

A Window on the Past: Complexity Theory in American Indian Studies¹

Abstract

Vine Deloria has rarely missed an opportunity to argue that the realities of pre-contact American Indian experience and tradition cannot be recognized or understood within a conceptual framework built on the theories of modern science. In “A Window on the Past: Complexity Theory in American Indian Studies”, Nicholas C. Peroff contends that the compelling vision of pre-contact Native America presented in Deloria’s many books and articles, especially in *God is Red* (1994), is supported and reinforced by the development of complexity theory as a new way to think about research in American Indian Studies. Peroff demonstrates complexity theory’s value by drawing on his ongoing work with the Menominee Indian Tribe of Wisconsin.

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Before first contact with European explorers in the seventeenth century, the Menominee people lived in a nearly ten million acre area of lakes, rivers and forests extending along Lake Michigan and as far West as central Wisconsin. By the mid-nineteenth century, a succession of treaties with the United States reduced the tribe's aboriginal homeland to a 233,900 acre reservation located about 35 miles West of Green Bay.

In 1950, the Menominee Indians were among the most self-sufficient tribes in the United States. They owned a 220,000 acre forest, a sawmill, and had accumulated \$10 million on deposit in the U.S. Treasury. Unfortunately, the Menominee's image as an "advanced" Indian tribe marked them as a target for a new congressional experiment in Indian policy. The impact of Indian termination on Native Americans was enormous. Before the policy was abandoned in 1962, 13,263 tribal members lost their federally recognized status as American Indians and over 1,365,800 acres of tribal land were removed from federal trust status.

When the Menominee Termination Act was signed by President Eisenhower on June 17, 1954, the Menominees became the first tribe slated for termination. After several delays, the Menominee Reservation was finally terminated on May 1, 1961, and became a new Wisconsin county. It was immediately tagged by state officials as "an instant pocket of poverty".

Faced with the near certainty of fiscal collapse, Menominee leaders began developing and selling to non-Indians lakeshore lots on the county's lakes and rivers. Tribal reaction to the sale of land to whites triggered the rise of a tribal organization called DRUMS (Determination of Rights and Unity for Menominee

Shareholders). Beginning in 1970, DRUMS utilized public demonstrations, favorable media coverage and court actions to delay the development and sale of Menominee land. DRUMS leaders lobbied in Wisconsin and Congress to gain state and federal backing for the organization's goals. Success came on December 22, 1973, when President Nixon signed the Menominee Restoration Act which restored federal recognition and protection to the Menominees and reestablished their former reservation; however, several hundred non-Menominees remain as resident owners of lakeshore and other property within the reservation.

Today, the Menominee people are trying to build a long-term foundation of economic and political strength to support the growth of greater tribal self-determination in the years ahead. Enrolled Menominees exceed 8,100 (up from 3,270 in 1957) with over 4,000 tribal members living on the reservation. While the Menominee forest remains central to the uniqueness of the tribe as a people, the reservation is also a center for new economic development supported in part by the establishment of gaming operations in the 1980's. In addition to being the largest employer on the reservation, proceeds from gaming provide funding for a broad range of health and welfare services, economic development programs, and many other forms of community investment.

In the beginning

Several years ago when I wrote a book about the termination and restoration of the Menominee Tribe, termination policy and not the tribe, was the

central focus of my research. (Peroff, 1982) Today, I am working on a second book about the Menominee People from the days before first contact with European explorers to the present. While there are more than a few challenges to overcome, the first and perhaps most difficult is to start at the beginning of the story.

There are several ways to imagine how American Indians lived before first contact and they all suffer severe limitations. Excavations at archeologically significant sites have turned up important, but fragmentary physical clues about life in pre-contact America. In the nineteenth and early part of the twentieth century, archeologists, historians and others tried to mine the memories of the oldest living Native Peoples to construct a picture of a pre-contact America that was already fading rapidly with the passing of their Native American respondents. Others researchers tried to find and study indigenous communities living deep in South American jungles, on isolated islands, or in other out-of-the-way places and generalize their observations to the pre-contact inhabitants of North America.

