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KUMU KAHI
FIRST BEGINNINGS:
Astronomy and Cosmic Architecture in Ancient Hawai'i

by

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KUMU KAHI, FIRST BEGINNINGS:
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In this paper we propose to show, evaluate and discuss two types of solar astronomical alignments derived from two separate ancient "chants" that have been preserved through the unwritten memory of the Hula. The hidden meaning (kacna) when resolved gives the instruction for the solar alignments and cosmological purposes in the Hawaiian islands.

These chants, because of their directness and simplicity, would appear to have come from a classic poetic beginning during the formation of a cosmic view adapted to island living. They were also selected for their enormous informational and cultural content which we believe gives an insight of the mind and creative capacity of the ancients.

Later in this paper we will briefly explore this early creative past and outline what we perceive as a master plan designed by the ancient sea chiefs.

The chants belong to a vast collection of oral literature composed for use by Polynesians for many cultural purposes. The Hula, or Dance as reported by Adrienne Kaeppler (1963:3·14), and we paraphrase: has unique, distinguishing characteristics that separate the Hula in Polynesia from the dance in Melanesia and Micronesia. The Hula text or chant was basic, delivered with melody and rhythm, accompanied by a musical instrument and, most of the time, with an interpretive "dance"—more a ritual of expressive movement—with strict, formal and stylized movements. The chants incorporated hidden meanings through metaphor and allusion and could be interpreted on more than one level.

Thus Polynesians began with a unique cultural chant-dance form which was developed by Hawaiians to a high art. We believe the word Hula presently meaning "dance," originally meant "chant," or "Word." Old Hulas refer to "The Voice only the Voice" as the necessary action to gain entrance to the Hula School (Hala Hula). The Hala Hula is the long house that enclosed the school of students, so its other meaning was hidden; so you could say, "The place of the hidden word."

Since the chants we are concerned with here were the sacred, unchanging ones, we will stay within this frame.

The chanted poetry, called mele, had two types: mele oli, poetry not intended for dancing, and mele Hula, poetry meant to be accompanied by stylized dance movement. The two chants are mele oli, the sacred ones used for prayers and spiritual meaning:
voiced without dance, music by percussion. We want to stress this
distinction by quoting Mary Kawena Pukui (P.H.L 1972:201), the
principal Hawaiian authority.

"The hula dancer in training was dedicated to Laka, the hula
Goddess. Hula training was a religious matter. Total
dedication was needed. The student, man or woman, was kapu,
or set apart."

That is, ritual virginity was mandatory while in the Hālau Hula
until after graduation. It was, however, not a permanent kapu.

So the chants were conceived within institutional framework,
a cultural form unique to Hawai'i and Polynesia, which are
further united by one language and culture.

The familiarity of the "Tropics" in astronomy was covered
very well in Ethnoastronomy and Archaeoastronomy in the American
Tropics, edited by Anthony Aveni and Gary Urton who, with others,
were contributors. We only wish to mention what certain aspects
of the investigation have shown to be unusual and specifically
Hawaiian.

It was David Lewis who pointed out the significance of
"place" in the possible cohesion and originality of the art of
thought patterns of these renowned navigators. He said
Polynesians are the only people who travel and experience living
equally on both sides of the equator with named tropical lines. (The Maori of New Zealand behave as if they were still
inside the tropics.)

Another art we discussed was the Polynesian ability to
visualize island groups of unknown extent as if from above at a
great distance, like the Rapa Nui "dream voyage flight." Lewis
contributes this art to the navigators' facility during a voyage
to instantly point to the direction of his home island. Tavake,
the last Polynesian navigator, who died in 1970, used this
ability.

The balance of two territories about the equator, which is a
sewn seam or piko (navel), is like place with two north stars, a
mirror image of events in wind current and time; of uphill and
downhill; of left and right. We find this an extraordinary place
to study; particularly the time reversal, where your calendar of
six months summer, six months winter has to be turned 180 degrees
when you cross the seam.

In Hawai'i, Kane, June 21 summer solstice, rises in the
northeast, and Lono, December 21 winter solstice, rises to the
southeast. In the Marquesas below the equator, Lono, winter
solstice, stays at its geophysical location and rises in the
northeast, and Kane, summer solstice, rises in the southeast. You
see, in forming a concept of time, Polynesians had to reverse the months to give meaning to realities they experienced.

