

ARTICLE

# Indigenous Epistemologies of North America

Barry Allen 

McMaster University, Hamilton, Ontario, Canada  
Email: [bgallen@mcmaster.ca](mailto:bgallen@mcmaster.ca)

(Received 2 October 2020; revised 13 June 2021; accepted 8 July 2021;  
first published online 2 September 2021)

## Abstract

Indigenous cultures of North America confronted a problem of knowledge different from that of canonical European philosophy. The European problem is to identify and overcome obstacles to the perfection of knowledge as science, while the Indigenous problem is to conserve a legacy of practice fused with a territory. Complicating the difference is that one of these traditions violently colonized the other, and with colonization the Indigenous problem changes. The old problem of inter-generational stability cannot be separated from the post-colonial problem of sovereignty in the land where the knowledge makes sense. I differentiate the question of the value of knowledge (Part 1), and its content (Part 2). The qualities these epistemologies favor define what I call *ceremonial knowledge*, that is, knowledge that sustains a ceremonial community. The question of content considers the interdisciplinary research of Indigenous and Traditional Ecological Knowledge, as well as the issue of epistemic decolonization.

**Keywords:** Indigeneity; knowledge; colonization; ceremony; comparative epistemology

## Introduction

European philosophy fostered the idea that knowledge is good, but that like gold we do not have enough of it and require more and better knowledge. Philosophers from antiquity down to the nineteenth century who agreed on little else agreed about that. Not until Nietzsche at the end of the nineteenth century did philosophers begin to question this assumption and the value of knowledge, especially knowledge of truth (Allen 2004).

The Indigenous peoples of North America (to which my discussion is arbitrarily confined) confronted a different problem of knowledge. Their concern was not to achieve new and better knowledge but to conserve a vital practical legacy. They were interested in new knowledge when applications proved agreeable, for instance some took up agriculture when they encountered others using it, and those who could adapted magnificently to horse and rifle. However, they did not profoundly *need* these extraneous innovations or expect them or seek them out; they happened on them and picked them up, as foragers will do. Their truly indispensable knowledge, however, is an ancestral knowledge of how to live on their land.

The classical European problem of knowledge is to identify and overcome obstacles to its perfection as science, while the Indigenous problem is to conserve a non-fungible legacy fused with a territory. Knowledge presents all so-called oral cultures with two

problems, one being to ensure accurate understanding across generations, the other to make the whole body of knowledge effortlessly available (Turnbull 2000). American Indigenous cultures found solutions to both problems in the honor paid to superlative practice and integration with ceremony. Ultimately of course, all knowledge, scientific or Indigenous, depends on the coherence and endurance of communities of practice, without which even texts become worthless.

The difference in the problem knowledge poses for Indigenous and European traditions is made more intricate because one of these colonized the other, raining soul-sickening violence on millions, many millions, of Indigenous people. Nor has it stopped; it is not a dark page of bygone times but is still happening practically every day if you know where to look (Coulthard 2014; LaDuke 2015). The Indigenous problem of knowledge changes with the experience of colonization. The original problem was to preserve inter-generational stability and was solved with appropriate cultural invention. But now, in the face of a colonization that is changing rather than disappearing, this old problem cannot be separated from the new problem of Indigenous sovereignty in the land where the knowledge makes sense (Turner 2006; Henderson and Battiste 2013).

To investigate the philosophical field of Indigenous epistemology I differentiate an account of the value of knowledge (Part 1), and of its content (Part 2), where I draw from the interdisciplinary research on Traditional Ecological Knowledge and post-colonial scholarship on epistemic decolonization. To anticipate my conclusions touching the theory of knowledge:

- (1) Qualities privileged in these epistemologies define what I call *ceremonial knowledge*. What is “ceremonial” about it is that such knowledge exists only among a community bound by ceremonial practice, so that, for example, a person with no history in the group has no access to the experience and cannot acquire the knowledge.
- (2) In the value of personal experience and a cautious approach to generalization, Indigenous epistemologies bear comparison to the empiricism of Epicurus, though they would not concur with his atomism, their ontology tending not to substances but rather to relations.
- (3) This knowledge is grounded not in theorematic evidence but more literally in a peoples’ territory. These epistemologies evaluate knowledge not for its contribution to supposedly higher values like truth or science, but for its contribution to the endurance of a ceremonial community and territory.
- (4) The discipline imposed by responsibility to a ceremonially bound community inculcates an emotional and ethical stake in behavior that minimizes negative impacts for life, motivating people to act in ways that expresses respect for all their living relations.

Before going further, there may be qualms about my entire procedure which I can try to assuage at the outset. It may be asked whether I really have a topic. The continent is so large, the First Nations so scattered, their histories so various, with thousands of different languages, many mutually unintelligible – is there really anything coherently identifiable as a North American Indigenous epistemology? But that is not my claim, and “epistemology” is generally used in the plural. Still, I show that in terms of the value accorded to knowledge and often the content or the sort of content that is valued there is a profile to be drawn of Indigenous ideas of knowledge.

