

# The Transit of Venus, King Kalākaua, and Indigenous Knowing

Jessica Schonhut-Stasik

September 2023

*“There was a time when I teetered precariously with an awkward foot in each of two worlds – the scientific and the indigenous. But then I learned to fly. . . . After all, there aren’t two worlds, there is just this one good green earth.”* – Robin Wall Kimmerer, from *Braiding Sweetgrass*.

Upon arrival on the summit of Maunakea<sup>1</sup>, it is evident why the Native Hawaiian<sup>2</sup> people view the mountain as sacred. As the Sun sets over the west side of Kailua-Kona and the stars settle in for their dutiful night of shining, the breath you have already been struggling to maintain will be taken away. Suppose one is lucky enough to access supplemental oxygen. In that case, you inhale, and as the oxygen begins to relieve the high-altitude retinopathy, reinvigorating the corneal thickness, the dusty arm of the Milky Way appears in all its glory, punctuated by staccatos of white light, forging a structure in the sky overhead that few people in the world witness with such clarity.

The exact date when Polynesian voyagers landed in Hawai‘i is unknown; however, it is expected to fall between the 4th and 7th centuries C.E. [1]. Their journey originated in the Marquesas Islands, 2,400 miles away, across the sweeping roles of Earth’s widest ocean, the Pacific. They relied on the science of wayfinding to traverse these immense distances, with no land masses to guide them. Wayfinding is the indigenous practice of using the stars and other natural observables to chart a course. By night, voyagers observed the stars, mapping their movements relative to the sky. Heading north, they left behind Kaulia, the brightest star in the Southern Cross, for Hōkūle‘a, its northern counterpart. By day, the wind, movement of the waves and currents, and seabirds became their navigational devices. A feat many in the modern Western world could not comprehend<sup>3</sup>.

Wayfinding is an example of Indigenous science, often called Indigenous knowing, and is the application and intersection of Indigenous knowledge and observable science. The intersection of Western science and Indigenous knowing can significantly complement one another. Still, the benefits that may be gleaned from cooperation have frequently been subject to erasure and eradication, starkly evident in the history of Hawai‘i and in King Kalākaua’s story.

King Kalākaua was born on November 16, 1836 [2] to Caesar Kapa‘akea and Analea Keohokālōle and ruled the Hawaiian islands from 1874 to 1897 [3]. An extraordinary man of many talents, Kalākaua was fluent in four languages, studied and practiced law, and chaired several boards, including the

---

<sup>1</sup>The University of Hawai‘i at Hilo College of Hawaiian Language, Ka Haka ‘Ula o Ke‘elikōlano, recommends one word, “Maunakea” as the proper Hawaiian usage.

<sup>2</sup>“Native Hawaiian” here describes those indigenous to Hawai‘ii now known as Native Hawaiian to the Federal Government.

<sup>3</sup>Wayfinding is still practiced today by the Polynesian Voyaging Society. (<https://hokulea.com/>)

History and Microscopical Society. Notably, he recognized the importance of Indigenous knowing and re-established the Hale Nauā, which had concluded during the reign of Kamehameha I. Kalākaua reactivated Hale Nauā, expanding its purpose to encapsulate Hawaiian culture, modern-day sciences, and women's inclusion. He was known as the Merrie Monarch, after which the yearly hula festival is named.

Kalākaua was deeply interested in the natural world. On learning about electricity, he subsequently incorporated electric lights and telephones into 'iolani Palace, years before the White House [4]. He also researched geothermal power to sustain Hawai'i and memorized the genealogies and names of flora, and fauna. He expanded his knowledge to engineering, preparing sketches of submarines long before they were operational and invented a modern-day water bottle [5]. A big proponent of education, during his reign, Hawai'i had some of the highest literacy rates in the world, and access to universal healthcare.

Kalākaua's thirst for knowledge led him on a worldwide Grand Tour in 1881, visiting eighteen countries. On June 20th, 1881, the king arrived at the newly built Suez Canal. The Khedive of Egypt welcomed him with open arms, sending a train and special convoy to bring Kalākaua to Cairo [5, 6]. During the grand tour, while visiting Vienna, one journalist noted [5, 7]:

*“His Majesty made everywhere a very favorable impression, and evinced a surprising knowledge of all the technical sciences.”*

Kalākaua's developed an early interest in astronomy at the Royal School [8, 9, 10]. In his November 22, 1880 letter Captain R. S. Floyd, he expressed his desire to see an observatory established in Hawai'i. During his grand tour, he visited San Francisco and toured Lick Observatory [11], guided by Mr. French, who later wrote in his journal how interested and enthusiastic the King had been [12]. Upon Kalākaua's return in 1883, a five-inch refractor was purchased for Punahou School, and installed in 1884. Although the telescope was incorrectly mounted and remained unusable it remains the first permanent telescope in Hawai'i. In 1956, it was removed to be installed in the MacNeil Observatory and Science Center, but subsequently disappeared and was never recovered.