From these thoughts and the descriptions of the Hawaiians, the Tropic bounded world of the Polynesians was not conceived of as a triangle, but a square approximately fifty (50) degrees on a side. Astronomically, it is a mana (life) space: the only space where the zenith and anti-zenith celestial events peculiar to the Tropic world can occur, and beyond whose boundaries shadow (death) is cast. To say it makes a difference if you believe the zenith event is the primal life force would be an understatement.

With this background we go directly to Chant One.

N. B. Emerson (1909:114) and M. Manu (1899 & Ms.).

Emerson gives no title other than Mele (Song), and says it is a "fragment of folklore."

MELE:

1 Hiki mai, hiki mai ka La, e.
2 Aloha wale ka La e kau nei,
3 Aia malalo o Ka-wai-hoa,
4 A ka lalo o Kauai, o Lehua.
5 A Kauai au, ike i ka pali;
6 A Milo-lii pale ka pali loloa.
7 E kolo ana ka pali o Makua-iki;
8 Kolo o Pu-a, he keiki,
9 He keiki makua-ole ke uwe nei.

SONG:

1 It has come, it has come; lo, the Sun!
2 How I love the Sun that's on high;
3 Below it swims Ka-wai-hoa,
4 On the slope inclined from Kaua'i to Lehua.
5 On Kauai met I a pali,
6 A beetling cliff that bounds Milo-lii,
7 And climbing up Makua-iki,
8 Crawling up was Pua, the child,
9 An orphan that weeps out its tale.

A brief explanation per line: [See illustrations, Figures 1 and 2.]

Line 1 The sun is rising, east.
2 The sun rises to its zenith.
3 Ka-wai-hoa, a small peak; zenith on a four-year cycle (plus or minus four from July 13, 1963).
4 We stand on Ni'iha'u island, sun reflected down from Kaua'i island.
5 Look toward Kaua'i; see the cliff.
6 A big cliff that bounds Milo-lii valley.
7 The sun climbing up the cliff named Makua-iki.
8 Pua is Kane-a-Pua, the "Baby Sun."
9 Alone, it takes five days to return, or eventually climb the cliff and return on its six-month trip to the south.
This chant and the tradition of when first used comes from Moses Manu (1899 & Ms.) and is given in "Hula," B. P. Bishop Museum (1980:8,9). It tells the story of the visit to Ni'ihau island and Chief Halali'i by the Hula Goddess Kapo'ula-kina'u, or Kapo for short, in which she takes possession of the chief, causing him to chant. Then, turning to her younger sister, Kewelani, Kapo takes possession of her, also. Kewelani proceeds to chant and dance the mele above. This occurs, of course, on a June 21 solstice rise and the return date of Kane, principal god of procreation, or the return of Lehi'au, the symbolic Kane of the Pele-Hi'iaka Hula cycle.

The cliff Makua-ki, which lies approximately 29 kilometers (18 miles) away, besides being the mountain peak around which the Tropicbirds of Kane circle is also the peak from which Pele's flaming fire sticks are sailed out over the ocean. This ritual was possibly performed to encourage the return of the summer sun, the source of fire.

There is, we believe, another hidden meaning embedded in this chant: a parallel alignment. If we move one mile north from Kiha-Wahine on Ni'ihau island to another platform called Ka-Une-Ka-Ha, we obtain the June solstice rise against Makana cliff, which is 45 k. (38 m.) away and over Kala-Ulu-a-Paoa heiau with the Hula platform Ke-Ahu-a-Laka. This altar of Laka, Goddess of Hula, the most famous and oldest Heiau Hula on Kauai'i island, has been the place for graduation ceremonies in accord with tradition.

We quickly have several interesting things happening: Makana (The Gift) peak towering above Ahu-a-Laka is the other peak from which the fire stick ceremony is performed. This alignment would ritually link the two first Hula platforms on two separate islands in a simultaneous ritual in vast spatial time related to the rising June sun. It is a counter alignment, also, since Kala-Ulu-a-Paoa Heiau on Kauai'i island receives the June solstice sunrise, and from this place you could also clearly observe the December solstice set. This alignment then gives Ni'ihau island a future, and Kauai'i island, a past. It is an interesting conjecture, and somewhere in the chants we should hear the echo of this alignment.