As everyone reading this volume already knows, Vine Deloria's *God is Red* (1994) is about Native and non-Native spirituality. It is also an especially valuable source of his ideas about a Native America that was once the context of tribal religious life. Deloria contends that an American Indian religious view of the world encompasses a set of relationships in which all living entities, human and non-human, participate. (Deloria, 1994, 1-3) Traditional tribal religions were (and of course still are) fine-tuned to harmonize with the lands on which people

live. Revelation was seen as a continuous process of adjustment to natural surroundings anchored in a sacred center at a particular place. Religion involved a communal involvement in ceremonies and a continual renewal of community relationships with a tribe's sacred places of revelation. Tribal religions were based on a shared cultural identity, a common historical experience, and it is only in the context of a tribal community that Indian religions have relevance. (Deloria, 1994, 67-100)

Over the years, most notably perhaps in *The Metaphysics of Modern Existence* (1979), and *Red Earth, White Lies* (1995), Deloria has rarely missed a chance to argue that the realities of pre-contact American Indian experience and tradition cannot be recognized or understood within any conceptual framework built on the theories of modern science. And in fact, it is certainly true that no one, with or without the aid of scientific theories and concepts, can, in any absolute meaning of the word, "know" what life was like as a member of the Menominee Tribe six hundred years ago. But we can imagine what it was like.

Complexity theory blurs a distinction between the past and the present. Look at the Menominee Nation located today on and around the Menominee Reservation in Northern Wisconsin, and you will see the tribe that lived there six hundred or six thousand years ago because it is the same complex human system. It is the same tribe. It is a tribe that, in its early days, conforms with and supports Deloria's portrayal of Indian tribes as they may have lived in pre-contact North America.

Complexity theory

From the perspective of complexity theory, the Menominee Nation and all other American Indian Tribes are Complex Adaptive Systems (CAS). Beginning with their earliest origins tens of thousands of years ago to the present, Native Nations have exhibited all of the distinguishing features of a CAS including life, self-organization and self-perpetuation, adaptivity, a composition of systems nested within systems, and a memory distributed and retained locally within the parts of the system. A tribe is a constantly evolving process. The patterns of relationships (simultaneous causes and effects) between constituent parts constantly come and go, and generally compliment one another. Taken together, they form the basis of the tribe's existence. The living and nonliving parts of the system include tribal members, reservation land, and everything from individual homes and personal property to tribal governing institutions, sacred sites, and sometimes casino slot machines.

Complexity theory is grounded in many different academic disciplines including physics, biology and the study of artificial intelligence. (see Basken, 1998; Battram, 1998; Knowles, 2002; Lewin and Regine, 2000; Peroff, 2001; Stacey, 2001) It grew out of efforts to predict the weather, both locally and on a global scale. The theory also has origins in the ecological sciences where scientists think about ecological systems as complex adaptive systems. Today, applications of complexity theory exist in virtually all of the academic disciplines represented in the hard and social sciences. The key idea the theory brings to research in American Indian Studies is that Indian tribes are complex, living

systems. They are all processes—dynamic living processes. And like all other living systems, Indian tribes want to perpetuate themselves as long as it can. They do not want to die.

Complex adaptive systems are **systems nested within systems** within systems. The human body is composed of organelles and other nested subsystems that make up single cells that make up larger nested subsystems like the lungs, which make up still larger subsystems like a respiratory system, digestive system and nervous system. Complex adaptive systems range in size from single living cells, and Indian tribes, to the system that includes us all, the earth itself.

An Indian tribe is a system consisting of a multitude of governmental, economic, religious, and social subsystems. Each nested system, for example, a tribe's criminal justice system, is composed of various tribal courts, a police department, probation and parole, a prosecutor's office and still other subsystems. Nested systems may also be made up of people living in different geographic areas on a reservation or living off-reservation in surrounding towns and cities.

The thing that holds this whole system of systems nested within systems together is a **common body of metaphor (CBM)**. The term metaphor refers to the stored images, archetypes and stereotypes that collectively represent our knowledge of ourselves and the world around us. Through metaphor, our individual understanding of new things is acquired, defined, and organized in terms of things already known to us and, at the same time, our constantly

evolving understanding of ourselves and the world around us guides our ongoing actions and behavior. (Bortoft, 1996, 128-135; Lakoff and Johnson, 1999; Morgan, 1986; Vickers, 1998) Metaphor used and shared by tribal members identifies and orders the parts of a Native Nation. A tribal CBM simultaneously defines and is defined by a tribe. It forms a collective and evolving vision of reality that is the basis for the way a tribe organizes itself. (Castile and Kushner eds., 1981; Spicer, 1980)