The story of the transit of Venus is one of the best examples of Kalākaua's regard for astronomy but also stands as an example of the contention between the communities of Indigenous and Western science. On September 9th 1874, an English ship landed in Hawai'i, carrying seven astronomers, to observe a rare transit of Venus across the Sun [13]. King Kalākaua personally entertained Chief Astronomer G. L. Tupman and his crew at the pre-1882 'iolani Palace (Hale Ali'i), and provided two sites in Honolulu for viewing the transit on December 8, 1874. When Tupman returned to Hawai'i in 1883, he was given the honor “Order of Kalākaua.” During the preparation of the observatory, the king visited many times and expressed his keen interest in a statement published in the Pacific Commercial Advertiser, in part, reading [13, 14]:

*“It gives me great pleasure to receive you and the members of the expedition sent by Her Majesty Queen Victoria . . . . I trust you will not hesitate at once to inform them of anything you may require to facilitate your operations. It will afford me unfeigned satisfaction if My Kingdom can add its quota towards the successful accomplishment of the most important astronomical observation of the present century, ...”*

The writings of the expedition's leader, George L. Tupman however, indicates the larger narrative

that unfolded. In letters to fellow astronomer George Airy, and in his journal, Tupman lamented the rain, heat, and Indigenous population. He appears to abhor the appearance of Native Hawaiians showing an interest in the work, stating in a letter to Airy [13, 15]:

*“Numerous inhabitants imagine we have come all this way on purpose to satisfy their curiosity to see Saturn’s Rings and Jupiter’s belts through a telescope.”*

Although Tupman felt he “wasted” a great deal of time in these encounters, he was obliged to “give up work” when “members of the Royal Family” visited [13, 16]. The King clearly felt the importance of allowing the public access to science, and in a letter from Tupman to Airy, he states:

*“His Majesty paid us a private visit . . . He proposed that as soon as the all the Instruments were mounted we should throw open the grounds to the public for a week at a charge of a dollar or so a-head. . . .”*

Throughout the astronomical setup, the king appeared many times at the Apua observatory, often with company. [13] Tupman eventually relented to public access and opened the observatory; however, despite the land and resources the King had granted, Tupman privately scorned him, and after one particular two-hour visit by the King, Queen Kapi’olani and a “host of followers”, Tupman slurred them all as “savages.” [13, 17]

This, and other incidences during the transit at Venus, perhaps provide an upsetting omen of what was to come. In 1887, an armed militia overthrew the government and monarchy, compelling Kalākaua to sign the Bayonet Constitution under threat of force [18]. The struggle continued on January 16, 1893, when US troops invaded the Hawaiian Kingdom without cause, leading to conditional surrender by the final monarch of the Hawaiian Kingdom, Queen Lili’uokalani, who had been placed under house arrest; notably using this time to translate the Kumulipo, the creation chant of Hawai’i. By July 7, 1898, the annexation of Hawaii was complete with the signing of the “Joint Resolution to Provide for Annexing the Hawaiian Islands to the United States” [19].

Following the annexation came a period of indigenous erasure. A decline was seen in Hawaiian cultural practice, proliferated by the banning of ‘Ōlelo Hawai’i, with many kūpuna (elders) today remembering punishment for its use. The population fell, health decline rose, and poverty became prolific. To this day, Native Hawaiians still see disproportionately high rates of poverty, incarceration, and declining health.

In the early 1970s, the second Hawaiian Cultural Renaissance emerged, and language, cultural practices, and wayfinding reached a resurgence in the Islands. This period coincided with the first telescope built on Maunakea, the University of Hawai’i 2.2 Meter, which saw first light in 1970 and continues operations today. Over the decades, the benefits of astronomy from Maunakea became apparent, and today there are 13 active telescopes on Maunakea, representing more than 11 countries, non-profits, and scientific institutions that carry out ground-breaking science. Still, how these telescopes were constructed created a rift between the Native Hawaiian community and astronomers that bubbled over time.

Fast forward to 2019, and the crest of the 6,632 ft high Saddle Road on the Big Island of Hawai’i is a bustle of activity. Kūpuna and Native Hawaiians crowd the road, blocking access to the summit of Maunakea. They are protesting the planned building of the Thirty Meter Telescope (TMT), a

next-generation telescope that, as the name implies, has a 30-meter diameter mirror. This telescope will allow astronomers to stare deeper into the Universe from the ground than ever before, even directly detecting exoplanets. Protesters are fighting not just for the axing of the 30-meter telescope project in Hawai'i but also advocating for removing all other telescopes on the summit.

Many Western news outlets characterized these protests as revolving around the TMT, but these protests represented more; an oppressed community tired of colonization and exasperated with their sacred spaces being possessed by non-native individuals with no perceived benefit to their community. In response to the protests, and in a small step forward, former Hawai'i Governor David Ige established the Maunakea Stewardship Oversight Authority (MKSOA), through Act 225. The MKSOA is granted authority over the government and management of Maunakea for a five-year transition period to remove those responsibilities from the University of Hawai'i and the Hawai'i Department of Land and Natural Resources due to historic mismanagement. The board contains 11 voting members, many of whom have a Hawaiian cultural background, ensuring that those with cultural expertise will now have voting rights on the management of Maunakea.