Before the theory of refraction comes up, note that in Hawai'i on some days before the sun rises or after its setting, the laws of earth curvature seem to be suspended. To illustrate, we have stood at Kala-Ulu-a-Paoa Heiau on Kauai'i and have seen Lehua crater, which "should be" below the horizon, loom up as if it were only 8 k. (5 m.) away instead of the barely visible 45-k. (38-m.) distance it is actually.

This Heiau-to-Heiau alignment at the time of the June solstice is particularly interesting in that from this selected location the horizon sunrise may be observed only for the five-day standstill, whereas sunrise will not have been seen for at
least four months prior to this time. This is because the greater mass of Kaua'i island effectively blocks the sunrise from a Ni'ihau island perspective for 35 degrees out of the 50 degrees total. This design feature makes the standstill of the summer solstice rise a very selective window, indeed.

It is an interesting conjecture that the June 21 solstice rise is a Hula festival of importance, and also a clear example that one of the purposes of the sacred Hula was to record and reveal the ritual cosmic alignments, and including the full cycle of festivals.

Note that the Hula was controlled by goddesses. Starting with Pele, whose red lava line creates the islands, Hi'iaka, younger sister, a seer, prophet and spirit catcher; Haumea, the Mother Goddess of the sea with her world sea tree of life; Laka, principal Goddess of the Hula, whose altar in the halau faces to rising sun and the elder patroness mentioned above, Kapo, "The rich darkness of all possibilities with the red stain."

Laka and Kapo are a duality: La here is sun and life; Po is eternity and underworld. Both, together, are symbolic of the Ku Kuahu, the upright principal that joins heaven to earth.

When we recognized this chant as astronomical on its kaona (hidden) level, similar references were then recognized in other chants which had lacked the hidden level of translation.

To illustrate this relation, one twenty-seven line chant called Mele Ho'ala (no ka Hula Pele), Emerson (1909:196), ends with the lines:

"Awake, 'tis day, 'tis light;  
The sun stands over Wai-hoa,  
Afloat on the breast of ocean;  
the iwa (Tropicbird) of Leinoa'i is preening  
On the cliff Maka-iki-clea,  
On the breast of naked Lehua.  
Awake thee! Awake!"

The poetic reference on its kaona level may be read as zenith and rising sun against the cliff.

One of Pele's brothers, a navigator named Ka-Moho-Ali'i, has a kīnaʻau (body) form of a dark cliff, and Kaua'i island, which has many of these cliffs that plunge into the sea, has Ka-Moho-Ali'i as its first chief and patron. A younger brother named Kana-a-Pua ("Baby Sun") climbs the cliffs of his older brother; thus "Pua the child" finds a place in chants from the ancient oral tradition such as the first chant cited, line 8. Pua always visits Kaua'i island and his brother where rank on rank of cliffs abound.
The place on Ni'ihau island where Kapo and Kewelani performed this first hula with its implication of sun alignment looking toward Kaua'i island would appear to be a walled heiau (sacred space) called Kihau-Kahine on a point of land called Pali-Koa'e. This is situated on the western edge of a vast, sun-baked, flat plain of 2,024 hectares (5,000 acres). Pali-Koa'e means "Cliff of the (white) Tropicbird" of Kane (The Sun).

The opening from lines of another chant (Emerson 1909:67) begin,

"Haunt of white tropic-bird and big ruffled owl,
[The cliff on Kaua'i].
Up rises the first-born child of the pali. [cliff]
He climbs, he climbs, he climbs up aloft,
Kaholo-ku-iwa, the pali of Ha'i."

This is interesting for it gives a new name for the cliff and area on Kaua'i island. A facet of the Hawaiian way of naming is that the person or object named may carry many different names, all correct, carefully chosen for inherent meaning, and used at different times or for different purposes because of inherent subtleties. This fits with the oral poetic tradition—the true bardic tradition in Hawai'i—complete with its metaphysical level.

Another chant in its last eight lines expresses the rising sun as:

"Love returns to Ni'ihau
To the secret waters of the pa'o'o fish.
The breadfruit fruiting at ground level
And the black stalked sugar cane at Halalii'i.
There is Nihoa further back,
A tiny islet in the sea.
The hot sun beats upon the plains.
Turn and face Kaua'i."