The argument that the ethnographic diversity of tribes invalidates discourse on Indigenous philosophy is refuted, even vehemently, by Indigenous thinkers themselves

(Hester and Cheney 2001; Cordova 2007; Norton-Smith 2010). They reject the assumption that anything “pan-Indian” is necessarily fallacious, given the ethnographic plethora of arbitrarily different “cultures” associated with arbitrarily fragmented “tribes.” Since this fragmentation is mostly due to colonization, it is not surprising that Indigenous thinkers speak against the supposed fallacy of pan-Indianism. Native wildlife biologist Raymond Pierotti thinks the denial of anything pan-Indian wrongly deflects people from appreciating “that perspectives and philosophical themes exist that are shared by almost all Indigenous peoples” (Pierotti 2011: 4). As a teacher for many years at Haskell Indian Nations University, he is aware of the ethnographic disparity of North American Indians, and it does not deter him from wanting to understand their philosophy. Although “North American Indigenous world views obviously vary in the details of their belief systems,” he finds them to differ much less “in the principles that underlie their philosophical beliefs.” Despite linguistic, symbolic, ceremonial, and ecological differences, he sees “a fundamental shared way of thinking and a concept of community common to Indigenous peoples of North America” (Pierotti 2011: 5).

## 1. The value of knowledge

Vine Deloria Jr. says Indigenous thought recognizes three sources of knowledge: “individual and communal experiences in daily life”; “keen observation of the environment”; and knowledge “received from spirits in ceremonies, visions, and dreams” (Deloria 1999: 43–4). From observation and experience people discern orderly processes and a benign spiritual energy in nature. Dreams go beyond these sources, as does the decision to seek out spirits, for example in a vision quest, though nothing makes these alternatives less empirical. Deloria says “the Indian understands dreams, visions, and interspecies communications, when they are available, as a natural part of human experience” (Deloria 1999: 67). All of these sources matter, with pretty much the same weight; for instance, Indigenous medicine specialists “attest to gaining inspirational teachings though fasting and ceremonial purification in the form of visions and spiritual guidance, which they have then enfolded into their personal accumulating store of knowledge, practice, and belief” (Turner 2014: 385). However, given the prominence of arguments about dreaming in European epistemology, the cognitive value of dreams is worth a closer look.

### 1.1. Dream knowledge

An ethnographer of the Rock Cree First Nation in subarctic Manitoba finds his subjects to enjoy recounting their dreams, which they firmly regard as sources of information relevant to their interests. “Crees say that many dreams [not all] are perceptions of actually occurring events that the dreaming self witnesses, or in which it constructively participates. Such dreams are considered to be as real as the data of waking consciousness” (Brightman 1993: 95).

They have a theory to explain dream cognition. During an isolation puberty fast each individual (male and female) receives a *pawākan*, dream image, explained as a soul-being personified by an animal, bird, tool, or even snow, wind, or a worm, with which the dreamer will from then on communicate in dreams. The identity of the *pawākan* is private and not discussed or shared with others. This *pawākan* transmits information in dreams about the location of animals, the welfare of absent relatives, and the treatment of illness. A Cree informant says, “If you’re in any kind of trouble, you dream. You dream things, all kinds of things ... animals, trees, stones, ice. If you love ... if you do everything it says to do, it’ll help you.” As we almost see in this remark

(those are *not* my ellipses), people's relationship with their *pawākan* is described in terms of love, as for a relative, spouse, or friend. "That's what people live on. For a long time they depend on the *pawākan*. If you don't have one you're helpless" (Brightman 1993: 77, 89).

Dreaming has a logical place among the sources of knowledge. American Indigenous cultures tend to regard direct personal experience as the best possible knowledge and their languages can require them to distinguish personal experience, hearsay, and lore. For instance, in Wintu, an Indigenous Californian language, it is impossible to speak without at every point specifying the source of one's information. Each verb has two forms, one used for what cannot be directly known, the other for what the speaker has some form of access to (Goulet 1994, 1998; Leavitt 2011: 140). It may be this strictness that makes dreams important. Dreaming is the only way to perceive spirits as directly as in waking perception, which is all they trust. An ethnographer of the Labrador Cree says, "The hunting dream is the major object of focus. ... It is part of the process of revelation by which the individual acquires knowledge of life. It is the main channel through which he keeps in communication with the unseen world" (Speck 1935: 187).

An Ojibwa grandfather told an ethnographer, "You will have a long and good life if you dream well" (Hallowell 1960: 46). An ethnographer among the Chipewyan, a northern Dené people, relates that "most of the hunters I knew in the Great Slave Lake area deliberately tried to dream about what they needed to know to bring about success" (Smith 1998: 417). They esteem a knowledge they call *inkonze*, which comes in dreams as a gift from spirit animal-persons to repay the hunter's respectful attitude in the bush, which is their realm. This term *inkonze* is said to have cognates in all the Northern Athapaskan languages. The elements are *inin*, thinking; *kon*, fire; *aze*, a little, a bit. *Inkonze* is "little-bit medicine-power," thinking intensified to a burning point. Any successful activity expresses something of *inkonze*, extraordinary skill expresses more, and it arrives in dreams (Smith 1998).

Some individuals are notably good at dreaming, usually from childhood, and enter into intense communication with animal spirits. Years of such experience allow these people to learn more about the spirits because their dreams are so vivid and eventful. They serve their group in healing, prediction, and leading the hunt. One such person says, "All people have got some *inkonze* and can get more, but nobody gets it strong without lots of dreams and without going to the root. ... It means answering the calling. You dream all your life, then comes the calling to the roots" (Smith 1998: 423). It is evident, therefore, that what some philosophers dismiss as cognitively nugatory is for these Indigenous people a serious mode of cognition.