A CBM refers to more than a common language, symbols, signs and the like and has a less ambiguous meaning than the word “culture”. Over fifty years ago, a classic review of the anthropological and sociological literature found 164 different, though often closely related, definitions of culture. (Kroeber and Kluckhohn, 1952) There are many more today. In some instances, culture appears to be so broadly defined it is very similar to a CAS. Herskovits, for example, states that culture is “...a construct that describes the total body of belief, behavior, knowledge, sanctions, values, and goals that mark the way of life of any people...it comprises the things that people have, the things they do, and what they think.” (Herskovits, 1948:625)

Elsewhere in the literature, culture appears similar in meaning to a common body of metaphor:

To say that two people belong to the same culture is to say that they interpret the world in roughly the same ways and can express themselves, their thoughts and feelings about the world, in ways which will be understood by each other. Thus culture depends on its participants

interpreting meaningfully what is happening around them, and “making sense” of the world, in broadly similar ways. (Hall, 1997:2)

A CBM is the internal frame of reference that distributes control of interactive relationships within a CAS to the parts of the system. It is the key part of the process of forming a collective vision of reality that leads to the way an Indian tribe or any other human system organizes itself.

Another defining characteristic of Indian tribes and all other complex adaptive systems is an ongoing process of **self-organization** or self-perpetuation. To maintain internal organization and avoid assimilation into its environment, a tribe constantly rebuilds itself by drawing energy and other materials from the environment. The foundation of all organizational life in a tribe is its membership. Over the years, new nested subsystems form while others dissolve. Some may remain active and stable for years, while participation in others may shrink only to revive and become more active than ever. Through it all, the activities of the tribe’s membership, self-organized in systems nested within systems, sustain the tribe.

There is no central controlling mechanism involved in the process of tribal self-organization. There isn’t a tribal chairperson or other leader telling everyone where to go and what to do. Each tribal member acts on locally acquired and remembered information about what is going on, locally observed rules, local knowledge about what to do and each person exercises local control over what they do to sustain the tribe. Consider it all together and you are thinking about the process of tribal self-organization and a living complex adaptive system.

Emergence is something that the parts of an Indian tribe do together that they would not do by themselves. Emergent properties and behaviors could include building a community college, a health clinic or publishing a tribal newspaper. Other examples include things like tribal elections, maintaining a tribal language and culture center, or sponsoring an annual veterans' powwow.

Beyond its land, property and other physical features, an Indian tribe is something that is nonmaterial and irreducible. It consists of patterns of relationships between people that generally compliment one another and together, this process of interaction between the parts of the system embodies a tribe's existence and unique emergent identity as a Native Nation. The range of interaction is local and from one person to another. Whether it is face-to-face, on the phone or via exchanges of e-mail, the dynamic pattern of personal human relationships between members of a tribe is the tribe.

From a point of view informed by complexity theory, an Indian tribe is not a coherent, material thing that somehow exists separately from its environment. Instead, it is inseparable from and lives in a **simultaneous cause and effect** relationship with the world around it. What tribes do change their environment and, at the same time, they are changed by their environment. From the perspective of American Indians, a history that ranged from the woodland and nomadic plains tribes in existence hundreds of years ago to the suburban and gaming tribes of today, would be a chronicle of living relationships between Native Americans and their environment.

If an Indian tribe and its environment are inseparable, does a tribe have a **boundary**? What is and what is not a part of the system? How can we tell?

The answer is that the term “complex adaptive system” is an analytical concept. It is a human construct. It is no different than the other concepts, archetypes, or organizing ideas we use to order and understand our world. Think about the Passamaquoddy, Kiowa, or Lakota as an Indian tribe or Native Nation and you are doing the same thing I do when I use the term complex adaptive system. The only difference is the latter term may be new to you.

When we think about American Indian communities, we inevitably use a construct like “Tribe”, “Nation”, or “The People” to think about them. When we do that we boundary a human system because, in our minds, we are thinking of some things as inside the system and of other things as outside the system. It is automatic. We think about and perceive things this way and we do it all the time.

So if an Indian tribe is a self-organizing and self-perpetuating process of simultaneous cause and effect relationships between the various parts of the system, what else can be said about **the whole** human **system**? Consider the entire universe as an analogy. Physicists say that only about five percent of the universe is ordinary matter. The rest of the universe, ninety-five percent of it, is “dark matter”. We cannot see it, or touch it, but because it has mass, we know it is there.