Again, metaphor and allusion mixed with physical alignments. To truly "read" this chant, you must either know the place or be able to project yourself into it by way of the map. You must know the culture, the references, the sun-roundness of a breadfruit and the out-of-place character of it fruiting at ground level; you must know this black-stalked sugar cane, and its properties and uses; relatedly, you must know the nature, also, of the lake of Halalii'i, and in which months it disappears, and how this relates to the mentioned cane; you must know the inherent meanings of the lake name, which is the same as the chief possessed by Kapo in Chant One of the Hula.

We give all of these related chants to show the importance given to this specific time and place alignment by the Hawaiian
composers of the Hula, the realities and significance of the rising solstice sun and its zenith.

**Chant Two describes six setting suns, five from one point.**

This comes from Roberts (1926:265 No. 122) *Hula ka-la'au; oli oli*; by Akoni Mika, 1865.

| 1 | "He moku Ka-ula, Nihoa | 1 | An island is Ka'ula, Nihoa adjoining Ni'ihau |
| 2 | I ka ulu la'i a ka Waihoa a Kane | 2 | In the calm rests the water produced by Kane |
| 3 | O Kaulana a ka la i Halali'i | 3 | The sun rests over Halali'i |
| 4 | Hala ka la kau ma kua o Lehua | 4 | And in passing rests over the back of Lehua |
| 5 | Kau ka LehuLehu o ke ahiahi | 5 | Then the dusk of evening begins |
| 6 | Moe e no, Kaua'i i luna ka la e | 6 | Kaua'i goes to sleep while the sun is yet up |
| 7 | E o ana no o Lehua i ke kai." | 7 | While Lehua is still visible in the sea. |

**Explanation:**

1. *Ka'ula* island is southwest, *Nihoa* is northeast.
2. The calm is a west sun space.
3. *Halali'i* is a wet season lake, and an ancient chief of *Ni'ihau* island.
4. Lehua's "back" is to the west.
5. Dusk = sun is setting/has set.
6. Kaua'i is dark while the sun travels on westward.
7. Lehua is not only visible, but measured as by a (sun)path implied in the word, *ana*, to measure; so it can be understood that you as viewer are standing on Kaua'i observing the four named islands.

Question where you are standing, exactly, in this chanter's scene, and what solar events you are seeing in the cycle. You are, of course, observing setting suns which are associated with the departing spirits of deceased Hawaiians; so the place to stand will be a *leina*, a jumping-off place from which to take the leap into the mystic sea of *Po* into eternity.

[See Figures 3 & 4.]

The procedure is to determine the back-sight from the islands called off, so, starting with *Ka'ula* island, which is 32 k. (20 m.) southwest of *Ni'ihau* and about 80.5 k. (50 m.) from west *Kaua'i* island, we try to measure the December solstice sunset line back to *Kaua'i*. We put aside *Nihoa* island as it is not in order. Moving north, *Halali'i* lake is next, but we suspect it is an anti-zenith, or nadir alignment. Since we do not have yet any observation point for this on *Kaua'i*, we select *Lehua* island and center a due west 270 degree equinox set back-sight on
Lehua and bring it back to Kaua'i, which intersects with our December solstice line on a 270 degree equinox sunset back-sight on Lehua and bring it back to Kaua'i, which intersects with our December solstice line on a ridge called Kauna-lewa; now we have a "point."

From these two intersected lines we project out towards Halali'i lake on Ni'ihau island at an estimated 2°02' to 3°00' north of 245 degrees. What we discover is that the south mountain range on Ni'ihau prevents moving the nadir line any more north than 248 degrees, and the line does cross Halali'i lake. It is a boxed-in alignment not capable of being moved off Halali'i lake if we were to observe a horizon set of the anti-zenith (nadir) suns.

This quite remarkable fact suggested an ancient astronomer had enjoyed himself with this one. Obviously what was being manipulated was the location of the observation point on Kaua'i, and this helped to confirm what we were finding about the structures called heiau, commonly translated as "temples," but actually denoting sacred space(s), and therefore "points" to stand.

We let this alignment rest for a bit because Nihoa island from this intersection was not on the 295 degree summer solstice set and was not known as a jumping-off place for spirits, so why was it included? Later we ran the anti-zenith lines on the chart for December 1 (90) at 21° 52.9' and the January 11 (90) at 21° 52.6'. Amazingly, these two anti-zenith lines intersected the alignment projected over Halali'i lake and to sunset and the face of the cliff as in the chants. We are not quite sure how this had been achieved.

