

Cultural Astronomy in the 21st Century - A Brave New World

Duane Hamacher

President of the International Society of Archaeoastronomy and Astronomy in Culture and Director of The Burunh Program for Cultural & Indigenous Astronomy at the University of Melbourne, Australia.

The study of astronomy in culture is more popular now than ever before. Public interest in the subject has exploded, but in a much different way than it did in decades past. Rather than focusing on alignments in Stonehenge or the orientation of the Giza Pyramids, researchers are looking to learn from living cultures to guide our way forward in the next iteration of the Space Age. In recent years the field has rapidly expanded in breadth, approach, and scope. In the early days, archaeoastronomy dominated the public consciousness, exploring ideas of how ancient cultures built monuments, temples, and stone circles to worship the stars. Research focused on measuring alignments in these structures to significant celestial events, such as the rising of the solstice Sun or the setting of a lunar standstill.

As we look back with critical eyes, we see that many of the claims made in our field were falling flat under reexamination. Follow up studies showed many “established facts” to be highly erroneous or flat-out fabrication. Some of this resulted from working in unfamiliar terrain, particularly as scientists and engineers ventured into the social sciences and humanities. Some resulted from pushing new boundaries with few or no established methodologies. Much of it was simply a matter of bias, while some was an unconscious yet stubborn refusal to acknowledge that the way research is conducted in one field cannot be easily transcribed to another without a complete overhaul of academic frameworks and base assumptions. A surprising degree of it was fatal attraction: speculation so appealing that it became “fact” as it was subject to endless repetition in the media and academia. We were still making important discoveries and shedding light on previously unknown sites, but issues were bubbling to the surface.

After more than six decades of work, we look back to see that we had been walking the well-worn path of a ring as we went round and round in the same old circles, as Clive Ruggles discussed in 2011. But rather than chasing our tails, we were eating them. Unlike the Auryon of Fantasia, this brought us no special powers. We failed to correct mistakes and misinterpretations, digging our heels into a mountain of self-citation and pop-culture preference that traded rigour for fame. After a while, archaeoastronomy became synonymous with pseudoscience, causing long-term reputational damage. Today, the

most prominent media productions that directly reference our field are *Ancient Aliens* and *Ancient Apocalypse*, standing as a testament to the devolution of rigorous scholarship to anti-intellectual populism, where factual obfuscation is directed by stern-faced jesters cloaked in Indiana Jones attire, serving a *dépêche de fiction* decrying “academic elitism” to the uninformed masses. Perhaps we are more responsible for this than we care to admit.

As years passed, archaeoastronomy’s younger and less popular sibling, ethnoastronomy, continued to explore the astronomies of living cultures. This took many forms, from the good, to the bad, to the ugly. The process was all too-often conducted as a cultural curio - an “exotic” othering of people and knowledge that attracted research funding, sold books, and occasionally graced magazine covers. Rarely were the people of those cultures considered research collaborators. They were research subjects, and they rarely benefited from these outputs.

Over the last 20 years, cultural astronomy has undergone a complete metamorphosis. As we listen, learn, and reflect, we understand the necessity in taking a new direction. To truly decipher humanity’s understanding and use of the stars, we need to ponder how we frame our questions. We must consider how, why, and *if* we should even be asking them. This has driven an entirely new methodological approach, focused less on learning about “the other” and more on decolonising cultural astronomy research and utilising theoretical frameworks that make our previous interpretations seem as archaic as the ancient monuments we so fervently study.

Emerging research foci engage with people beyond the grave (archaeo) and the village (ethno). The sharp divides between archaeoastronomy, historical astronomy, and ethnoastronomy are fading as new developments emerge. Studies in geomorphology examine astronomical events in ancient stories, from supernovae to comets to meteorite impacts, helping us to understand the longevity of orality. New scholarship in astrosociology and social studies of outer space are guiding our approach to pertinent issues regarding space exploration (and exploitation), space law, light pollution, planetary colonisation, and the militarisation of space.

Research at the intersection of these approaches is now a focal point of scrutiny, but we must not shy away from their complexity. Like the Auryn, the point where one begins and the other ends is uncertain. Centre to addressing this complexity is the need to understand research at the Cultural Interface - addressing pressing issues in modern

society by combining traditional ways of knowing and scientific research that neither could address alone. Indigenous standpoint theorists, such as Martin Nakata, push the importance of examining how Indigenous weather traditions can address the challenges of climate change, or how ancient traditions of transient celestial phenomena can inform telescopic observations. The intersection of these ontological approaches creates sites of tension that require constant debate and negotiation, guiding a way forward as we navigate different and seemingly opposing epistemic frameworks.

