OUR FIRST SKY WATCHERS

Native American Astronomy in Sugarloaf Ridge State Park

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April 2015

The dark night sky of Sugarloaf Ridge makes it a perfect location for stargazing. The public who visit Sugarloaf Ridge State Park are fortunate to find there the Robert Ferguson Observatory, the largest such astronomical resource in the United States completely dedicated to public viewing and education. Nearly 6,000 persons a year visit the observatory to experience the delights of stellar and solar observation. This paper is dedicated to the many volunteers and docents whose efforts make the RFO's public star parties, classes and labs possible.

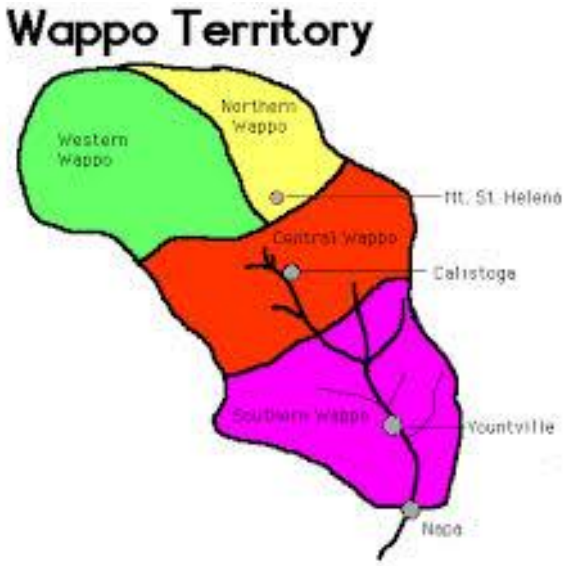
INTRODUCTION

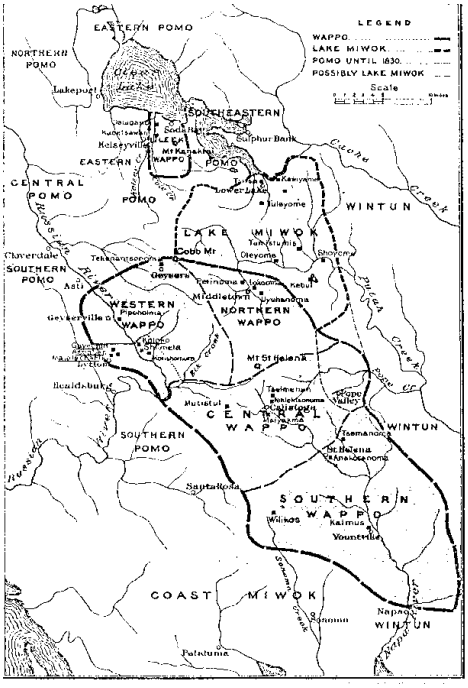
Modern astronomers and astrophysicists with the aid of sophisticated optics and mathematics have theorized the age and expansion of the universe, the birth and death of stars, the probability of extraterrestrial life forms, and even the "date" of the destruction of the big blue marble that we call home. The Native Americans who inhabited the area that now is Sugarloaf Ridge State Park looked skyward and saw the same flaming ball, icy moon and shimmering points of life, but reached wholly different conclusions about what they were seeing based upon their religious beliefs, tribal myths and the practical demands of village life. There was no need for them to know – or the ability to comprehend – the secrets of the universe, but there was a need to create and pass down their own creation stories or to count the lunar phases that foretold the coming of important ceremonial festivities or to time annual trading forays with other tribes or to mark traditional periods of mourning.

What we often call "astronomy" with respect to ancient civilizations can more nearly be defined as "archaeoastronomy" or "ethnoastronomy" which studies how people in the past have understood the phenomena in the sky, how they used these phenomena and what role the sky played in their cultures.

According to ethnographers, the area in and around Sugarloaf Ridge State Park was inhabited by Native American tribes, perhaps as long as 7,000 years ago. The Wappo's are most often associated with the seasonal villages that were located in the Mayacamas Ridge and within the area that is now the state park. Their main village, called Wilicos, was situated near the headwaters of Sonoma Creek. As well, the Southern Pomo's are known to have inhabited the area that is now Annadel State Park and the Coast Miwok were known to have inhabited the area that is now Jack London State Historic Park (see maps on page 2.)