## 1.2. Ceremonial knowledge

Alliance with a dream spirit is just the beginning of the mediators Indigenous knowledge convokes. In her study of Blackfoot ways of knowing, Betty Bastien observes, "Knowledge arises in a context of alliances and reciprocal relationships. Implicit is the notion of partnerships that entail obligations or responsibilities on behalf of both parties. In consequence, to seek knowledge is to take on grave responsibilities" (Bastien 2004: 55). They include attention to a more-than-human community; Indigenous knowledge "is the result of deep and continuous communication between humans and the more-than-human world of which they are citizens" (Hester and Cheney 2001: 325). There is only one way to address non-humans, and it is with ceremony; even small ceremonies of everyday life are mindful of other-than-human others. A life of ceremony is a life shared with participating non-humans. "The crucial aspect of

coming to know,” Bastien writes, “is participation.” “I began to experience life from a place of ceremony and had to acknowledge that ceremony does not only occur in specified events and places. Ceremony is my life. My life is ceremony. I am not separate from ceremony at any time in my breathing moments” (Bastien 2004: 98, 171). Feelings like that explain why Paula Gunn Allen says, “It is ritual rather than politics or language that forms the basis of the tribal world, because ritual is the basis and axis of tribal reality” (Allen 1985: 98–9).

Indigenous knowledge is unwritten, there is no school or archive; the vitality of this knowledge is its contribution to the endurance of a ceremonial community. “For some, traditional knowledge is simply information which aboriginal people have about the land and animals with which they have a special relationship. But for aboriginal people, traditional knowledge is much more. One elder calls it ‘a common understanding of what life is about’” (Bielawski 1996: 217). Gregory Cajete also makes this point. “Understanding the relationship scientifically is not enough – living and nurturing these relationships is the key” (Cajete 2000: 95). To know the knowledge, you have to live it, which begins with the life of a ceremonial community. Indigenous knowledge is not simply a product, a result, or an answer on an exam. Its expression is inextricable from the poly-rhythmic cycles of climate, season, and biology in the land where the knowledge works.

How you learn, where and why you learn, and how you share what you know all contribute to the value of Indigenous knowledge. The medium that mediates these relationships is ceremony. Taiaiake Alfred relates the words of a contemporary Iroquois woman:

There is a spiritual base that connects us all, and it is stimulated through ceremony. The songs and dances that we perform are like medicine, *ononkwa*, involving the power of the original instructions that lie within. In it we dance, sing, and share our words of pain, joy, strength, and commitment. The essence of the ancestors’ message reveals itself not only in these songs, speeches, and dances but also in the faces and bodies of all who are assembled. This visual manifestation shows us that we are not alone and that our survival depends on being part of the larger group and in this group working together. We are reminded to stay on the path laid out before us. (Alfred 2009: 35)

From ceremony and a community of ceremonial practice derive ceremonial experience and ceremonial knowledge. What is “ceremonial” about these is just that they exist only among a community of ceremonial practice. A person with no history in the group has no access to the experience and cannot acquire the knowledge, even though it may be as mundane as how to pick a root. By ceremonial knowledge I do not mean knowledge of ceremonial performance or ritual procedure, but rather knowledge of the land from which the ceremonial-community makes its living. The value of knowledge is its contribution to the ancestral aspirations of such communities (Hester and Cheney 2001). Brian Burkhart observes that “Native epistemology does not weed out the true from the false but rather attempts to grapple with the relationships in an ever-transforming world as manifested through the variety of experiences of generation after generation of Indian people” (Burkhart 2019: 250). Ojibway ethnologist Basil Johnston makes a good observation:

The more resourceful a man, the more whole he was, and the better for his community. The community had a duty to train its members as individuals not so much for its own benefit though there was that end, to be sure, but for the

good of the person. The man or woman so trained had received a gift from the community which he was to acknowledge in some form; and that form consisted simply of enlarging one's own scope to the fullest of his capacities. The stronger the man, the stronger the community; and it was equally true that the stronger the community, the firmer its members. (Johnston 1976: 70)

Deloria writes, "The old Indians were interested in finding the proper moral and ethical road upon which human beings should walk. All knowledge, if it is to be useful, was directed toward that goal" (Deloria 1999: 43). To step out of the circle of experience and chase the eternal is the wrong road; to forget relations and seek atoms of individuality is the wrong road (Burkhart 2004). Deloria says the image of a road means that "the universe is a moral universe," that "there is a proper way to live in the universe," and no action is inconsequential or morally neutral (1999: 46). In the words of an Anishinaabe elder, "The Original Instructions separate the life path into two parts: that which promotes life and that which ends in destruction" (Williams 2018: 102). The wise are therefore respectful, mindful, poised, like one who must ford a stream in winter, to borrow an image from the *Dao de jing*. An Apache grandmother admonishes her grandson, "Your life is like a trail. You must be watchful as you go. Wherever you go there is some kind of danger waiting to happen. You must be able to see it before it happens. You must always be watchful and alert. You must see danger in your mind before it happens" (Basso 1996: 126). A Haida proverb likens the land to the edge of a knife. "When you are walking, watch your steps. If you don't watch your steps, you will fall off the earth" (Turner *et al.* 2000: 1280). A Cree elder remembers the admonition, "In the spring the Elder will tell you, 'You have to watch what you do, the ice melts from underneath and you should be careful'" (Kulchyski *et al.* 1999: 234).

