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This essay compares and contrasts Deborah Bird Rose's paper 'An Indigenous Philosophical Ecology: Situating the Human'¹ with Robin Wall Kimmerer's paper, 'Weaving Traditional Ecological Knowledge into Biological Education: A Call to Action'.²

Both papers were written just over twenty years ago and address the subject and use of Traditional Environmental Knowledge (TEK). Rose provides an overall discussion of the philosophy and value of TEK that will benefit any reader interested in forming a deeper understanding of the practical epistemologies at work in indigenous societies worldwide. Kimmerer urges integrating the study and acceptance of TEK into academic training courses for biologists and other scientists. Her audience is primarily those like herself with responsibility for forming such training programs in colleges and universities.

As acknowledging and integrating the use of TEK into a wide range of professional encounters with indigenous peoples is important, these papers appeal to a worldwide audience. The issues around TEK are the same in Australia, where Rose (1946 – 2018) spent her entire professional career as an academic and engaged participant in Aboriginal communities of northern Australia³ and upstate New York and Canada, where Kimmerer (b. 1953) continues to teach and work in indigenous communities.⁴

Deborah Rose was born in Washington State but trained in the Eastern United States, receiving her PhD in Anthropology from Bryan Mawr College in 1984, following two years of research in the Northern Territory of Australia. Upon completion of that degree, she worked for four years as a resident fellow at the Australian Institute of Aboriginal and Torres Strait Islander Studies in Canberra, and continued with an academic career at other Australian universities for the rest of her life.⁵ She wrote four books, including her first and possibly best known, Dingo Makes Us Human: Life and Land in an Australian Aboriginal Culture, which was published in 2000.⁶ She also co-edited several other books and wrote numerous professional articles.⁷ She also had an active consulting career working on many Aboriginal land issues, both with claimants and the Aboriginal Land Commissioner.⁸

Robin Kimmerer is now a retired academic and writer, living on an 'old farm in upstate New York, tending gardens both cultivated and wild'.⁹ She's a Native American of the Citizen Potawatomi Nation, which has 'over 38,000 tribal members'.¹⁰ The Nation is headquartered in Shawnee, Oklahoma, with remnants scattered in communities from New York, through the Midwest, and into Oklahoma.¹¹ Kimmerer is a Distinguished Teaching Professor and Director, Center for Native Peoples and the Environment, a part of the State University of New York College of Environmental Science and Forestry in Syracuse.¹² Kimmerer is a bryologist and holds a PhD in biology from the University of Wisconsin; she 'is the author of numerous scientific papers on plant ecology, bryophyte ecology, traditional knowledge and restoration ecology'.¹³ Kimmerer has authored three books, including Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants, which has sold over two million copies worldwide.¹⁴

Rose extracts an understanding of the concept of Traditional Ecological Knowledge from an analysis of her experiences, and those of others as provided in several academic papers, with Aboriginal tribes. Beginning with Erazim Kohák's term 'philosophical ecology', which he defines as 'our conceptions of our place and task in this world',¹⁵ she writes,

In this paper I develop an analysis of an Indigenous Australian philosophical ecology. My purpose is not only to present an analysis, but also to show how this Indigenous set of concepts can come into productive dialogue with Western philosophical ecologies.¹⁶

Taking direction from Valerie Plumwood, Rose writes that she will re-situate the human in ecological terms, a project that will serve to undermine mainstream Western understanding of how persons are related to each other, other-than-human entities, and inanimate reality.¹⁷ Her own analysis is based on her research among Aboriginal groups in Australia's Northern Territory.¹⁸

Using the model of human/other-species totemic relationships she structures the paper around the concepts of physical 'Mutual benefit' that accrues to such partners, such as food and shelter. Some

benefits are immediate, some are stored for future use, others unfold over time. Often benefits flow to those entities outside the partnership, 'they keep moving through other living things, sustaining life through the twin processes of life for itself and life for others'.¹⁹ 'Benefits ramify'.²⁰

Not only do these interrelationships provide mutual physical benefits to immediate and distant parties, both known and unknown, such relationships also facilitate 'Communicative benefits' throughout the system. Rose identifies various forms that such communication takes, all of which are usually highly local: concurrent in time; concurrent in both time and space; and sequentially.²¹ Many of the examples she provides show a sequential relationship, although she does not assert causation. For example, when the Cicadas 'sing, the turtles are fat and start moving around on land, signaling that it's time for hunters to get their spears and go turtle hunting'.²²