Because of the close proximity of these peaceful native groups and because there were no fences to separate their areas of influence and because inter-tribal trade was known to have occurred among the local tribes, we will include all three Native American groups – the Wappo, the Southern Pomo and the Coast Miwok – in our discussion of the early sky watchers of Sugarloaf.





Wappo Villages

NATIVE ARCHAEOASTRONOMY IN GENERAL

For most of native California – according to Hudson, Lee and Hedges – the inhabitants considered the sun, moon, stars, and visibly bright planets with more than passing interest. Everywhere celestial objects were mentioned in myths and songs. Astronomical knowledge was expressed in many ways, such as in the origins and exploits of various First (Sky) People, or in calendar form to regulate sacred timing of ceremonial, legal, economic, political, or social affairs. Of importance too was the occurrence of unexpected celestial phenomena, such as a meteor shower, the appearance, motion, and dynamic physical changes of a visiting comet, or a spectacular solar or lunar eclipse. Such events only served to underscore a native world view that powerful supernatural forces above were at work in the cosmos.

Observational astronomy was necessary to ritually cope with the natural environment. As outdoor people, Native Californians were well attuned to closely watching rhythmical cycles of nature around them. These people realized that earth's natural changes were directly related to celestial changes taking place above them. Although they did not come to theorize that the earth's seasonal changes were produced by its axial tilt and revolution around the sun, they understood that when the sun could be seen rising or setting at a certain location on the horizon, or when certain stars appeared in a dawn or twilight sky, certain seasonal changes were about to take place on earth: rain would come, leaves would dry, seeds would ripen, deer would migrate, and so forth.

Of the many conspicuously bright and large celestial objects, none was so dramatic or considered more important than the sun. Everywhere in California there was more than a general awareness of the interconnection between the sun's movements and the earth's seasons. To Native Californians the sun was an immensely powerful being: bringer of rain or drought, light or darkness, warmth or cold. The critical times were the solstices, the two solar extremes of Sun's travels. Should Sun decide not to take up his journey, it meant a cosmic imbalance. Supernatural intervention often might be needed to "encourage" or "pull" Sun back again.

Many tribes were known to have made solstitial observations, which can be divided into two basic categories: direct observation of the sun, in which the sun is watched in relationship to the horizon or indirect observation of the sun in which a beam of sunlight was observed to strike a mark in a ceremonial structure or an object or to cast a shadow.

In general, observations of the solstices were performed by the elite—a chief, headman, leader of a secret cult, "old man," or elder. Among the Pomo, it was the leader of the secret society who conducted solstitial observations and kept track of time, using bundles of sticks. For the Wappo, the chief is mentioned as time-keeper, also using sticks, while among the non-solstice watching Coast Miwok timekeeping was the duty of an "old headman".[1]

WAPPO ARCHAEOASTRONOMY

They called themselves, simply, “The People”. Early explorers saw their women gathering roots and tubs and called them Diggers. When Spanish soldiers tried to round them up and take them to the missions, they resisted with such determination that they earned a new name: Wappo (from the Spanish *guapo*, meaning “brave” or “courageous”). Eventually the Indians adopted this name themselves. According to Beard, there were never more than about 4,600 Wappo who occupied the area drained by the Russian River and only about 1,600 in the Napa Valley. By 1880, the number of Wappo’s was estimated to be only about 50.[2]

According to Driver, there is little about the Wappo that was unexpected. The culture of the Wappo was typical of central California, an area that is generally considered to have been one of the most backward regions of the continent. A comparison of the general level of Wappo culture with that of the Pomo seems to show that the Wappo were more primitive than the Lake Pomo but perhaps the cultural equals of the Pomo who lived near the coast. The Pomo were superior to the Wappo in theoretical fields. They are said to have counted to as high as 40,000 with the aid of knotted strings and three sizes of sticks. In contrast, the Wappo employed sticks of only one size and were not accustomed to such large numbers. While a certain amount of religious belief and mythological knowledge was preserved and passed on, the culture was comparatively bare of intellectual or theoretical attainments.

