

**HAWAII
AND THE
COSMOS**

AIR DATE:

RUNTIME:

TASK #

09-12-11

Video	Notes	Audio
<p>1. Opening tease:</p> <p>Space stuff</p>	<p>NARRATOR</p>	<p>When you think of space exploration most people think of NASA, the National Aeronautics and Space Administration.</p>
<p>2. Various observatories in the continental US</p>	<p>NARRATOR</p>	<p>When you think of telescopes, observatories like Palomar might come to mind.</p>
<p>3. Galileo/Newton</p>	<p>NARRATOR</p>	<p>And what about astronomers? You might think immediately of Galileo or Sir Isaac Newton.</p>
<p>4. Kalakaua</p> <p>Beauty shot of Mauna Kea</p> <p>Animation of Venus</p>	<p>NARRATOR</p>	<p>But what if we mention King David Kalakaua? Or Mauna Kea, the tallest mountain on Earth? Or the Venus Transit? What do these subjects have in common? The answer is...</p>

<p>5. .sunset shot of Palms & sea</p> <p>TITLE: Hawaii.</p> <p>Earth's connecting point to the Cosmos.</p>	<p>NARRATOR</p>	<p>... Hawaii's preferred place connecting our Earth to the Stars.</p>
<p>6.</p>		<p>PAUSE</p>
<p>7. Satellite/google image of Hawaii</p> <p>Slo zoom from Earth to Hawaii. Add rippling wave FX to Ocean around island</p> <p>Dissolve to Earth as from the moon</p>	<p>NARRATOR</p>	<p>It is a tiny... island... dot... within Earth's largest ocean.</p> <p>And... it is a metaphor for Earth's place in the cosmos.</p>
<p>8. NOAA illustration</p> <p>Sun high in the Hawaiian sky</p>	<p>NARRATOR</p>	<p>Sitting upon the highest mountain on Earth - as seen from the depths of the Pacific Ocean - Hawaii holds a special place, <u>CONNECTING</u> Earth to the Cosmos.</p>
<p>9. Petroglyphs of boats.</p> <p>Polynesian Voyaging Society shots?</p>	<p>NARRATOR</p>	<p>First, came the Polynesians who trusted their navigational instincts to the nighttime stars above.</p>

10. Star field	NARRATOR	They had names for their star guides.
11. Show star arrangements	NARRATOR	<p>Ka Maka - the point of the fishhook in the constellation Scorpius.</p> <p>Makali'i – the Little Eyes within the Plieades.</p> <p>Hoku'ula – The Red Star in the constellation Taurus.</p>
12. Bounty shot	NARRATOR	After the Polynesians came the Europeans in 1778 under the command of Captain James Cook who, earlier, had been commander of the British Venus Transit Expedition to the Polynesian Island of Tahiti in 1769.

<p>13. Antique map, lines being drawn over the outline of Hawaii</p>	<p>NARRATOR</p>	<p>Cook determined Hawaii's longitude and latitude and appointed Hawaii a place on the cartographer's map.</p>
<p>14. Anglo and Hawaiian Re-enactors sharing materials</p>	<p>NARRATOR</p>	<p>He brought with him spyglasses, clocks, sextants, charts, foreign ideas and techniques that astounded the intelligent native population.</p>
<p>15.. same, tilt up to the sky</p> <p>Fade to black</p>	<p>NARRATOR</p>	<p>But the new European ideas soon crowded out the old Polynesian ways of looking at the skies and much of the ancient knowledge was forgotten. For a time.</p>
<p>16. Kalakaua</p>	<p>NARRATOR</p>	<p>A new awareness of the cosmos was reborn under the scientific patronage of His Highness David Kalakaua, the Astronomer King,</p>

17.	<i>Interview with Koa Rice</i>	<i>Talks about King Kalakaua</i>
18. 1874 Transit photos	NARRATOR	King David had a great interest in science and he saw it as a way to foster Hawaii's prestige internationally and to maintain Hawaii's independence amongst the nations of the world.
19.	<i>Interview with Dir. Kimura @ Imaloa Center?</i>	
20. Same. Maybe location or memorial site at Hulihee Palace?	NARRATOR	Hawaiians supported the British Royal Society's efforts at recording the Venus Transit in 1874.
21.	<i>Interview with Koa Rice</i>	<i>Hawaiian love for the stars</i>
22. More old photos	NARRATOR	The mission of the British expedition was to observe a rare transit of Venus across the Sun for the purpose of better determining the value of the

		Astronomical Unit – that is, the Earth-Sun distance – and from it, the absolute scale of the solar system.
23. Graphic of relative distance from the Sun, AU ratios	NARRATOR	Although Copernicus had, by the 16th century, put the known planets in their correct order, their absolute distances remained unknown. Astronomers still needed a celestial yardstick of Astronomical Units with which to measure distances among the planets and to link the planets to the stars beyond.
24.	NARRATOR	The British expedition extended over a period of six months. From September 1874 to March 1875, the expedition attracted widespread attention from all ranks of Island society.
25. Apua, today. If overdeveloped, then dissolve today's Apua to a	NARRATOR	Hawaiian King David evidenced a personal interest in the transit