A ceremonial community is a group bound by the ceremonies they share, the families made by marriages among the group, and their common consciousness of belonging to this group as to an extended family – "my people." It is this sort of organization and not "tribes" that was the backbone of North American Indigenous society before and after European contact (Innes 2013). I place a further condition on ceremonial communities, which is that the ceremonies must be from the other side of memory, a legacy from time out of mind. A ceremonial community cannot be summoned into being by a few friends and an agreement to celebrate. These groups exist among us in pockets of local culture, enduring communities with legacies of survival. Ceremonial knowledge is knowledge that sustains such communities, and ceremonial experience is the experience uniquely available to those who belong to them.

### 1.3. The empirical value of knowledge

Indigenous epistemologies share something with the ancient school of Epicurus on the value of knowledge. The Epicureans were antiquity's strongest alternative to the philosophy of Plato and Aristotle (Asmis 1984). Ever since Socrates, philosophers tended to think that the best, most philosophical knowledge (*episteme, scientia*) must be unconditional, absolute, universal, the final truth about what finally is. Epicurus was uninterested in that or any other finality. You do not require universally valid knowledge for happiness, and for Epicurus happiness is more valuable than the contemplative values Plato and Aristotle attach to Being and Truth. Epicurus knows the truth of Being; it is atoms and void, and nothing worthy of worship. Our thought is much better occupied with the emergent bodies of experience, which are the source of all pleasure and pain.

Epicureans say that knowledge does not need to be universal to do what makes it valuable. Universality is not expected, not valued, not really good for anything except



the rationalistic fantasy of mastery they denounce in the Stoics (Allen 2021). I see in that an analogy with something said about Indigenous knowledge. “Aboriginal people are reluctant to generalize readily about the natural world of which they are a part. Their experience with the complexity of animals and knowledge of the dynamics of ecosystems tells them that such exercises are futile indeed” (Stevenson 1996: 288). Deloria observes, “Instead of matching generalizations with new phenomena, Indians match a more specific body of information with the immediate event or experience. Exceptions to the rule become a new set of specific behaviors that open new classifications for future information” (1999: 68). Leroy Little Bear makes the point in terms of territory. “[Our] knowledge is only good for Blackfoot territory. In other words, we know the relational networks, the environmental networks, all my relations, within Blackfoot territory. Outside Blackfoot territory, it may be applicable, but we don’t take for granted that it is. Whereas, over here in the Western paradigm, once we find something, we make claims that it’s good all over the place” (Little Bear 2013: 12).

An ethnographer of the Eastern Cree finds no place in their thought for the universally true (Preston 2002). How in subarctic Labrador could it be advantageous to pursue a universal truth? Anyone’s experience is partial, and everyone is aware of the difference between what they know and what they do not. Burkhart observes that Native philosophy “is a philosophy where the thinking and the observing never stop.” Thought that never settles down or throws out colonies also evades the despond of anomaly, which arises only because someone decides that universal knowledge has been attained. “If we never stop thinking and observing, then there will always be room for new experiences. No matter how strange these experiences may seem, they will never be contradictory, since there is [no generalization] for them to contradict; they will never be anomalous since there is no theory for them not to fit into” (Burkhart 2004: 25).

The scruples of Indigenous empiricism clash with the abstractions of legal rationalism when they meet in a court of law (Ross 1996). A Canadian crown attorney for First Nations fly-in communities (Ojibwa-Cree) in northern Ontario says it is common knowledge among lawyers that as witnesses Natives are easily led on cross-examination. Asked, *Isn’t it possible that X?* they are much more likely than settlers to agree that it is possible, even if they just told another lawyer that something different happened. This is not due to any uncertainty or confusion in their minds; it respects the courtesy of their culture that personal certainty does not mean another’s experience could not be different. Among Cree (if not more generally), dogmatic certainty about what one knows is untruthful and disrespectful (Scott 1996). Ojibwa thought allows that individuals “will see different objects in the landscape, will hear different sounds; it also allows the expectation that the same entity may appear in different forms from one time to another; and it respects the individual’s privacy and veracity as to what he has seen or heard” (Black 1977: 101–2).

A Cree elder called to testify to the impact of proposed hydroelectric development on his people’s land was asked to swear to tell the truth. He asked the translator to explain “truth.” It was explained that truth is something that holds for all people, valid regardless of who reports it. “I can’t promise to tell you the truth,” he answered, “I can only tell you what I know” (Dei *et al.* 2000: 25). Basil Johnston comments on the Anishinaabe expression *w’daeb-wae*, which he says, “is an expression approximating the word for truth in the English language except that it means that one casts one’s knowledge as far as one has perceived it and as accurately as one can describe it, given one’s command of the language” (Ross 1992: xii). The qualification comes unbidden in the oral history of Inuit Martha Tuniq, age 64: “Everything what my father taught are true up to now” (Bielawski 1996: 221).

The agreement I have suggested with Epicurean thought on the value of knowledge is conceptual only and does not diminish the ethical difference between these philosophies. Epicureans say that if people want to do something good for themselves (for themselves alone), they require liberation from superstition, which requires science – their kind of science, not Aristotle’s. The benefit of science is the confidence it induces that everything has a mechanical explanation in terms of atoms in a void and is therefore without finality or purpose. Such explanations are the best antidote to a superstitious interpretation of phenomena, which is an obstacle to tranquility and the Epicurean idea of happiness.

