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The Ancestral Science Podcast explores scientific topics through conversations between Knowledge Keepers and Scientists, while *experiencing* the origins and depth of science on and with “the Land”. Join us as science COMES ALIVE when knowledges are shared alongside ancestor plants, rocks, animals, and rivers, creating connections between personal, Indigenous, and global science. The Ancestral Science podcast is a place for *everyone* to see themselves in science, to be inspired by the SCIENCE that is all around them and expand the definitions of both *ancestor* and *science*.

SEASON 3: Episode 19 with **WILFRED BUCK & ROB CARDINAL** “Alignment of Planets, Stars, & Stories” (re-release)

This episode was recorded on an early Spring morning back in 2024, here on the Lands of the Blackfoot Confederacy, Tsuut’ina Nation, and Îethka Nakoda First Nation, and more recently the Otipemisiwak Métis.

As we patiently waited for the First Thunder of the season, we got to learn from **Wilfred Buck** "The Star Guy" from Opaskwayak Cree Nation and Siksika Astrophysicist **Rob Cardinal** about the science and stories of the recent Solar Eclipse, the reverence and silence within the darkness of totality, the connection between the alignment, states of matter, and ceremonies, protocols of NOT LOOKING at these significant cosmic events, the Creation of "Tipis and Telescopes," the three-body problem, the North Star and moon cycles, and the origin of the Thunderbirds.

Remember, you can support the pod and rock some unique Indigenous Science merch at www.relationalsciencecircle.com/shop, all proceeds go towards Knowledge Keeper honoraria, following protocols, and keeping the pod going.

Please like, share, follow, and rate the pod, it goes a long way to share this knowledge.

Thanks to Emil Starlight ([@mikadikadzi_redfoot](https://www.instagram.com/mikadikadzi_redfoot)) of Limelight Multimedia for aud. Intro composed and performed by [Walter White Bear](#), Sharon Ann Foster, and Emil Starlight.

Questions for the Pod? Email us at relational.science@gmail.com

SHOWNOTES:

Wilfred Buck “The Star Guy”

- [“Acakwuskwun”](#)

- <https://www.sciencefriday.com/articles/indigenous-peoples-astronomy/>

“[Grandmother Spider 7 Star Woman](#)” (video)

Rob Cardinal “The Other Star Guy”

- [IndigeSTEAM](#)
- “[AI: neither artificial nor intelligent](#)”
- “[Cardinal Comet](#)”

The stories about “**Tipis and Telescopes**”

- [General “Tipis and Telescopes” stories](#)
- [Winnipeg 2021](#)
- [Kananaskis 2022](#)
- <https://www.cbc.ca/news/indigenous/indigenous-astronomy-wilfred-buck-manitoba-1.6202162>
- <https://ingeniumcanada.org/channel/articles/star-stories-the-making-of-the-indigenous-star-knowledge-project>

The **Cree Star Map**

- [Native Star maps](#)
- “[The Cree Stars](#)” (video)

[Royal Canadian Astronomical Society](#)

Solar Eclipse: Umbraphiles

- “[Eclipse Chasers](#)” (article)
- “[Total Eclipse of the Heart](#)” (article)
- [Umbraphillia](#) (article)

Eclipse & Ceremony

- alignment of: lodge-alter-fire (see image in video episode) (Buck)
- alignment of: sun-moon-earth
- protocols of the eclipse, how different they are between nations
- respect and humility
- this is a time when the sun and moon are “coupling” (Cardinal)
- how strange it is that the Sun and the Moon appear as the same size from Earth?! (Cardinal)
- please do not look at the sun!!

Information vs. Knowledge (Cardinal)

- information: disconnected
- knowledge: you have to dance with it

States of Matter

- when everything is active, like in a sweatlodge ceremony and in scientific cycles. All is related. (Buck)
- states of matter in a sweatlodge- constant changes in carbon and hydrogen (Buck)
- This is like the F-orbital (Cardinal)

Three Body Problem

- Earth-Moon-Sun and Euler ([Wiki](#))

- gravity between the three objects makes it very difficult to predict place or create stability (Cardinal)
- How did the moon get to where it is??
- additional explanation from [Scientific American](#)
- “[The Cold Finger](#)” – disturbing the atmosphere (Cardinal)

Eclipse & Connections

- [Tides](#)
- [NY Earthquake](#)
- [fish behavior](#)
- [Taiwan Earthquake, Iceland Lava, and 2024 Eclipse](#)

The North Star

- “The Heart of the Sky” (Buck)
- 26,000 yr cycle of the North Star (Cardinal). Now Polarius, next North Star is Vega. Indigenous people have known the cycles of the North Stars for thousands of years, passed on in their oral stories.
- 22,000 year ago, the North Star was Draco, it was in the Thunderbird constellation (Buck). We know this because of the stories that have been passed on.

Moon Cycles

- 13 cycles of the moon, each has a season within itself. (Buck)
- each moon cycle has a name connected to the community and land it is seen/experienced from.
- what is the Indigenous name for the June full moon from the lands you are listening to the podcast from?
- Moon cycles connect with Language (Cardinal). These moons and stories are so contextual, connect to specific communities, and carry so much information.

First Thunder

- there has to be SO many things (humidity, temperature, sunlight, latitude etc...) that come together at the same time and the right time, for the first thunder to happen (Cardinal). This is why so many Indigenous people have ceremonies and honour the first thunder of the season.
- this first thunder and flash of lightening call the bundles to open and dance.
- first thunder is about the FOUR ENERGIES (rock, oxygen, hydrogen)

Thunderbird and Sagittarius A*

- Thunderbird nest in Sagittarius A*. These stories have been shared about the significance of this location for thousands of years, but only recently have global scientists been recognizing this blackhole.
- interstellar weather is thunderbird territory (Cardinal)
- [Blackholes](#) from National Science Foundation

Weather and the Cosmos

- weather is like a mood (Cardinal)
- chaos of trying to predict the weather (Buck)
- connection between weather, the moon, and sap (Buck)

Additional Readings and Links:

- “[Wilfred Buck](#)” documentary directed by [Lisa Jackson](#), available on Crave
- “Wilfred Buck” Documentary by Lisa Jackson- [article](#)
- “[Kitcikisik \(Great Sky\): Tellings that fill the Night Sky](#)” (book) by Wilfred Buck
- “[Tipiskawi Kisik: Night Sky Star Stories](#)” (book) by Wilfred Buck
- “[I have lived Four Lives](#)” (book) by Wilfred Buck
- “[Awasis](#)” the new planet
- “[Research is Ceremony: Indigenous Research Methods](#)” (book) by Shaun Wilson
- “[One Sky, Many Worlds: Indigenous Voices in Astronomy](#)”
- [Native Skywatchers](#) (webpage)
- “[Protocols for Indigenous Astronomy](#)” (article)

Want more Indigenous Science Resources? Check out [Relational Science Circle](#).

Want to learn more about Indigenous Science, Indigenous Science/Mathematics Teacher PD sessions, or have an idea for a guest or topic for the Ancestral Science Podcast, email relational.science@gmail.com

Gratitude to the OG support from Juan-Carlos Chavez, ongoing teachings gifted from Elders and Knowledge Keepers, Ancestors of past and future, and all the science and knowings of Stones and Stars.