The Nihoa island included in the chart resolved itself by three pieces of information. The first came from Emerson (1917:XXVII) "Pele's Account to Kamcho-ali'i of the Departure from Kahiki." Briefly, Pele sails toward the islands with passengers including two brothers. When they stop at Nihoa island, Kane-a-Pua, the "baby sun" we met in Chant One, is landed, then the rest sail away to Lehua islet of Ni'ihau island. Unexplained, the navigator Kamcho-ali'i returns and picks up young Kane-a-Pua, and they return to Ni'ihau to the south.

The next two items are that when Hiliaka, the prophet Goddess, is on Kaua'i island's west coast, she chants Emerson (1909:258-259, lines 9-13):

"Out there with the floating Sun,
Where cloud forms rest on Ocean's breast,
Uplifting their forms at Nihoa,
This side the base of Lehua;
There is the water of Kane."
And the third is Pukui, Elbert, Mo'okini, Place Names of Hawai'i, 1974:165 and 148.

"Mau-Loku, Leaping place for souls, Ni'hoa Lit. continuous falling."

Note that the falling of the soul into Hawai'i, the opening of the underworld, is a continuous-cyclical-circular motion of returning. So, of course, Kane-a-Pua was let off at Ni'hoa for five days for the June solstice set period and was picked up later when he could move south; and Ni'hoa is a leina, leaping place for souls; and the place to stand has to be between Pulu ka Pale Heiau and Makua-iki alignment on Kaua'i island.

We propose that Ni'hoa just had to be included to complete all the solar set events: December solstice set; two anti-zenith sets; two equinox sets; and one June solstice set. The six setting suns, then, are referenced in a seven-line chant. Beyond being quite amazing, you wonder how long it took to gain the viewpoint and understanding to set this solar knowledge in language symbols. This is observed from Kauna-lewa ridge, the name of which means "The Square (or Four) Floating" and suggests that the six suns set into four pits in the floating western sea horizon, which is what they actually do.

Halali'i lake gains support as a place for departing souls to pass over or into from the chant referenced previously that mentions "the black-stalked sugar cane of Halali'i." Checking Pukui & Elbert dictionary (1986:51), we are enlightened by, "Halali'i, Ni'ihau, where a famous sugar cane once grew in the sand dunes. This cane was used in ceremonies for remission of sins."

Kauna-lewa ridge, a high plateau now in sugar cane, started off an investigation into an unknown area. There is not a heiau there, or a recorded one, but the chant highlights a meaning besides "sacred," i.e. the root word "hei" is "snare," and "au," a segment of time; so a good translation that fits is "a structure to mark a place that snares sacred time." A consultant Kumu Hula (Source Teacher of Hula) said there had to be a chant about Kaunalewa, and one was found. So we will know more about this area in the future.

The accuracy of the alignments was first plotted on charts, then by visual and compass check in the field. On Ni'ihau island, privately owned, this was not possible. By checks at Makua-iki, the cliff splitting the sun was verified, and back checks from Ahu-a-laka were made for the December solstice sunset. However, this was not considered satisfactory, therefore two Garmin G.P.S. units have been acquired and associate Karen Meech will be conducting surveys that will be possible for even out of line-of-
sight alignments, of which there are quite a number over the 1167-k. (725-m.) length of the twelve islands.

This will remain an ongoing investigation; the prospects opened up are endless and exciting.

As shown, the two main chant examples together--rising sun, settings suns; both oli oli sacred Hula without dance--reveal some astounding information. Both had to be composed by astronomer-navigators who had a thorough knowledge of their islands' positions even out of sight, but not impossible to locate. We are not dealing with traditional poetic understanding of chants as prayers, name chants, love poems of people and places; instead, we have direct reference to the celestial events that are ritually incorporated and part of the Hawaiian belief systems.

In one nine-line and one seven-line verse we are made aware of past knowledge of all the solstice, equinox and zenith-nadir events of the Tropic world.

What is unique for the history of alignments, generally, is that the astronomer-site planners linked separate islands into a cosmic web, a simultaneous ritual alignment through space in the same time. This suggests a design strategy to create a master plan that would eventually link perhaps all of the islands in a ritual whole. This grouping was first done for the three-island group of Ni'ihau, Kauai'i and O'ahu, according to Kamakau (1964, Vol. 2, 14) an Hawaiian historian of the 1840s. He informs us that the three-island group had one astronomy with the center of learning being located on Kauai'i island at Waimea. Here astronomers called Po'e Kilo Hoku went to make their observations, Kilo meaning stargazer or seer, and hoku, star.