It would be difficult to devise a perspective more antipodean to Indigenous values, especially in severing knowledge from the well-being of a community. Indigenous philosopher Lorraine Mayer observes that Native university students in Canada, where she is a teacher, find it “both interesting and confusing to confront a knowledge that is not connected to community, and so abstract as to have little relation to the existence and needs of a community, yet to find that it is called ‘knowledge’” (Tomsons and Mayer 2013: 54). Elsewhere we find the reverse scenario of Indigenous impatience with useless science. First Nations people who have worked with resource-management teams in the Yukon express their frustration that once some research has been done, “it just sits there, in a filing cabinet or book. It is not passed on to young people and incorporated back into the daily life of the community but filed away to be consulted occasionally in the course of land claims negotiations or resource-management debates” (Nadasdy 1999: 9).

It is irresponsible, as Bastien explains: “The pursuit of knowledge means not only to know one’s place in a cosmic universe but, by knowing one’s relatives, knowing how to relate within these alliances. Knowing one’s relatives is the responsibility of knowing” (2004: 55). Ceremonial experience taught Indigenous peoples how to behave as members of a community that includes non-human persons who are their relatives. The self is *dividual*, divided out among these relatives, the ontology being unconditionally relational (Viveiros de Castro 2017). The discipline imposed by responsible knowledge inculcates an emotional and ethical stake in behavior that minimizes negative impact for life, motivating people to act in a way that expresses respect for their relations. Refraining from assertoric certainty and universal validity is part of that discipline.

## 2. The content of knowledge

Indigenous knowledge flourishes through some of the same qualities that scientific practitioners scruple to suppress in their work, such as personal experience and trust and intimacy with animals. Indigenous peoples tend to value knowledge that allows for action in situations of incomplete understanding rather than something rigorously proven; also, knowledge that takes account of complex real-world contexts rather than relying on artificial combinations of controlled variables; and that favors harmonious social relations over results obtained through controls that eliminate human interest. They also expect the cultivation of knowledge to mold the heart, imparting not just skill but attitudes of reverence, self-control, honesty, and courage (Ross *et al.* 2011; Nelson and Shilling 2018).

Indigenous knowledge is “local” – practically every discussion emphasizes this; the knowledge is keyed to place, fine-tuned by territory. For a single example consider this from the Yup’ik, an Inuit people of Southwest Alaska. “When you’re in the trees, you can get lost. When you look at cottonwood, one side has moss from the bottom up pretty high, but the other side is clean. That [clean side] is the south side. Then you can tell where you are. South wind cleans the south side when it rains hard, but the other side is dirty and has moss growing on it” (Fienup-Riordan and Rearden 2012: 181).



Very good to know – in that place, living a traditional life. Anywhere else it is scarcely worth mentioning. Too local, particular, and special, not general or universal – how could European epistemology see knowledge in that? It is what Aristotle dismissed as *empiria*, mere experience, not knowledge at all (Allen 2021).

Indigenous knowledge is local; it is also holistic – not a formal holism of sentences or theories (Quine 1981), but instead the ecological holism of a relational cosmos. Pierotti makes the excellent observation that Darwin's *Origin of Species* “was probably the first Western work of scientific scholarship to show convergence with Indigenous concepts of how the world functioned” (Pierotti 2011: 113). They converge in ideas of ecological holism, of nature as an economy of relations among organisms, and in understanding humanity as one among all the forms of life, all our relations, seriously kin.

The Indigenous understanding of the world as a network of relationships across communities human and non-human is a good perspective for observing connections among things that research typically isolates. For example, beluga whales visiting the Alaskan coast enter some rivers but not others, which baffled marine biologists, who were unable to explain why rivers were avoided or chosen. Finally, they asked an Indian. A local Yupiaq explained that the avoided rivers had beaver dams upstream, preventing salmon from reaching their spawning grounds (Pierotti 2011). The salmon selected the rivers to avoid beavers and the whales followed the salmon, a phenomenon that flummoxed the specialists by weaving freshwater beaver and salt-seawater whales with glistening threads of migrating salmon.

Local knowledge is people finding solutions to problems encountered in daily life, drawing on techniques that are to be imparted. The knowledge lives among the people rather than reposing in an archive, being reproduced over generations by stories in the Indigenous language, ceremony, medicine, and daily work on the land. Despite the label “traditional,” Indigenous knowledge readily accommodates change. Being unwritten, these traditions do not engender orthodoxy, and Indigenous knowledge owes its longevity to an ability to incorporate new observations, which also makes the knowledge responsive to unexpected change. Only Indigenous knowledge has existed long enough for long-range consequences to affect it, making it more deeply time-tested than scientific concepts ever have been (Pierotti 2011). This time-depth is an intelligent if long-term strategy to cope with ecological complexity. There are too many variables in too many modalities to calculate. The alternative is to gradually (over generations) build up a holistic understanding of the important species by monitoring a large number of variables over a long period of time, “accumulating and assessing a large amount of qualitative data and building a collective mental model of healthy animals and environment” (Scott 2006; Berkes 2013: 218).

Scholars summarize Traditional Ecological Knowledge (TEK) in much the same list of qualities, also suggesting that these qualities distinguish it from science. TEK is tacit, implicit, intuitive, informal, non-coded, local; science is explicit, formal, universal, and so on. The problem with this dichotomy is its obsolete positivist conception of science (Hacking 1983; Rouse 1987). Scientific knowledge cannot be equated with a system of abstract statements or universal truths in isolation from the techniques, practices, instruments, and technologies that produce and verify them. These instruments and their use are matters of local knowledge, enrolled at carefully organized sites by people working face-to-face, trying to hold together an assemblage of heterogeneous, imperfectly disciplined components drawn from diverse times, places, and circumstances. Every instrument, experiment, and theory begins and for a time remains a precarious assemblage of such elements, and does not finally settle down until its results become uncontested (Latour 1992).