Simultaneous interactive relationships between people in complex adaptive systems are like dark matter in the universe. We can not see or touch them, but we know that they are there. Relationships are what Indian tribes are

all about and the most significant human relationships in Native America are those that occur in Indian tribes. As long as dynamic patterns of roles and relationships between tribal members maintain themselves, Indian tribes will adapt and continue to do well as living human systems.

The Menominee Nation: A pre-contact baseline

Complexity theory provides another way to approach research about life in pre-contact Native America. Although generations of Menominee People and other parts of the Menominee Tribe have come and gone, and although it's size and other general features have changed, the Menominee Nation today is the same complex adaptive system—the same living entity—that it was 500 or 5,000 years ago. The pre-contact Menominee CAS lived in an intimate relationship with the natural environment and traditional knowledge of the Menominee People reflected that relationship.

Traditional knowledge is a common body of metaphor. It occupied a central place in the collective memory of pre-contact Native Peoples in tribal stories, songs, cultural values, traditional laws, oral histories, rituals, healing arts, agricultural and forestry practices. (Deloria, 1994; Fixico, 2003) Tribal elders were the main knowledge keepers and stories or legends were the main mnemonic device for preserving, and transmitting traditional knowledge.

For many years before the white man ever came to our homeland these legends were told over and over, and handed down from generation to generation. They were our books, our literature, and the memories of the

storytellers were the leaves upon which they were written. (Chief Standing Bear quoted in Humishuma, 1990:305)

In pre-contact times, traditional knowledge was central to the identity of the Menominee people. It was dynamic, not fixed and static. It evolved and changed as the Menominee CAS transformed and adapted to a changing environment.

Pre-contact Menominee Traditional Knowledge consisted of:

- Information about the physical, biological and social features of the Menominee CAS and rules for living as a part of the system;
- An understanding of relationships between parts of the system to one another and to elements of the environment;
- A proficiency with technologies used to meet the subsistence, health, trade and ritual needs of the Menominee People; and
- A view of the world that incorporates and makes sense of all the above in the context of a long-term and holistic perspective of the Menominee CAS understood within the context of the system's pre-contact environment.²

Pre-contact traditional knowledge was distributed more or less uniformly in several geographically dispersed tribal bands or clans forming a tightly bound aggregate of nested CAS that was the pre-contact Menominee Nation.

First Contact³

First contact with French explorers and traders in the early 1600's increased the salience of some Menominee Traditional Knowledge and

contributed to the first signs of an atrophy of other traditional knowledge. For example, long-established hunting and trapping skills became especially valued because their use enabled the tribe to obtain furs to exchange for domestic wares, blankets, guns, ammunition and other Western trade goods. At the same time, the acceptance and use of European trade goods lessened the value of Menominee Traditional Knowledge involving the use of customary weapons, cooking wares, clothing made out of animal skins, and the like.

With time, new nested Menominee CAS began to emerge. For example, some tribal members acquired the language and skills necessary to act as go-betweens or intermediaries between the tribe and French traders and began to attain a distinctive prominence and common identity within the tribe. As they acquired more non-traditional knowledge their working metaphor, maintained in the form of the concepts, archetypes and other organizing ideas they had always used to order and understand their world, changed with it. Eventually they acquired a divergent common body of metaphor and became a new nested subsystem within the early post-contact Menominee CAS.

Other things also contributed to a weakening of the tightly bound aggregation of nested subsystems that had collectively composed the pre-contact Menominee CAS. New diseases devastated the tribe and severely weakened the common body of traditional knowledge stored locally in the memories of tribal members, especially tribal elders. Indian tribes, displaced by advancing European colonists in the East, moved into Menominee territory and the loss of life in the ensuing intertribal warfare further weakened the Menominee

Nation. In the 1660's, Jesuit Missionaries arrived and began to undermine traditional Menominee spiritual beliefs and practices that no longer seemed to fit a rapidly changing world.

