

AT THE TEMPLE KŪKANILOKO, ON O'AHU, HAWAIIAN ISLANDS, REGULUS PREDICTED THE GREATEST CHIEF OF AN ERA

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Abstract: This paper explores the pre-contact significance of the rise of star Regulus from the point of view of Kūkaniloko, the Royal birthing site in Central O'ahu that was understood to be the *piko*, the center and navel, of the island. It is known that a child born at Kūkaniloko when, on the afternoon Regulus rose 'in the Sun', a shadow dagger appeared on a stone next to the Birth Stone was thought to be destined to be the greatest chief of his/her era.

Keywords: Kūkaniloko, Regulus, O'ahu, pre-contact astronomy

1 INTRODUCTION

Kūkaniloko (Figure 1) on the central plain on the Hawaiian island of O'ahu was one of only two Royal Birthing Sites in the Hawaiian Islands. It was also the *piko*, the navel and center of O'ahu (National Register, 1994: Section 7, page 1). The other Royal Birthing Site was Holoholukū on the eastern coast of Kaua'i, but Holoholukū was not a *piko* of that island (National Register, 1994: Section 8, page1).

Kūkaniloko, at 23° 30' north and 158° 02', is nine miles west of the Ko'olau Mountain Range and seven miles east of the Wai'anae Mountain Range. Both mountain ranges run more or less north–south, and thus provide convenient land-

scape markers for the rise and set of stars and the Sun (e.g. see Noyes, 2013). However, my research has shown that places east of the Ko'olau and west of the Wai'anae, and thus not directly observable from Kūkaniloko, also served to mark the rise/set of stars and the Sun.

The site of Kūkaniloko is thought by the State of Hawaii's archeologists to have been founded between AD 1200 and 1400. Tom Lenchanko, Kūkaniloko's *kūka'awe* (guardian, protector) and *kahu* (keeper, administrator) thinks the site may have been founded as early AD 1066. For the purposes of my research I have used the year AD 1300, since it is midway between AD 1200 and 1400.

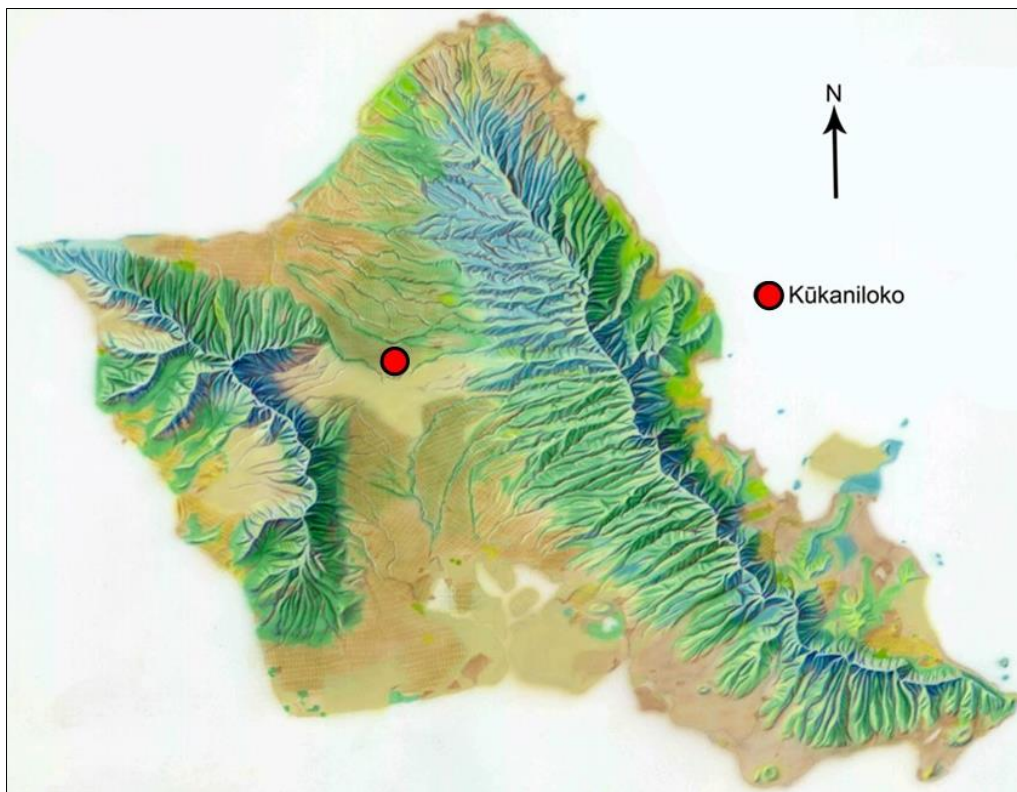


Figure 1: O'ahu relief map, showing the location of Kūkaniloko (created by Dorothy Nelson, public domain).

