

BRIDGING THE GAP BETWEEN INDIAN AND WESTERN SCIENCES

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"Look out there," the Native Elder said to the young man, "and tell me what you see." The young man looked out and responded, "Well, I see a tree, a fence, and another person walking around out there." "Yes," the old man answered, "when you figure out the relationship between the three come back to see me again."

INTRODUCTION

Until the present time, we have had to stretch Western science so far that knowledge about Indian culture seems unreal. Research has been perceived and presented as mono-cultural, thus not accepted by the Indian community. All peoples including Native Americans have science or a way of coming to knowledge. Each tribe has its specific methods that derive from a particular place but for the purposes of exploring and introducing the concept of Native science, we will deal in generalization about "Native" metaphysics.

Reflecting on the implications of two sciences, it is clear that a bi-cultural research model recognizing both Indian science and Western science needs to emerge. Newly evolved Western research methods such as ethnographic research, content/issue analysis, specific social work interviewing skills and participant observation skills can be drawn upon to complement or meet Indian science and culture.

Traditional Indian science must be articulated in contemporary terms to permit scholarly exchange growth and to empower Indian people in the scientific arena. Further, an integration of Western and Indian ways of thinking must occur if we are to develop research strategies and outcomes which are acceptable and respected by both cultures. "Integration" refers to a blending of research findings, not the domination or extension of ideological control by one culture's science.

A bi-cultural research model must be both valid and reliable; strengthen traditional Indian science and enhance cross cultural communication and understanding, while at the same time promoting the growth of both sciences. To bridge the gap that now exists between Indian and Western sciences there is a need for both theory building and the development of practice wisdom. This paper will address both as it works in areas critical of the Indian/non-Indian interface.

Social Science- The language between the Cultures

Native and non-native interaction is powerfully and intricately interwoven with western science. Moreover, social scientists have been major artists in the creation of the tapestry of cross cultural communication. From initial contact to contemporary times, the scientific view of the Indian has evolved through stages. Each stage has dramatically impacted the lives of both peoples.

Stage One, Scientific Racism

Scientific inquiry and literature on American Indians were borne in the scientific racism of nineteenth century science. This doctrine replaced the word "nation" with the word "race" and assumed that moral qualities of people were positively correlated with physical characteristics; further, that all humanity could be divided into superior and inferior stocks (Berkhofer, 1978).

Thus, scientific arguments provided a rationale and a justification for the genocide and ruthless appropriation of Indian lands. Political rhetoric of the early 1800s, which was filled with optimism for the human race and the improbability of humankind, gave way in 1850 to a strident "pessimism for inferior races and a belief in ineradicable racial weakness" (Horsman, 1975). In a popular work of the mid 1800s phrenologist, Combe, (cited in Horsman, 1975 p.157) argued that a comparison of the head sizes of American Indians and Blacks demonstrated that Indian intellect was weaker but pride stronger, therefore, Blacks...

...were able to appreciate the superior moral and intellectual powers of the European race and are content in some measure to live under their guidance. The Indian, on the contrary, has refused to profit to any great extent by the arts or literature of the Europeans and has always preferred death to servitude.

These scientific "proofs" continued to assert innate Indian inferiority and establish complete confidence in ultimate Indian disappearance. In fact, scientific racism marched hand in hand with expansionists who at the close of the 19th century had exterminated more than 25 million Indian people!

Survivors of this "paradigm" became subject to the emerging cultural anthropological paradigm - at its worse a covert form of scientific racism and at its best, a harbinger of the golden age in Indian policy.

Cultural Anthropology, the Second View

In the birth of ethnography and cultural anthropology (beginning in the last part of the 19th century) the raciology and the evolutionism of scientific racism were repudiated. Boasian scholars such as Swanton, espoused the idea of culture to explain the diversity of lifestyles of humankind. The cultural anthropological school separated biological heredity from the social transmission of culture and challenged previous work in the field.