Rose writes that one does not have to go looking for these relationships, but rather that 'Country tells you' of the structural involvement of all living things.²³ In developing this thought, Rose focuses on an extended example of taking care of the Country by periodic controlled burning of grass. Such burning allows space for new grass, kills some snakes and reveals others, gives birds access to insects both in the smoke and charred stubble, and makes it possible for carnivores to be able to hunt unhindered in what had been impassable. By listening to and responding to the land, 'Human action is thus both directive and responsive'.²⁴ These patterns of shared benefits that cross species lines repeatedly reveal the deeper connections that tie all species together. They also show that 'Commensalism co-exists with predation, and there is no singular mode that defines interspecies relationships'.²⁵

In the penultimate section of this paper, 'Meta-patterns: dialogue with science', Rose argues that these relationships reveal deeper patterns of human behavior beyond self-service.²⁶ In this section Rose uses an extended example of foraging to illustrate the principles of not taking all that is found, taking care to leave some food behind for others. These practices show the natural practices of recognizing interconnectedness with others, both human and non-human species.²⁷ The foraging behavior that has the other in mind as well as oneself show that humans are not at all separate from the world and 'in control', but are, instead, part of the autopoietic system that constitutes life.²⁸

In the final section, 'Re-situating: dialogue with philosophy', Rose asserts that in distinction to the 'hyperseparation' discussed by Valerie Plumwood, the Indigenous metaphysics Rose is pointing to has four characteristics that reveal the truth about life: (1) humans are not the only sentient beings; (2) life does not prioritize human needs and desires; (3) humans are in kinship with 'nature' rather than in exploitative opposition; and (4) ecological systems are not activated by humans; rather, humans are called to participate in the self-organizing system of 'nature'. These connections are not voluntary, but rather described the metaphysical Law that governs our life with each other and other species on our collective planet.²⁹

Kimmerer takes a more focused application of TEK to the process of teaching biology at the university level to future scientists. After a short survey of some of the governmental and non-governmental advocates and users of TEK outside of the university with whom future scientists being trained in universities will have to work, Kimmerer writes, 'My goal in this article is to present the case that exposure to TEK has a legitimate role in the education of the next generation of biologists, environmental scientists, and natural resource managers'.³⁰ Failing to learn to work with TEK during their formation will only be to the detriment of these future scientists and the traditional communities they encounter. Additionally, omitting learning to value TEK will also mean the students are not exposed to the values of respect, reciprocity, and responsibility in which TEK is imbedded.³¹ Kimmerer's implication is that these values are not regularly found in academic settings and in wider American life.

In the section 'What is traditional ecological knowledge?', Kimmerer begins by using a definition developed by Fikret Berkes and others:

Traditional ecological knowledge refers to the knowledge, practice, and belief concerning the relationship of living beings to one another and to the physical environment, which is held

by peoples in relatively nontechnological societies with a direct dependence upon local resources.³²

Kimmerer then comments on the similarities and differences between Scientific Ecological Knowledge and Traditional Ecological Knowledge. For similarities Kimmerer includes such ideas as both (1) yield empirical information; (2) have predictive power; and (3) provide information about relationships and the entire world. As to differences: (1) TEK is more qualitative; SEK more quantitative; (2) observers of TEK also are often the users of that knowledge; not so with SEK; (3) TEK usually has a long time perspective; SEK is often for a shorter period; (4) TEK goes beyond empirical information and often has a spiritual and social context; SEK does too, but these are often so engrained as to be invisible to the practitioner and user; (5) in TEK 'nature' is subject, composed of fellow creatures; in SEK 'nature' is to be 'objectively' considered and too-close observer participation may 'bias' the result; (6) SEK practiced in universities and government settings; TEK is lived in the field. TEK might be considered as SEK with human values and a more accurate metaphysics; SEK works better on simpler problems.³³

In the next section of the paper, 'Why include traditional ecological knowledge in biological education?' Here Kimmerer begins the process of attempting to convince the reader to do so. The argument is that diversity in all things is good, including in biology class; TEK should be integrated with current SEK-driven training. Single mode of thinking is never good in dealing with complex issues such as sustainability.³⁴