<p>B&W image of a Hawaiian stock shot.</p> <p>Old photos</p>		<p>of Venus operations in his kingdom and placed at the disposal of the expedition a suitable piece of open land not far from Honolulu’s waterfront in a district called Apua.</p> <p>There, a wooden fence was erected and soon came to enclose a well-equipped nineteenth-century astronomical observatory, including a transit instrument, a photoheliograph, a number of telescopes, and several temporary structures including wooden observatories.</p>
<p>26. Island GFX showing locations.</p>	<p>NARRATOR</p>	<p>In due course, auxiliary stations – though not so elaborate as the main station in Honolulu –</p>

		would be established on two other islands: at Kailua-Kona on the island of Hawaii, and at Waimea on the island Kauai.
27.	NARRATOR	<p>Everyone in Hawaii was excited about the Transit event.</p> <p>Too much so, in fact.</p> <p>Enthusiastic Hawaiians swarmed onto the campsites, asking to observe the stars thru the telescopes. To the serious British scientists, the natives became pests.</p> <p>But to the native Hawaiians, it was their love affair for the stars that propelled their interest in the telescopes.</p>
28.	<i>Possible interview with Koa Rice or Narrator</i>	The jocular Hawaiian king proposed that if the astronomers would open their observatory grounds to his

		<p>public for one week then he, in return, would provide his military band for the scientists amusement every day while they were there.</p>
<p>29. Kalakaua and US Grant. Capitol.</p>	<p>NARRATOR</p>	<p>Ironically, on December 8, the big day, the king was absent, being in Washington to promote Hawaiian interests in a new trade agreement with the United States.</p>
<p>30. Iconic shot of Hawaii</p>	<p>NARRATOR</p>	<p>Since those times, Hawaii continues its love affair for the stars. Everywhere there are reminders of Hawaii's place in the Cosmos.</p>
<p>31. Kona Garden Shots</p>	<p>NARRATOR</p>	<p>There is the Kona Galaxy Garden. Here, different plants depict stars, globular clusters, even nebulae. Many bright stars visible in Earth's night sky</p>

		<p>are depicted on leaves surrounding the marked location of the Sun. Even a fountain has been built to represent the central Black Hole of our Galaxy's center.</p>
<p>32. Mauna Kea observatories</p>	<p>NARRATOR</p>	<p>On Mauna Kea, the tallest mountain in the Pacific Ocean is the Mauna Kea Observatory. The observatory is one of the world's largest, most important land-based astronomy sites in the world.</p>
<p>33. Observatory dusk.</p> <p>Astronomer walks to Telescope, does a set up to observe stars.</p> <p>Wide shots and Close ups.</p>	<p>NARRATOR</p>	<p>The location is ideal because of its dark skies, good astronomical seeing, clean air, good weather, low humidity,</p>

		position above most of the water vapor in the atmosphere, and almost equatorial location.
34. Shot of Koa walking amongst the old quarries, or looking out from the mountaintop.	NARRATOR	Along with the observatories, the earth of Mauna Kea itself has always held a special significance between the Hawaiian people and the cosmos
35. Quarry site	NARRATOR	On Mauna Kea there is an ancient quarry, from which the material for stone Adzes were mined
36. Museum Adze	NARRATOR	The adze is a tool used for smoothing rough-cut wood into a relatively smooth surface. Adzes are most often used for squaring up logs, or for hollowing out timber into something useful like a canoe.

<p>37. Show a modern-day craftsman. Footage of Native Mariners or Polynesian Voyaging Society shots.</p>	<p>NARRATOR</p>	<p>Since the stone Adze is the tool by which canoes were made and since the canoe was navigated by the night stars, the mineral qualities of Mauna Kea are considered sacred.</p>
<p>38. Shrines?</p>	<p>NARRATOR</p>	<p>Indeed, atop Mauna Kea ancient shrines have been found there.</p>
<p>39. Esta shot of Imiloa Astronomy Center. Some interior shots</p>	<p>NARRATOR</p>	<p>Another reminder of Hawaii's place in the Cosmos is the Imiloa Astronomy Center, a place where astronomy meets Hawaiian culture.</p>
<p>40.</p>		<p>The Bishop Museum is the largest museum in the Hawaiian Islands. It is the premier natural and cultural history institution in the Pacific. It houses the largest array of Hawaiian artifacts, many which represent Hawaii's special place in the</p>

		cosmos.
<p>41. People on one of their boats.</p> <p>Someone on a boat looking skyward.</p> <p>Shots of boats.</p> <p>Classroom situation</p>	NARRATOR	<p>There is the Polynesian Voyaging Society whose members voyage throughout Polynesia navigating without modern instruments. The society builds replicas of ancient Polynesian seacraft and teaches people about the ancient art of star navigation and wayfinding</p>
<p>42. Fade up: iconic shot of Hawaii</p>	NARRATOR	<p>But one marker, and the one most significant of Hawaii's place in the Cosmos is the Island herself.</p>
<p>43. Map animations</p>	NARRATOR	<p>Hawaii is the largest Island closest to the equator.</p> <p>Serenely and quietly, Hawaii sits in a vast ocean with uninterrupted sight of the night sky.</p>

44. Stars in the dusk lit sky	NARRATOR	In a majestic way, the night sky is awash with stars from the Northern Hemisphere and most of the stars from the Southern Hemisphere.
45. Google zoom out from Hawaii to Earth amongst the stars.	NARRATOR	Together, the night sky hemispheres over the islands proclaim Hawaii as a special <u>connecting</u> place to the Cosmos...