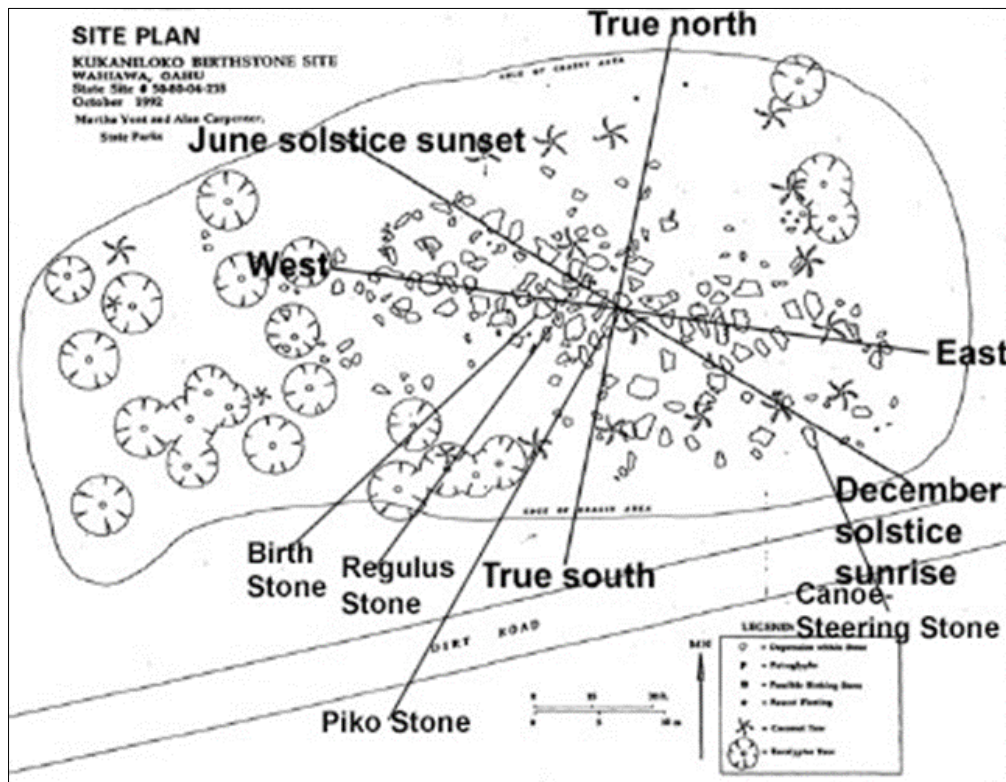


Figure 2: Site plan with stones marked by author. Note the locations of the Birth Stone and the Regulus Stone (reproduced courtesy: State of Hawaii Department of Parks and Recreation).

Before the development of large scale pineapple and sugar cane plantations in the 1800s, Kūkaniloko was considerably larger than it is today (National Register, 1994: Section 7, page 1). What remains visible today is the core of the site, an oval containing 180 stones within its perimeter (Figure 2). The lengthwise axis of the oval points at the southeast end to the December solstice sunrise and at the northwest end to the June solstice sunset. Among the best-known stones within the site are the Birth Stone, the Piko Stone, the Canoe-steering Stone (also sometimes called the solstice-sighting stone), and the stone I call the Regulus Stone. The stones that we are concerned with in this paper are the Birth Stone and the Regulus Stone (which is next to the Birth Stone).



Figure 3: The Regulus Stone showing the shadow dagger (photograph courtesy of Keale).

Some years ago Kūkaniloko's ke kūka'awe Tom Lenchanko showed my nephew Walt Mahealani Mix-Kealekupuna the Regulus Stone and explained that a child born at the Birth Stone when the shadow dagger reached the pecked hole was understood to be destined to be the greatest chief of his/her era. None of us knew at that time what the associated astronomy was, but on 21 or 22 August Mix-Kealekupuna photographed the shadow dagger as it took place (see Figure 3).

Because creation of a shadow dagger requires the Sun as the source of light as well as object to throw the shadow, and because the shadow dagger on this particular stone is thrown by a peak on the stone's western edge, the Sun had to be descending in the west.