Fast forward

Around 1750, the British arrived in the Land of the Menominees, followed by the Americans in the 1820's. Commercial fur trade gave way to logging by non-Menominees who were gradually replaced by Menominee workers in the forest and in a tribally owned sawmill. The traditional use of wild rice, maple sugar, fish and game was progressively displaced by an emerging economy dependent on trade goods imported from Europe and America. The independence of the Menominee Tribe, once politically autonomous, weakened in the early 1800's and became a ward of the United States under the Bureau of Indian Affairs by 1850. The U. S. Government implemented a policy terminating the federal trust status of the tribe in the 1960's, and then restored it in the 1970's. In the 1980's Indian gaming came to the Menominee Reservation.

Throughout all of these and other changes occurring over nearly a 400-year period, the Menominee CAS continued to self-organize, evolve and adapt. Menominee Traditional Knowledge receded in importance, but did not disappear because it was maintained in a few nested CAS within the larger Menominee Nation and, in the late 1800's, anthropologists and other scholars began to arrive on the reservation to conduct interviews and record Menominee Traditional Knowledge.

Today, the Menominee Tribe is a complex adaptive system made up a tribal legislature, court system, casino, sawmill, church congregations, public and tribal schools, two colleges and a host of other tribal systems nested within systems. Each is a contributing element to the greater Menominee CAS and, at the same time, each maintains a CBM unique to itself.

While some Menominee Traditional Knowledge has been lost or frozen in time in largely unread scholarly monographs, traditional knowledge has also evolved as a contributing element in the emergent behavior of some nested sub-systems. For example, the tribe's program of "sustained yield" forest management retains many ideas with origins in pre-contact traditional knowledge about the Menominee forest. Menominee Traditional Knowledge also contributes to policy recommendations emerging out of the Tribe's Language and Culture Commission regarding the preservation of tribe's distinctive language, traditions and cultural heritage. As in pre-contact days, the common body of knowledge that is at the heart of the unique identity of the Menominee Nation is distributed locally throughout the tribal membership, however as a practical matter, the role of "knowledge keepers", has largely passed from tribal elders to a well-established assemblage of consultants, attorneys, and program administrators.

Conclusion

From the perspective of complexity theory, the Menominee Indian Tribe exhibits all of the distinguishing features of a CAS including life, a composition of systems nested within systems, a common body of metaphor, emergent

behavior, self-organization and adaptivity. The patterns of relationships (simultaneous causes and effects) between constituent parts come and go, and generally compliment one another. Taken together, they form the basis of the tribe's existence.

Twenty-five years ago, in *The Metaphysics of Modern Existence*, Vine Deloria wrote that "...the collective insights of the American Indian tradition...derive from a radically different period of history and therefore cannot be transformed into a comprehensive understanding that would include the sophisticated theories of modern science." (Deloria, 1979, x) He went on to argue that it was "all but impossible" to find a way to express the reality of the Indian experience in Western European scientific terms.

The Metaphysics of Modern Existence is one of the most important books I ever read, although I did not realize it at the time. To me, when Deloria wrote that it was all but impossible to find a way to express the reality of Indian experience in scientific terms, he was still leaving open a chance that it was possible. In fact, after reading the book I wrote a conference paper for an Annual Conference of the Western Social Science Association to argue "...that modern science can not only shed light on Indian tradition, but can also help to explain why differences exist in Indian and non-Indian perceptions of the world." (Peroff, 1984, 3-4.)

So far, Deloria's statement in *The Metaphysics of Modern Existence* certainly remains more right than wrong. Still, I believe research, informed by complexity theory can, and will, shed new light on life in pre-contact Native

America. Although untold generations of Menominee People and other parts of the Menominee Tribe have come and gone, and although its size and other general features have changed, the Menominee Nation is the same complex adaptive system—the same living entity—it was five or ten thousand years ago. From pre-contact to its status today as a semi-sovereign Native Nation, the Menominee Tribe remains a vital self-organizing process that continues to transform itself in an interactive relationship with a constantly changing environment.

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NOTES

¹ Portions of this chapter were presented in papers presented at the Second Biennial International Seminar on the Philosophical, Epistemological and Methodological Implications of Complexity Theory, Havana Cuba, January 9, 2004, and at the Annual Conference of the Western Social Association, Salt Lake City, Utah, April 22, 2004.

² Adapted, in part, from a general description of traditional knowledge in WIPO, 2002, 11.

³ Material from this and the following section is drawn from a variety of sources including Beck, 1994; Hoffman, 1896; Keesing, 1939; Lurie, 2002; Oruada, 1979; Peroff, 1982; Spindler and Spindler, 1971.