It is a mistake to think that locality distinguishes Indigenous knowledge from scientific research, because all knowledge is local and has no choice about it. This is

due to what has been called the mangle of practice (Pickering 1995). In any experiment “there are,” as Nancy Cartwright says, “too many features interacting in too many ways, in too many possible arrangements, and mixed levels and domains, for outcomes to follow the dictates of general principles. There is no choice but local know-how” (Cartwright 2019: 20). However, some knowledge stays local and does not develop the instruments required to range abroad and colonize. Modern research has the power to re-create its habitat, namely, a laboratory, almost anywhere (Latour 1983, 1999). Scientific researchers no less than Indigenous medicine-collectors depend on tacit skills and local knowledge, but the medicine-collector cannot use her knowledge anywhere except at home, while nomadic researchers can pack up and take their territory almost anywhere.

Post-colonial scholarship insists on diversity in knowledge no less than elsewhere and speaks of epistemologies only in the plural (Mignolo 2000; Santos 2007; Mizumoto *et al.* 2018). I think these scholars prefer this plural because they are unhappy with what neo-Kantian and logical positivist philosophers did with *their* relentlessly singular and normative concept of epistemology. To urge this diversity and its principle is the insurrection of subjugated knowledges that Michel Foucault (1980) foresaw. The voice of insurrection comes principally from the scholarship of decolonization, some of it Native, denouncing knowledge that is used against them, as for instance when it is argued that “settler colonization relies on the continued erasure and silencing of Indigenous epistemologies and knowledges to prevent challenges to settler colonial claims to land and history, and to subvert Indigenous efforts of decolonization” (Baldy 2015: 4).

Epistemological diversity includes different evaluations of the value of knowledge; different tests or proofs of knowledge; different ideas about what can or cannot be known, and who can know what; gendered or esoteric knowledge, and so on. The insurrection of subaltern knowledges is unsettling for settlers because we confront the survivors of our countries’ genocide. “Everyone knows ... that these lands and this state were created out of the genocide and removal of the true owners of this stolen land. This is quite an oedipal pill to swallow and impacts every aspect of the settler state and the settler psyche” (Burkhart 2019: 30). It requires a *will* not to know, not to remember, and not to care – what Charles Mills (1997) calls an epistemology of ignorance, a pattern of local and global cognitive dysfunction that precludes understanding.

The post-colonial criticism of scientific reason emphasizes the unsolved problem of how to demarcate science and explain what is so rational about it. Their arguments also refer to the diversity of scientific practice exposed by Science Studies, and the realization that scientific explanation cannot be reduced to a single normative model (Pickering 1992). The claim to be unsituated is situated; it is European, modern, and colonizing. From the subaltern perspective the universal pretension of science is a particularism with the power to define rival knowledge as merely local and traditional (Santos 2007). Its work perpetuates colonial inequality, destroys diversity, and normalizes an epistemic monoculture (Shiva 1993).

Exposing the mangle of scientific practice closes the distance between scientific research and Indigenous knowledge to the point that it may be difficult to find qualities of the one that the other does not share (Agrawal 1995). That is not entirely good news for Indigenous knowledge, however, because it will not stop research, nor discredit its voice in the halls of colonial power. For all their good will, scientific researchers cannot function *in situ* without renaming everything and introducing analytical distinctions that isolate what their hosts understand to be continuous; and since it is *their* findings that rationalize decisions in the metropolis, “it becomes clear,” as Sandra Harding concludes, “that these sciences, intentionally or not, all too often pave the way for the forms

of exploitation of nature and peoples characteristic of the dominant groups” (Harding 2019: 61).

Professional science is incriminated in some of the worst excesses committed against Indigenous peoples. Their findings have been used to judge these people culturally and ethnically inferior, to deny their land claims, and to refute their right to self-determination. The history is bitter. In a widely repeated remark Linda Tuhiwai Smith says, “research is one of the dirtiest words of the indigenous world’s vocabulary” (Wilson 2008; Smith 2012: 1).

### 3. Conclusion

Indigenous cultures of North America confronted a problem of knowledge different from that of canonical European philosophy. The European problem is to identify and overcome obstacles to the perfection of knowledge as science, while the Indigenous problem is to conserve a legacy of practice fused with a territory. Complicating the difference is that one of these traditions violently colonized the other, and with colonization the Indigenous problem changes. The old problem of inter-generational stability cannot be separated from the post-colonial problem of sovereignty in the land where the knowledge makes sense. Indigenous epistemologies are empirical in the value they assign to personal experience and their cautious approach to generalization. Their ontology is one of relations, and their knowledge grounded in territory. These epistemologies elucidate the value of knowledge not through supposedly higher values like truth or science; instead, knowledge is valued for its contribution to the endurance of a community of ceremonial practice. Indigenous epistemologies are a kind of Pragmatism for these closed communities.