The remainder of the paper consists in Kimmerer offering further benefits for her support of adding TEK to training in biology: (1) TEK can be the source of new insights and models; (2) TEK brings missing multicultural perspectives into the science curriculum; (3) accepting the value of TEK can push Western scientists into more collaborative work with indigenous people; and (4) the presence of TEK can possibly increase the number of (then absent) Native American students in science subjects. TEK can also illustrate the integration of science and culture for the student. Kimmerer then moves into practical matters and addresses the topic of 'How can traditional ecological knowledge be incorporated into mainstream biology education?' Kimmerer ends the paper with a discussion of 'Protection and appropriate use of traditional ecological knowledge'. Once the value of TEK is acknowledged, how can structures be put in place that prevent the intellectual property it represents being stolen. Moreover, how can the collective 'owners' of TEK properly safeguard it from appropriation and misuse?³⁵

These are both important papers from twenty years ago. Rose provides a phenomenological description of the origin of TEK in the life of a group of 'primitive' people who have lived in a 'nation' in the Northern Territory. She shows how local knowledge is generated from the interactions for mutual physical and communicative benefit of human and non-human species in a fixed location over time.

Kimmerer urges those responsible for the design of curricula for science students to recognize the value of TEK and include it in the training of biologists and other young scientists. The fact that they are writing from different Western settings in contact vastly different groups of Indigenous people show that concern for TEK and its application is a worldwide issue. Rose provides a description of the source of TEK; Kimmerer applies the concept to the precise practical problem that she faces in her role as an academic leader. Both show that already twenty years ago the notion of TEK and the need to take it seriously was recognized among Western anthropologists. Further, by their examples, both show that recognition of the value TEK among governments and non-government organizations was already well underway. Both articles are well-written and provide good, if now dated, set of reference materials reflecting the important conversation partners on this topic as of their writing.

There's not a lot to say about the Kimmerer article; the application of a sound principle, in this case the use of TEK to a job at hand, is wise and hopefully something that has become routine twenty years later. Her warnings about protecting TEK knowledge, 'owners', and resources themselves from theft, unjust appropriation, and capitalist plunder are important.³⁶ The issue of 'biopiracy' – the theft and

capitalization on stolen Indigenous knowledge – has developed into its own field of study, as witnessed by the many books and articles on the subject (Shiva; Robinson; Ross).

Rose's expansion of the understanding that the pervasive model of humans *versus* 'nature' to a more accurate description of humans being one of many species in an interdependent, mutually beneficial relationship with others, both human and other-than-humans, is a valuable advance. However, this is only a partial journey. Rose omits a discussion of the role of our inanimate surroundings as a full party in those pervasive interlocking relationships. For instance, our relationship with oil in the ground, of which we use nearly 100 million barrels each day with an estimated 47 years of known reserves remaining³⁷ will eventually reach a "full stop" on current Western ways of living, regardless of any impacts from pumping waste energy into our atmosphere along the way.

However far Rose is beyond Western metaphysical thinking, she doesn't go far enough. Her model still considers humans, bacteria, trees, flying foxes and other entities to be separate from each other, although engaged in endless mutually advantageous relationships. A better set of eyes shows that the apparently hard edges that humans, other species, and the non-living world show are themselves very blurred. Thich Nhat Hanh, in his chapter 'Interbeing' that appears in his translation of the Heart Sutra³⁸ shows that a deeper understanding has been available in Mahayana Buddhist tradition from early days:

If you are a poet, you will see clearly that there is a cloud floating in this sheet of paper. Without a cloud, there can be no rain; without rain, the trees cannot grow; and without trees, we cannot make paper. The cloud is essential for the paper to exist. If the cloud is not here, the sheet of paper cannot be here either. So we can say that the cloud and the paper inter-are. "Interbeing" is a word that is not in the dictionary yet, but if we combine the prefix "inter-" with the verb "to be," we have a new verb: inter-be.

...