The same was true in astronomical knowledge. The Wappo were content with a simple moon count made with twelve sticks, but the Lake Pomo recognized the solstices were more exacting in their astronomical observations. Among the Wappo, stars and constellations were named, and the year was divided into four seasons and twelve moons. The moons were recorded with sticks, which were the only mnemonic device. These sticks were also used in counting. Besides the four cardinal directions, up and down were recognized. This was the limit of abstract knowledge.[3]

<u>Wappo Celestial Phenomena</u>

Sun: hin-tume (day sun -male)
Moon: utcuwamehin (night sun - male)
Morning star: keu-soke (female)
Evening star: sum-soke (female)
Big dipper: tc'ena (long pole with hook)
Little dipper: so'tsema
Milky Way: hote'umits (ghost road)
Eclipse: hini-tcae’mse (sun lost)
Full moon: hin-mopila (moon full)
New moon: hin-ciits (moon new)
Rainbow: cini-la'-kama (colors spread)
Whirlwind: oma-metili (caused by ghosts; made person's body swell up if it struck him)

Wappo Time periods

Year: oma-wen (world season)

Wappo Seasons

Spring: oma'tc'utsasi
Summer: helu-wen (fire season)
Fall: oma-te-tsawo-inca (world grass top?)
Winter: tsa'-wena (end season)

Wappo Months

January: pipo-tso-hin (white oak earth moon)
February: kotico-pele-hin (black oak leaves moon)
March: pipo-pele-hin (white oak leaves moon)
April: hin-yawela (moon no-name)
May: wa’ate-hin (pinole moon)
June: t'oltcuk-hin (burn-the-valley moon)
July: tcano-hin (manzanita moon)
August: mel-hin-yawela (acorn moon no-name)
September: mel-hin (acorn moon)
October: mel-cimatisai-hin (acorn leaves cover moon)
November: hol-pele-hin (wood leaves moon)
December: holma-pele-hin (brush leaves moon)

Wappo Periods of the day

Morning: kewutci
Noon: hinta howa'e (sun divide)
Afternoon or evening: sumu
Sunset: su'muwa
Getting dark: tcitcise
Night: hutcuwa
Midnight: hutcu howa'e (night divide)

Wappo Directions

North: muti
South: wen
East: helup
West: wita
Up: met
Down: tso (Earth)

Wappo Records

Twelve sticks were used to keep track of the months. The Chief threw one away at each last quarter when the moon was almost gone. Sticks also were given to another village with a feast invitation -- as many sticks as there were days before feast. The prospective guests threw away one stick each day. Any brief time period was recorded in this way. Sticks also were to keep score in games and for ordinary counting.

SOUTHERN POMO ARCHAEOASTRONOMY

The Pomo are not one single tribe but are comprised of about 21 independent communities who speak seven dialects of related languages, loosely referred to as "Pomo." Historically, their territories included what is now Sonoma, Lake and Mendocino counties in California. The tribe that is of greater interest for the purposes of fashioning historical profiles of Sugarloaf Ridge State Park is the Southern Pomo, who lived very near and interacted peacefully with neighboring native peoples.

According to Parkman, The Pomo, like most California Indians, perceived Upper and Lower Worlds filled with supernatural power and a Middle World in which people lived.[4] For Barrett, Pomo ideas concerning the creation of the universe differ somewhat. For some informants, the Earth had always existed; for others there was a definite creation. What is important, however, was not so much the creation itself, but the actions of the Pomo cultural hero, “Coyote”.

Three such creation myths are cited below:

In the first myth, Coyote in the beginning floated in space on a cloud, carrying with him his hunting sack and a small amount of earth. He eventually tired of floating about, took the portion of earth in the palm of his hand and commanded it to grow.

In another version, there was at first nothing but water. Coyote swam around and tried to find some land where he might live. By and by, he found a small island and succeeded in getting some dirt under his fingernails. He then scraped the dirt out and told it to grow and become the World, and it did.