I used Starry Night to see the stars at sunrise on those days. Regulus rose in the Sun those two mornings, and no other star was in a significant position. I changed the date on Starry Night to AD 1300, then AD 1400, AD 1500, and so on. The date in August changed from 21–22 August to 4–6 August but the phenomenon, Regulus rising in the Sun, remained. Thus, the shadow dagger occurs on the afternoon of the day that Regulus “rises in the Sun,” and is thus united with the Sun. The Sun is the celestial representation of the god Kāne, and a high chief had to be descended from Kāne (Beckwith, 1940: 49). Thus, an infant born at

Kūkaniloko on the day Regulus rose in the Sun was intimately associated with Kāne.

The significance of the event is evident in the landscape marker names for the rise and set of Regulus. I have only found three landscape markers for Regulus. His rise marker is *Kuloa*, meaning a long waiting, appropriate for the long waiting for an infant to be born at Kūkaniloko when the shadow dagger reaches the pecked hole on the Regulus Stone. It also means a long (*loa*) rule/rulership (*ku*). His set marker is *Kaluakauila*, the (*ka*) two (*lua*) lightning flashes (*kauila*), with flashes of lightning indicating the presence of a chief, and also the (*ka*) image (*lua*) period of time (*kau*) of great (*i*) Sun (*la*) or the image of [the] great/supreme period of time [of the] Sun. *Kaluakauila* also means the (*ka*) image/likeness (*lua*) shadow (*aka*) activated (*ui*) [by the] Sun (*la*), a meaning that refers to the shadow on the Regulus Stone as well as to the Sun's influence on/relationship to the child born at the time the shadow dagger appeared.

Pre-contact Hawaiian names known for Regulus are *Kauopae* which Regulus shares with Rigel and Sirius, meaning shrimp (*opae*) season (*kau*), and *Ikiiki* which Regulus shares with the planet Jupiter. *Ikiiki* is typically translated as stifling heat and humidity, which could be appropriate for the rise of Regulus in August but is not fitting for the February rise of Regulus. Stifling heat and humidity do not apply to Jupiter, whose synodic cycle of 399 days means that he does not rise or set in the same season each year. The astronomical–cosmological interpretation of *Ikiiki* is supreme/great (*i*) image (*kii*) plus *ki* as an intensifying suffix. This meaning repeats or emphasizes the second meaning of *Kaluakauila*. However, heat without the added humidity is a quality of high chiefs. As Samuel Kamakau described it, a child born in the presence of chiefs was called "... an *alii*, an *akua*, a *wela*—a chief, a god, a blaze of heat ..." (Kamakau, 1992: 38).

2 SOLAR ZENITHS AND SOLAR NADIRS

Between the Tropic of Cancer at 23.5° north, the northern limit of the Sun's annual journey (the June solstice) and the Tropic of Cancer at 23.5° south, the southern limit of the Sun's travel (the December solstice) there are eight Sun stations, two solstices, two equinoxes, two solar zeniths and two solar nadirs. The dates of the solstices and equinoxes in the tropics are the same as they are throughout the rest of the world. However, the dates of solar zeniths and solar nadirs are dependent on the observer's latitude. The farther north the observer is, the closer to the June solstice the two solar zeniths

take place, one before and one after the solstice. Similarly, the further north the observer's latitude is the closer to the December solstice the two solar nadirs take place, one before and one after the solstice. At the latitude of Kūkaniloko, 21° 30' north, the zeniths take place in May and July, and the nadirs take place in November and January. South of the Equator, the phenomena are reversed, meaning that solar zeniths take place before and after the December solstice, and solar nadirs take place before and after the June solstice.

The solar zeniths were widely known in pre-contact Hawai'i. They remain well-known today, with the Bishop Museum annually publishing the dates on its website (<https://www.bishopmuseum.org/lahaina-noon/>). When the Sun was at its highest point, the zenith, the *mana* of Kāne, the god of highest wisdom, was able to enter the top of the head, the *manawa* or topmost of a person's three *pikos*. Also, at this time prayers were at their most efficacious. In daily practice, noon was a substitute for the actual solar zenith. The period between the May solar zenith and the July solar zenith was the solstice 'season', during which the deceased were able to return to Earth to visit the living.

Knowledge about the solar nadirs was restricted to high chiefs and *kahuna*. The main reason for the restriction was that lineages and genealogies, which among high chiefs and *kahuna* extended beyond human ancestors into the era of creation, was forbidden to commoners (Noyes, 2019: 212).

3 REGULUS, THE MAY SOLAR ZENITH AND THE NOVEMBER SOLAR NADIR

Further making the sunrise rise of Regulus significant is that the sunrise rise of Regulus occurs half-way between the May solar zenith and the November solar nadir. In addition, the sunset rise of Regulus is nearly half-way between the November solar nadir and the May solar zenith.