So often, history is written by those with the resources to tell the story, and scientists are not exempt. In the last decade, we have seen the elevation of voices for non-traditional astronomers, for example, highlighting the work of women. The recounting of these stories in the appropriate context is particularly vital for the indigenous community, who all have unique approaches to understanding the observable world. The erasure of indigenous knowing is an immeasurable loss to our world. Even when knowings are taught, they are often divorced from historical context, without the explanation that these practices are grounded in centuries of astute observation. As scientists, we must protect these observations and appreciate how these vital ways of knowing advance science, equity, and humanity for all.

**Land Acknowledgement:** This essay was written in Volcano Village, on the Island of Hawai'i. I am an immigrant, of European descent and emigrated to Hawai'i in 2015. Volcano Village, The Nahuku Rainforest in Hawai'i Volcanoes National Park is part of the 'Ainu or ancestral homeland of the Kanaka Maoli. I would like to acknowledge that the 'āina on which this was written, is part of the larger territory recognized by Indigenous Hawaiians as their ancestral grandmother, Papahānaumoku. I recognize that her majesty Queen Lili'uokalani yielded the Hawaiian Kingdom under duress and protest to the United States to avoid the bloodshed of her people. I further recognize that Hawai'i remains an illegally occupied state of America. I recognize that each moment I am in Hawai'i she nourishes and gifts me with her abundance. I further recognize that generations of original peoples and their knowledge systems shaped Hawai'i in sustainable ways that allow me to enjoy these gifts today. For this I am grateful and as an immigrant, I seek to support the varied strategies that the Indigenous peoples of Hawai'i are using to protect their land and their communities, and I commit to dedicating time and resources to working in solidarity. The author would like to thank and acknowledge comments on this essay by a representative of the Hawaiian Community. Mahalo.

## References

- [1] Swenson, J (date unknown). People of Hawaii. Encyclopaedia Britannica. <https://www.britannica.com/place/Hawaii-state/People>

- [2] Tikkanen, A (date unknown). Kalakaua. Encyclopaedia Britannica. <https://www.britannica.com/biography/Kalakaua>
- [3] Kelly, M (2018, August 10th). King David Kalākaua: The Original Most Interesting Man In The World. wbur. <https://www.wbur.org/endlessthread/2018/08/10/david-kalakaua>
- [4] Author Unknown. (Unknown Date). Hawaii's First Electric Lights. Hawai'i's Digital Newspaper project. <https://sites.google.com/a/hawaii.edu/ndnp-hawaii/Home/historical-feature-articles/hawaiis-first-electric-lights>
- [5] Lang, T (2019, October 31st). Reclaiming Kalākaua: Nineteenth-Century Perspectives on a Hawaiian Sovereign. University of Hawai'i Press. ISBN-10: 0824881567.
- [6] "Progress of Ke Alii Kalakaua. Brilliant Reception in Japan," HG, April 20, 1881, 2, Chronicling America.
- [7] Osorio, Dismembering Lāhui, 147.
- [8] Unknown Author (Unknown Date). Intense Study of the Stars are Part of Traditional Native Hawaiian Culture. Research Institute for Hawaii.USA. [https://www.rihiusa.org/Intense\\_Study\\_of\\_the\\_Stars\\_are\\_Part\\_of\\_Traditional\\_Native\\_Hawaiian\\_Culture.html](https://www.rihiusa.org/Intense_Study_of_the_Stars_are_Part_of_Traditional_Native_Hawaiian_Culture.html)
- [9] Cooke, Amos S. (1847). "Journal of Amos Starr Cooke."
- [10] Cooke, Amos Starr (1937). The Hawaiian Chief's Children's School. Compiled by Mary Atherton Richards, Honolulu: Honolulu Star-Bulletin.
- [11] Ha, R (2015, August 8th). Kalakaua At Lick Observatory. Hamakua Springs. <https://www.hamakuasprings.com/2015/08/kalakaua-at-lick-observatory/>
- [12] Steiger, W (Unkown Date). Origins of Astronomy in Hawai'i. Institute for Astronomy. <https://home.ifa.hawaii.edu/users/steiger/history.pdf>
- [13] Chauvin, M (2003, January 1st) Hokuloa: The British 1874 Transit of Venus Expedition to Hawai'i. British Museum Pr. ISBN-10: 1581780230.
- [14] PCA (1873, September, 19th)
- [15] Letter from Tupman to Airy (1974, October 13th)
- [16] Tupman, Journal 37.
- [17] Tupman, Journal 53.
- [18] Unknown Author. (Date Unknown). Jul 6, 1887 CE: Bayonet Constitution. <https://education.nationalgeographic.org/resource/bayonet-constitution/>
- [19] Author Unknown (2022, February 8th) Joint Resolution to Provide for Annexing the Hawaiian Islands to the United States (1898). <https://www.archives.gov/milestone-documents/joint-resolution-for-annexing-the-hawaiian-islands#:~:text=On%20July%20%2C%201898%2C%20the,control%20of%20the%20Hawaiian%20government.>