In the third version, Coyote seeks the assistance of Spider. Coyote had already created both Upper Worlds and was let down from the zenith by Spider. In his hunting sack he had clouds, the sun, moon, water, etc. He also had a small amount of earth wrapped up in some moss. He first took out a little bit of the earth and blew it into the air. Then he lay down and went to sleep in order that he might dream, but he could not dream. Then he ordered Spider to spin a web and then to look away in another direction. Coyote then spread the remaining earth on the web and told Spider to look around and see the earth. When Spider turned in the direction of the web, the earth spread out before him. Coyote then made everything in the world and finally made human beings.[5]

In his section on “Astronomy”, Loeb provides the Pomo names of various celestial objects as well as the seasons. His work, however, reports the taxonomy of the Northern (N), Eastern (E) and Central Coast (C) Pomo, but not the Southern Pomo, per se. We do know that the various Pomo divisions spoke different dialects, sometimes quite different. For the purposes of this paper, we will use the Coast Central language as being the closest to our area of concern.[6]

Pomo Celestial Objects

Sun: da
Moon: laca (night sun)
Eclipse of the Sun: petaka ya da kanu (grizzly bear now sun bite)

Note: When an eclipse of the sun or moon occurred it was thought that the heavenly orb was being overpowered by a bear. The people then went up into the hills, clapped their hands and shouted ho, ho ,ho! In order to drive away the bear.

Milky Way: basol (many)
Morning Star: ka amul bate (star big)

The Eastern Pomo, but not the Central Coast Pomo, also had words for the Evening Star (duwe da or night woman), the Big Dipper (baghal) and the Pleiades (baca latso or buckeyes bunched up).

Pomo Seasons (Central Coast)

Spring: tcido mit (flower time)
Summer: mtai nal (hot light)
Fall: sital cal (leaves fall)
Winter: qutsama

[The reader is advised to consult Loeb for the largely Eastern Pomo names for the calendar of months and moons.]

COAST MIWOK ARCHAEOASTRONOMY

For Miwok peoples, nature, culture, and religion existed as blended elements of day-to-day life. As the underpinning of Miwok religious systems, creation narratives provided a sense of identity, rules of appropriate behavior and a context for evaluating life’s most meaningful experiences. According to Isabel Kelly, tales were an important means of instructing the young in Coast Miwok lore. The old stories are called “a'kala" and were related by women as well as men. Song was interspersed with the narrative. As usual, winter nights were the appropriate time for recitation. Wappo’s interviewed by Kelly recalled that, "Coyote was our god. Four months every winter, [they] told stories about him… grandmother used to tell them [the tales] every night in winter; she said the nights in summer were too short. If she told them in the day

it would make the day short. . . Some of the stories were so long I went to sleep". Kelly maintains that In Miwok mythology there was neither creation nor creator, although Coyote dominated the scene and, to a considerable extent, was responsible for certain natural and cultural features.[7]

Miwok peoples kept the world in harmony through prayerful thoughts, actions, offerings, adherence to rules of proper behavior, fasting, and the observance of spiritual dances on a seasonal cycle. The most sacred dances gave thanks to the creator and served to maintain the world's spiritual balance, thereby ensuring the health and well-being of the group, protecting people from natural disasters, and creating the conditions necessary for an abundant harvest. Throughout north-central California a roundhouse served as the center of religious observances. The earliest roundhouses were semi-subterranean, earth-covered structures supported by posts and secondary rafters, their shape reminiscent of the Miwok conception of the cosmos as a sky dome resting on the Earth; their central smoke hole reminiscent of an opening, recognized by at least some Miwok, as existing at the top of the sky dome. Beyond this dome, and below the Earth, supernatural beings existed who conducted activities which affected the Miwok, such as creating earthquakes and moving the sun from east to west.[8]

CONCLUSIONS

We have today the tools to identify the objects in the sky. We know something about the origins and movements of the stars and planets. We can name, count, measure and even date the birth of celestial objects. And we know our place in the vastness of it all.

Early Native American communities had virtually none of this knowledge and yet they were not so different from moderns when it came to sky watching. They, too, wanted to look up and see what was happening above them. These early peoples knew more about the earth than the sky. They understood the earth as a child understands its mother, as the provider of shelter and of physical and even spiritual nourishment. But the sky must have been for them an object of awe and constant curiosity.

Surely the sun warmed them and lighted their days and, with sister moon, calendared their movements, rituals and ceremonies; but what about the rest of it? Did they wonder: What are those twinkling lights and what are they telling us? Are there ghosts in the milky mantle above and supernatural threats during the hours of darkness? Is it any wonder that native peoples wove myth and religious lore into their cognition?

Their search for the meaning and the providence of the universe is yet another strand that binds us to them across the ages.

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