This shift in thought produced dramatically different research. Paul Radin wrote:

"the relationship of conquered to conqueror is important to both. Up to the present, all attempts that have been made to understand them or to come to any reasonable adjustments with them have met with signal failure, and this failure is in most instances due to the scientific accredited theories of the innate inferiority of primitive man..."

John Collier and Social Science Generate a Golden Age in Indian Policy

Perhaps the best example and adherent to the cultural anthropological paradigm was evidenced in the life of John Collier. Collier, a well to do Easterner trained in the social sciences, was a Utopian in his young adult life. Looking to the ancient communal Pueblo cultures, Collier drew inspiration and strategies for forging a United States national identity and for resolving native and non-native conflicts.

In the early twenties the suppression of Native spirituality reflected the national struggle for Americanization (Lummis, 1924). The immigration of masses of southern and eastern Europeans triggered a drive to restrict immigration, other efforts were initiated to Americanize foreigners already in

the United States. Liberals, scholars, and policy makers divided on the Indian question but generally viewed American Indians as more alien group needing socialization...until gas and oil deposits were discovered on reservation lands (Hertzberg, 1971). Repeating earlier patterns, business and government joined forces but this time John Collier, a young social scientist, opposed their efforts (Hertzberg, 1971).

Although an activist, Collier followed the mainstream of the reform movement until a series of events were initiated against Pueblo nations. In 1921, Senator Burnam of New Mexico introduced a bill to divest Pueblo of their lands. His bill complemented the larger administrative policy of exploiting Indian resources and readily obtained the support of the Secretary of Interior. In addition to backing the Burnam bill, Secretary Fall used his administrative powers to support business interests. In 1922, Fall ruled that Executive Order reservations were subject to the General Leasing Act of 1920. This placed two-thirds of unallotted lands (22 million acres) in jeopardy to energy conglomerates (Hertzberg, 1971).

Recalling the 1913 extension of federal jurisdiction over Pueblo (on the basis of their alcoholism) and recent suppression of their spiritual practices, reformists became outraged at such flagrant efforts to expropriate. The movement ignited and this time reformists were joined by writers, artists, and social scientists. In 1923, these reformists were organized by John Collier as the American Indian Defense Association.

Hertzberg tells us:

These men and women possessed substantial influence in public and academic circles and all were deeply sympathetic to Indian tribal cultures. Impressed with the insights to be gained by social science they were immediately interested in applying the lessons of 'indirect rule' emergent from the experience of colonial powers in the problems of developing a sense of community and neighborhood in a swiftly urbanizing culture. They were an important new force in Indian affairs p.201 (Hertzberg, 1971).

Reformists succeeded in the defeat of the Bursam-Fall (Secretary of Interior) divestment scheme and John Collier was thrust into the national spotlight. When Roosevelt was voted into office, he appointed Collier Commissioner of Indian Affairs and charged him with the responsibility of formulating an Indian New Deal. The resultant plan was hailed as a landmark for the American Indian and for social scientists in the United States government. The plan made explicit use of social science principles...These principles included two axioms of human behavior:

1. The recognition of the importance of Indian group life and of the necessity to preserve and encourage native social controls and Indian values as the foundation upon which such changes and innovations as various Indian groups themselves decided were worthwhile should be made.
2. A recognition that constructive change must not destroy psychological security and must preserve continuity in the lives of both the group and the individual so that personality integration and stability may be maintained. pp. 288-289 (Hertzberg, 1971).

These principles became a part of the Indian Reorganization Act (IRA) of 1934. The IRA marked an end to the 50 years of theft of Native lands under the guise of individual allotment. Administratively, Collier abolished the Board of Indian Commissioners (the primary vehicle for divestment and assimilation), discouraged the transfer of children to boarding schools away from home, and encouraged the growth of Indian arts and crafts but in his efforts to prevent interference with Indian spiritual ways and to build tribal governments, Collier made powerful enemies. Missionaries accused Collier of promoting irreligion and Senators from western (energy resource) states charged that Collier's support of tribal governments was anti-American and communistic.