### References

- Agrawal A.** (1995). ‘Dismantling the Divide Between Indigenous and Scientific Knowledge.’ *Development and Change* 26, 413–39.
- Alfred T.** (2009). *Wasáse: Indigenous Pathways of Action and Freedom*. Toronto: University of Toronto Press.
- Allen B.** (2004). *Knowledge and Civilization*. Boulder, CO: Westview.
- Allen B.** (2021). *Empiricisms: Experience and Experiment from Antiquity to the Anthropocene*. New York, NY: Oxford University Press.
- Allen P.** (1985). ‘Whose Dream is this Anyway?’ In S. Ferguson and B. Groseclose (eds), *Literature and Visual Arts in Contemporary Society*, pp. 95–122. Columbus, OH: Ohio State University Press.
- Asmis E.** (1984). *Epicurus’s Scientific Method*. Ithaca, NY: Cornell University Press.
- Baldy C.** (2015). ‘Coyote is not a Metaphor.’ *Decolonization: Indigeneity, Education, & Society* 4, 1–20.
- Basso K.** (1996). *Wisdom Sits in Places: Landscape and Language Among the Western Apache*. Albuquerque, NM: University of New Mexico Press.
- Bastien B.** (2004). *Blackfoot Ways of Knowing*. Calgary: University of Calgary Press.
- Berkes F.** (2013). *Sacred Ecology*. New York, NY: Routledge.
- Bielawski E.** (1996). ‘Inuit Indigenous Knowledge and Science in the Arctic.’ In L. Nader (ed.), *Naked Science: Anthropological Inquiry into Boundaries, Power, and Knowledge*, pp. 216–27. New York, NY: Routledge.
- Black M.** (1977). ‘Ojibwa Taxonomy and Percept Ambiguity.’ *Ethos* 5, 90–118.
- Brightman R.** (1993). *Grateful Prey: Rock Cree Human–Animal Relationships*. Berkeley, CA: University of California Press.
- Burkhart B.** (2004). ‘What Coyote and Thales Can Teach Us: An Outline of American Indian Epistemology.’ In A. Waters (ed.), *American Indian Thought*, pp. 15–26. Malden, MA: Blackwell.
- Burkhart B.** (2019). *Indigenizing Philosophy Through the Land*. East Lansing, MI: Michigan State University Press.
- Cajete G.** (2000). *Native Science: Natural Laws of Interdependence*. Sante Fe, NM: Clear Light.

- Cartwright N.** (2019). *Nature: The Artful Modeler*. Chicago, IL: Open Court.
- Cordova V.** (2007). *How It Is*. Tucson, AZ: University of Arizona Press.
- Coulthard G.** (2014). *Red Skin, White Masks: Rejecting the Colonial Politics of Recognition*. Minneapolis, MN: University of Minnesota Press.
- Dei G.J.S., Hall B.L. and Rosenberg D.G.** (eds) (2000). *Indigenous Knowledges in Global Contexts*. Toronto: University of Toronto Press.
- Deloria V.** (1999). *Spirit and Reason: The Vine Deloria, Jr. Reader*. Ed. B. Deloria, K. Foehner and S. Scinta. Golden, CO: Fulcrum Publishing.
- Fienup-Riordan A. and Rearden A.** (2012). *Ellavut: Our Yup'ik World and Weather. Continuity and Change on the Bering Sea Coast*. Seattle, WA: University of Washington Press.
- Foucault M.** (1980). *Power/Knowledge: Selected Interviews and Other Writings 1972–1977*. New York, NY: Pantheon.
- Goulet J.-G.** (1994). 'Ways of Knowing: Toward a Narrative Ethnography of Experiences Among the Dene Tha.' *Journal of Anthropological Research* 50(2), 113–39.
- Goulet J.-G.** (1998). *Ways of Knowing. Experience, Knowledge, and Power Among the Dene Tha*. Lincoln, NE: University of Nebraska Press.
- Hacking I.** (1983). *Representing and Intervening*. Cambridge: Cambridge University Press.
- Hallowell I.** (1960). 'Ojibwa Ontology, Behavior, and Worldview.' In S. Diamond (ed.), *Culture in History: Essays in Honor of Paul Radin*, pp. 19–52. New York, NY: Columbia University Press.
- Harding S.** (2019). 'Latin American Decolonial Philosophies of Science.' *Studies in the History and Philosophy of Science* 78, 48–63.
- Henderson J. and Battiste J.** (2013). 'How Aboriginal Philosophy Informs Aboriginal Rights.' In S. Tomsons and L. Mayer (eds), *Philosophy and Aboriginal Rights*, pp. 66–101. Don Mills: Oxford University Press Canada.
- Hester L. and Cheney J.** (2001). 'Truth and Native American Epistemology.' *Social Epistemology* 15(4), 319–34.
- Innes R.A.** (2013). *Elder Brother and the Law of the People*. Winnipeg: University of Manitoba Press.
- Johnston B.** (1976). *Ojibway Heritage*. Toronto: McClelland and Stewart.
- Kulchyski P., McCaskill D. and Newhouse D.** (eds) (1999). *In the Words of the Elders: Aboriginal Cultures in Transition*. Toronto: University of Toronto Press.
- LaDuke W.** (2015). *All Our Relations: Native Struggles for Land and Life*. Chicago, IL: Haymarket Books.
- Latour B.** (1983). 'Give me a Laboratory and I Will Move the World.' In K. Knorr and M. Mulkay (eds), *Science Observed*, pp. 141–70. London: Sage.
- Latour B.** (1992). *Science in Action*. Cambridge, MA: Harvard University Press.
- Latour B.** (1999). *Pandora's Hope: Essays on the Reality of Science Studies*. Cambridge, MA: Harvard University Press.
- Leavitt J.** (2011). *Linguistic Relativities: Language Diversity and Modern Thought*. New York, NY: Cambridge University Press.
- Little Bear L.** (2013). 'Indigenous Philosophy and Indigenous Sovereignty.' In S. Tomsons and L. Mayer (eds), *Philosophy and Aboriginal Rights*, pp. 6–18. Don Mills: Oxford University Press Canada.
- Mignolo W.D.** (2000). *Local Histories/Global Designs: Coloniality, Subaltern Knowledges, and Border Thinking*. Princeton, NJ: Princeton University Press.
- Mills C.W.** (1997). *The Racial Contract*. Ithaca, NY: Cornell University Press.
- Mizumoto M., Stich S. and McCready E.** (eds) (2018). *Epistemology for the Rest of the World*. New York, NY: Oxford University Press.
- Nadasdy P.** (1999). 'The Politics of TEK: Power and the 'Integration' of Knowledge.' *Arctic Anthropology* 36, 1–18.
- Nelson M.K. and Shilling D.** (eds) (2018). *Traditional Ecological Knowledge: Learning from Indigenous Practices for Environmental Sustainability*. Cambridge: Cambridge University Press.
- Norton-Smith T.** (2010). *The Dance of Person and Place: One Interpretation of American Indian Philosophy*. Albany, NY: State University of New York Press.
- Pickering A.** (ed.) (1992). *Science as Practice and Culture*. Chicago, IL: University of Chicago Press.
- Pickering A.** (1995). *The Mangle of Practice: Time, Agency, and Science*. Chicago, IL: University of Chicago Press.
- Pierotti R.** (2011). *Indigenous Knowledge, Ecology, and Evolutionary Biology*. New York, NY: Routledge.
- Preston R.** (2002). *Cree Narrative: Expressing the Personal Meaning of Events*. Montreal: McGill-Queen's University Press.