Our researches suggest that through chants and tradition a concept of a oneness, a completeness called lokahi keeps recurring, an insistence that the family, the chiefs and the islands are "one" and the search is for a unifying system.

We find evidence of this in the composition of a Pale-Mi-Iska cycle, a chant journey through the islands requiring six months up and six months down. From zenith to nadir is also six months and binds the half year of growth to the half year of harvest.

What also needs thought is the vastness of the sea in which the navigators repeatedly sailed. The islands are points, areas of rest, repair, recreation, until it is time to sail again. Haumea's sea is the navigator's homeland; the points of land are where family and relation are visited; blood relations are all over Polynesia.
The islands, themselves, are round like women's breasts with a high mountain pyramid as a point of direction expressed in two ways: *makai*, seaward, and *mauka*, mountainward (away from the sea). The navigator is either going or coming. The other direction is around, direction defined by either the right or left shoulder being toward the mountain. The islands are clocks and the rising/setting sun changes position as you move circularly around the island in a constant changing juxtaposition of ecological forms. They are unlike any other land form to live in—very different from places on continents.

We promised to discuss two chants of the *Hula*, but we can say that they endlessly multiply to include the twelve tropic islands of the entire Hawaiian chain: from Necker island or *Moku Mana Mana*, the "toe of Pele" on the tropic, to the island of *Hawaii* with its active volcano of *Kilauea*, the "head" of the *Pele* figure. This we will have to leave for other papers to follow.

Finally, there is no question that we must follow the creative mind of the ancient astronomer-navigator. In these investigations, success, if any, is due to this newly-defined Hawaiian multidisciplinary system, which all of you have done so much to create and which we call in *Hawai'i* "Astronomical Architecture," a planning system founded on the navigator's spiderweb of stars.

"Astronomical Architecture" is truly a search for archaic Hawaiian history embedded in the realities of ancient myth. This field of Archaeo-Ethno-Astronomy has opened up and expanded our understanding of the Hawaiian mind by finding reasons for this vast amount of public architecture and what it was used for, and what could have been seen and transacted inside these large ceremonial landscape complexes. We recognized the format as we began investigating from the island pie segments out from the mountaintop to the sea, circling to include the entire island, and as it revolves it includes in its sweep other islands that cross the spokes of the eight pillars of the solar cycle.

The ancients created an all-island ecological whole that was composed in a vast architectural plan. This plan selectively used land forms and structures that captured and dramatized the great cosmic events that they wished to "stop," to "snare" in time. Thus, through this twelve-island ritual space they expressed their valued and molded tradition and beliefs.

For *Hawai'i*—all twelve of the islands of *Pele*—it is a *Kumu Kahala*, a first beginning into an ancient past, a knowledge still to be uncovered from the layers of literal meaning.

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Glossary

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READER'S QUESTIONS:
This perspective shows a back sight of the alignment which begins on the distant island of Ni'ihau to the right, where Kiha-wahine Hula platform was located. A parallel alignment would actually have the rising solstice sun appear to be at the Heiau and Hula platform of Ahu-a-Laka on the left. The interest of this solstice alignment is that it unites two islands in simultaneous time ritual of the Halau Hula.
In this plan we are also showing Chant No. 2 before we get to its description; to illustrate, the astronomical architectural balance designed into two separate islands 29 kilometers apart (18 miles) where the dominant rise of the summer solstice sun (Kane, Life) is contrasted with four setting sun alignments of the winter solstice set of Lono (Death).
This perspective expresses an alignment design that is a paradigm for Hawaiian sea-landscape concepts: To stand at one selected place and to sight towards a familiar important geographical element of another island that targets a selected solar or celestial event.
This plan shows the basic solar setting points—the Hawaiians say "pits"—where the sun enters the underworld. In all of these alignments we only call off the solar events, but the Pleiades rises pre-helically, before the summer solstice rise. Also in this latitude and 1000 years ago, a symmetrical balance was performed by Arcturus and Antares, which both rose and set at the same horizon points at which the summer, winter suns rose and set.