If we continue to look into the sheet of paper, we can see the sunshine in it. If the sunshine is not there, the forest cannot grow. Without the sunshine, nothing can grow, not even us. So we know that the sunshine is also in the sheet of paper. The paper and the sunshine inter-are. Looking more deeply, we can see the logger who cut the tree and brought it to the mill to be transformed into paper. We also see the wheat. We know that the logger cannot exist without his daily bread. So the wheat that became his bread is also in this sheet of paper. The logger's father and mother are in the paper as well. Without all of these other things, there would be no sheet of paper at all.

In the rest of this book, he goes on to apply this as the key insight that makes it possible to understand the Mahayana concept of dependent co-arising. It's not that humans, other species, and what are termed 'inanimate' objects are independent but related to each other. The concept that Thich Nhat Hanh explains is that these things literally *are* each other. All that there is, rises and falls together. Such an understanding of the metaphysics describing the cosmos goes considerably beyond Rose's valuable description of mutual self-interest. As it turns out, there is no actual independent 'self' in which to be 'interested'. The only possible ethical response is to act on behalf of everything there is.

Claude Lévi-Strauss (1908-2009) whom the United Nations Human Rights Commission called 'One of the greatest intellectuals of the 20th century and the founder of structural anthropology'³⁹ dismissed the concept that the thoughts of 'primitive' minds, such as those supposedly populating the sources of TEK discussed both in Rose and Kimmerer, are in the least unique. He argues that rather than positing that 'primitives' think differently than sophisticated Westerners, it's more likely the case that even Westerners think in a 'primitive' manner when they are not busy being 'sophisticated' practitioners of science and other learned habits of mind. In fact, he argues, humans in all societies develop rich understandings of the things in their surroundings that they find useful to their living and the things that

they simply find interesting. He provides numerous examples of 'primitive' people having encyclopedic knowledge of plants, animals, and other things they find useful or interesting in their surroundings.⁴⁰

Although the TEK displayed by the Aboriginal people described by Rose would be overwhelming and quite mysterious to a person coming from Canberra to the Northern Territory, it would be equally so to an Aboriginal person seeing Rose easily come and go, flying 3,000 kilometers in a plane without giving it a second thought. Furthermore, the TEK Rose herself displayed in mining her environment in Canberra for the goods, services, and 'interesting things' in her world would have been overwhelming for an Aboriginal person accompanying her.

Kimmerer comes close to making this point in the penultimate sentence in her article: 'As an immigrant culture, Americans must start to engage in their own process of becoming indigenous to this place and regain their roles as members of the ecological community'.⁴¹ The only quibble with this is in her use of the word 'immigrant'. Surely it must be the case that Lévi-Strauss is thinking correctly on this, that all societies contain a reservoir of wisdom among its members, no matter when they arrived. Just living where one does immerse one in the local TEK. Of course, an 'outsider' newly coming to this society and seeking to enter it or to just understand a little more of what's going on will have to confront the fact that she or he is, simply, ignorant. For a while at least.

Footnotes

- 1 Rose (2005)
- 2 Kimmerer (2002)
- 3 University of New South Wales Academia
- 4 State University of New York
- 5 University of New South Wales Academia
- 6 *ibid.*
- 7 *ibid.*
- 8 *ibid.*
- 9 Robin Wall Kimmerer
- 10 Citizen Potawatomi Nation
- 11 *ibid.*
- 12 Robin Wall Kimmerer
- 13 *ibid.*
- 14 Braiding Sweetgrass
- 15 Rose (2005), 294
- 16 *ibid.*
- 17 *ibid.*, 295
- 18 *ibid.*
- 19 *ibid.*, 296
- 20 *ibid.*
- 21 *ibid.*, 297
- 22 *ibid.*
- 23 *ibid.*, 299
- 24 *ibid.*, 300
- 25 *ibid.*
- 26 *ibid.*, 301
- 27 *ibid.*
- 28 *ibid.*, 302
- 29 *ibid.*, 303
- 30 Kimmerer (2002), 432
- 31 *ibid.*
- 32 *ibid.*, 433
- 33 *ibid.*, 434
- 34 *ibid.*
- 35 *ibid.*, 434-437
- 36 *ibid.*, 437
- 37 Worldometer
- 38 Thich Nhat Hanh
- 39 UNHCR
- 40 Lévi-Strauss, Claude
- 41 Kimmerer (2002), 437

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