, both over a wide area and over a considerable period of time" to be evidence of conventionality, while we reference ethnographic data such as the headless petroglyph of Kamalalawalu, it becomes clear that the petroglyphs were part of pictographic writing, its manner of attendant storytelling illustrated aptly by the Kiowa Asatitola.

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