People from cultural groups whose knowledge is central to academic interest are now leading the research rather than being subjects of it. The discipline is also starting to look inward, with researchers researching the researchers. This is driving new questions: How can we conduct our research in respectful, collaborative ways while maintaining a strict sense of scholarly rigour? How can we better educate ourselves in a discipline that draws from diverse academic fields of inquiry? How can we shift away from outdated questions and approaches and develop new paradigms that guide future scholarship?

A major lesson cultural astronomers have learned from cultural Elders spanning the globe, from antiquity to modernity, is that the sky is a reflection of the land. As above, so below, as embodied by the Lakota term *Kapemni*. The stars function as a clock, a map, a storyboard, a compass, a memory space, and a canvas. They are central to education, medicine, religion, politics, warfare, and economics as well as spirituality and cultural identity. To move forward astronomers must shake off the shackles of self-imposed academic confines and consider the role of astrology in the history of science and culture. Astrology and astrophysics are both systems of understanding our place in the Universe by humans. As such, both are branches of cultural astronomy. But they ask different questions and have different applications. We must consider the context of these questions and approach them accordingly. We should not, as many do, simply dismiss one or the other out of a sense of ideology, political fear, or personal distaste. But we should also never lose our sense of scientific integrity. If we do that, as Indigenous Standpoint Theorist Martin Nakata argues, “it’s all over.”

Today, cultural astronomy research spans the full spectrum of time, from ancient astronomies to space futures, and geography, from cultures calling Arctic tundra to tropical archipelagoes home. We now examine astronomy in a social, cultural, historical, and scientific context simultaneously. We explore the role of the stars in music, poetry, and art, and examine our collective space future as humans venture beyond the confines of our atmosphere to explore, explain, and exploit.

We must reflect on how we conduct research, what questions we ask, and - importantly - how our personal backgrounds and lived experience guide our process and contribute to the work be it positively or negatively. Post-colonial theorist Sandra Harding has long argued that neutrality and objectivity in science is an uncomfortable fiction, demonstrating that all science is biased by the person doing the research. Feminist theorist Donna Haraway examined primate research to exemplify how gendered scientific research can really be. Reflexivity is core to developing an approach in cultural astronomy that is cognisant of how we influence, bias, and impact our own research.

Emerging frameworks in cultural astronomy centre ethics, law, and philosophy. This includes areas where astronomy and traditional cultures collide. Scholars like Leandra Altha Swanner examine the rights of Indigenous peoples, particularly where instruments of science become instruments of conquest. This requires acknowledging the autonomy and sovereignty of Indigenous lands, skies, and knowledges and how they have been impacted by scientific and colonial powers. We ask questions today that were not readily considered just a few decades ago: As Indigenous elders and scholars voice their concerns about the exploitation of knowledge, the dismantling of cultural boundaries, and the dismissal of knowledge restrictions in the name of “science” and “scholarship”, we must ask: do we even have the right to this knowledge?

An increasing number of First Nations scholars are completing doctoral theses on topics in cultural astronomy. This new generation is leading the field through *Etuaptmumk*, or “two eyed seeing” - a term coined by Mi'kmaw Elder Albert Marshall to describe the act of “learning to see from one eye with the strengths of Indigenous knowledges and ways of knowing, and from the other eye with the strengths of mainstream knowledges and ways of knowing, and to use both these eyes together, for the benefit of all.” This emphasises relationality and kin-centric approaches to research, as pioneered by First Nations scientists like Potawatomi botanist Robin Wall Kimmerer.

As the field of cultural astronomy evolves, the narrative of *what* we do, *how* we do it, and *why* we do it is also evolving. The Old Ways are becoming ‘new’ and our discipline is poised to make a substantial and positive impact in a rapidly changing world, but only if we learn from past mistakes and commit to an efficacious future, guided by the Twi concept of *Sankofa* - looking back to move forward.

As our interdiscipline traverses new pathways forward, we must plant seeds for forests of knowledge to flourish, nourished by ethical approaches and pruned by responsible protocol. The International Society of Archaeoastronomy and Astronomy in Culture is committed to this new direction and ensuring that we approach academic research in rigorous, respectful, and mutually beneficial ways. Readers will see this brave new world emerge through the pages of the JAC. Ad astra.