If the difference in days between the 05 August rise of Regulus and event of the May solar zenith and the November solar nadir was zero the rise of Regulus would be exactly half-way between the zenith and the nadir. Four days, however, is so close to zero that the 05 August rise of Regulus in the Sun can be considered half-way between the two solar events.

This places the August rise of Regulus at the midpoint between the May solar zenith and November solar nadir. A midpoint joins the two extremes at a center point in a line. The line here is the line, the axis, created by Aldebaran

Table 1: Comparing the rise of Regulus on 05 and 11 August with the June and December solstices.

Regulus Rises	June Solstice	December Solstice	Difference in Days
05 August	53 days	130 days	77
11 August	59 days	122 days	63

and Antares at the May solar zenith and the November solar nadir. The August rise of Regulus is at the calendrical/astronomical midpoint of these events, thus related to and a product of both events and to the stars Aldebaran, who is the cosmogonic mother, and Antares, who is the older brother of the primary cosmogonic father. This enlarges the significance of a child born at Kūkaniloko, the center of O'ahu, beyond his association with Kāne, the Sun, and Regulus whose August rise occurs "in the Sun," at attaches the infant to the cosmogonic parents. Thus, a child born on the afternoon when the shadow dagger appears on the Regulus Stone near the Birth Stone, the day when Regulus rises in the Sun, partakes not only of descent from Kāne but also of descent from the cosmogonic ancestors.

For comparison, Table 1 below shows the distance of the 05 August rise of Regulus in the Sun and the 11 August rise of Regulus to the June and December solstices.

The difference between the Table 1 and Table 2 reflects the number of days between the May solar zenith and the June solstice (26–30 days) and the number of days between the November solar nadir and the December solstice (25–29 days).

The May solar zenith and November solar nadir have a special significance at Kūkaniloko. The Sun is with Aldebaran, one of whose names is Haumea and who is or represents and symbolizes the cosmogonic mothers Haumea, Papa, and La'ila'i (Beckwith, 1940: 276) at the May solar zenith. At that same time Aldebaran's celestial partner, Antares, the older brother of Wākea (Noyes, 2021; 2022) and the highest-ranked star in the heavens (Noyes, 2018: 218), is at the celestial nadir. At the November solar nadir the Sun is with Antares 90° below the Earth while at the same time Aldebaran is at the celestial zenith. This 180° line created by Ald-

ebaran and Antares at both the May solar zenith and the November solar nadir creates an axis that connects the sky above to the sky below and unites equally the male (east) half of the sky and the female (west) half of the sky both above and below the Earth.

4 CONCLUSION

A child born at Kūkaniloko's Birth Stone when a shadow dagger was cast from a peak on the west side of the Regulus Stone to a small pecked hole a few inches onto the surface of the stone was destined to be the greatest chief of his/her era. The data show that this shadow dagger occurs on the afternoon of the day Regulus rose "in the Sun." When a star rises "in the sun" the star's light is drowned in the Sun's much brighter light and thus star cannot be directly observed.

The data further show that this rise of Regulus takes place half-way between the May solar zenith and the November solar nadir. The May solar zenith and November solar nadir are culturally important as at both events Aldebaran and Antares form an above–below axis that pierces the Earth at Kūkaniloko uniting the sky above the Earth with the sky below the Earth.

These three events, the rise of Regulus "in the Sun," which places Regulus in the eye, or center, of the Sun, who is the god Kāne—the May solar zenith when the Sun/Kāne is 90° above accompanied by Aldebaran, who is the celestial representation of the cosmogonic mothers Papa and Haumea, while at the same time Antares, the older brother of the cosmogonic father Wākea and the senior star in the sky, is at the celestial nadir; and the November solar nadir when Kāne/the Sun is 90° below the Earth accompanied by Antares while at the same time Aldebaran is at the celestial zenith—all relate Regulus to the Sun and to the destiny of an infant chief born at Kūkaniloko when the shadow dagger appears.

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Table 2: The rising of Regulus and the May zenith and November nadir.

Regulus Rises	14–18 May Zenith	14–18 November Nadir	Difference in Days	Altitude of the Sun (°)
05 August "in the Sun"	96 (14 May) 100 (18 May)	92 (14 November) 96 (18 November)	4 4	–1°
11 August at 5° altitude	81 (14 May) 85 (18 May)	95 (14 November) 99 (18 November)	14 14	0°
31 January at 0° altitude	103 (14 May) 109 (18 May)	78 (14 November) 74 (18 November)	25 35	–1°
04–05 February at 5° alt	97–98 (14 May) 102–103 (18 May)	82–83 (14 November) 86–87 (18 November)	16–17 16–17	0°

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