- Quine W.V.** (1981). *Theories and Things*. Cambridge, MA: Harvard University Press.
- Ross A., Sherman K., Snodgrass J., Delcore H. and Sherman R.** (2011). *Indigenous Peoples and the Collaborative Stewardship of Nature*. Walnut Creek, CA: Left Coast Press.
- Ross R.** (1992). *Dancing with a Ghost: Exploring Indian Reality*. Markham: Octopus Publishing.
- Ross R.** (1996). *Returning to the Teachings: Exploring Aboriginal Justice*. Toronto: Penguin Books Canada.
- Rouse J.** (1987). *Knowledge and Power: Toward a Political Philosophy of Science*. Ithaca, NY: Cornell University Press.
- Santos B.** (ed.) (2007). *Another Knowledge is Possible: Beyond Northern Epistemologies*. London: Verso.
- Scott C.** (1996). 'Science for the West, Myth for the Rest: The Case for James Bay Cree Knowledge Construction.' In L. Nader (ed.), *Naked Science: Anthropological Inquiry into Boundaries, Power, and Knowledge*, pp. 69–86. New York, NY: Routledge.
- Scott C.** (2006). 'Spirit and Practical Knowledge in the Person of the Bear Among Wemindji Cree Hunters.' *Ethnos* 71(1), 51–66.
- Shiva V.** (1993). *Monocultures of the Mind: Perspectives on Biodiversity and Biotechnology*. London: Zed Books.
- Smith D.** (1998). 'An Athapaskan Way of Knowing: Chipewyan Ontology.' *American Ethnologist* 25(3), 412–32.
- Smith L.** (2012). *Decolonizing Mentalities: Research and Indigenous Peoples*. London: Zed Books.
- Speck F.** (1935). *Naskapi*. Norman, OK: University of Oklahoma Press.
- Stevenson M.** (1996). 'Indigenous Knowledge in Environmental Assessment.' *Arctic* 40(3), 278–91.
- Tomsons S. and Mayer L.** (eds) (2013). *Philosophy and Aboriginal Rights*. Don Mills: Oxford University Press Canada.
- Turnbull D.** (2000). *Masons, Tricksters and Cartographers: Comparative Studies in the Sociology of Scientific and Indigenous Knowledge*. Amsterdam: Harwood Academic.
- Turner D.** (2006). *This is Not a Peace Pipe: Toward a Critical Indigenous Philosophy*. Toronto: University of Toronto Press.
- Turner N.** (2014). *Ancient Pathways, Ancestral Knowledge: Ethnobotany and Ecological Wisdom of Indigenous Peoples of Northwestern North America*. 2 vols. Montreal: McGill-Queen's University Press.
- Turner N., Ignace M. and Ignace R.** (2000). 'Traditional Ecological Knowledge and Wisdom of Aboriginal Peoples in British Columbia.' *Ecological Approaches* 10(5), 1275–87.
- Viveiros de Castro E.** (2017). *Cannibal Metaphysics*. Minneapolis: University of Minnesota Press.
- Williams D.** (2018). *Michi Saagiig Nishnaabeg: This is Our Territory*. Winnipeg: ARP Books.
- Wilson S.** (2008). *Research is Ceremony: Indigenous Research Methods*. Halifax: Fernwood Publishing.

**Barry Allen** is Distinguished University Professor of Philosophy at McMaster University in Hamilton, Ontario, and a Fellow of the Royal Society of Canada. His most recent book is *Empiricisms: Experience and Experiment from Antiquity to the Anthropocene* (2021).