In 1945, Collier was forced to resign and in the end, the IRA was more Collier's idea of what was good for Indians than what Indians believed

was good. Collier recognized his failure and said of the IRA, "the very act intended to put them on their feet and make them self-governing developed paternalistic and bureaucratic restrictions" p.115 (Talbot, 1981). The tribal governments set up under IRA became instrumentalities of the BIA and progressive (assimilationist oriented) Indians. Now, the growing cost and size of Indian service bureaucracy, combined with the forces of assimilation have set the stage for "termination". The golden era of social science and Indian policy was dead, and so were an increasing number of Indians who struggled and lost the war with cultural anthropology and its concomitant-coercive assimilation/dispossession.

The Sociocultural Model-A Third View

At high cost, Collier, social science and Native people could point to the Cultural Anthropological era and note some gains in the evolution of cultural/scientific communication.

From the 1950s forward, any discussion of Natives would include "culture". The word "primitive" was no longer used to refer to Natives; empiricism became the method; theories of deviance and social control became the philosophical underpinnings of future research. The activism of American Indians, the Civil Rights Movement, and the flowering of human sciences brought attention and funds to the problems of Native people. The field exploded, producing more studies in a single decade than in the preceding 50 years (Bates, 1980). More than half of the literature continued to be anthropological (Leland, 1978) but the sociocultural model was emerging. This model:

Derives from the view...that human behavior is the complex resultant of any interplay of biological and historical factors including interactions among systems that can be distinguished as those of the culture, the society and the individual..." (Berkhofer, 1978)

The contribution of the sociocultural model include freeing Natives from

the "ethnographic present" of anthropological research. No longer were Native people frozen in time. The model led to awareness that social, economic, historical and cultural factors were all important. Using history as a methodological tool, sociocultural theorists were able to show how attitudes, values and ways of behaving have changed in various ways and at different rates in many cultures. Finally, this multidisciplinary approach of the sociocultural model showed a propensity to get within the society being studied, to see history and life from the view of the people being studied.

The application of this science looked different from previous models. Psychiatrists and physicians, including Bergman (1971) and Pascaroza (1976) participated in traditional Indian ceremonies and reported that Native science or way of coming to knowledge was efficacious, rigorous and humane. A second significant event that occurred was the emergence of the first generation of college educated Native scientists. This small group used the sociocultural model to talk with non-Native people about Native issues. Their work looked to external forces - historical, economic and political, as causative agents of Indian problems. The work, concerned with continuity, tended to be highly descriptive and combined realistic and spiritual themes.

The New Empiricism, a Fourth Model

Early sociocultural research produced a wealth of descriptive and explanatory studies but few claims were made for scientific rigor (Heath, 1980) and the need for definitive studies pushed empiricism to the fore (Noble, 1978). The nascent cross-cultural scientific exchange was effectively halted as the study of "Native People" moved toward the harder sciences.

As a result of the new more rigorous and robust scientific empiricism, fundamental issues were raised regarding previous work. First scientists recognized that Native social problems are a complex phenomenon about which little is known; second, data collection and interpretation problems presented manifold problems; and finally, the appropriateness of theoretical models was called into question.

"...it is not clear that the disease we call alcoholism is the same in both white and Indian societies or even that there is one unified pathology we call alcoholism. Those indicators, both behavioral and physiological, which have been used to diagnose alcoholism in the White society have been found to be determined in part by sociocultural factors. The behavioral indicators have been most frequently used to diagnose the presence of alcoholism in Indian populations. Since the association between these behaviors and a physiological predisposition to drink has not been demonstrated, there must be an effort on the part of clinically oriented researchers to observe and measure the causative agents of alcoholism more directly if, in fact, this is possible...."

Lacking a precise definition or clear understanding of the variety of Native cultures meant that the new empiricism was confounded in its earliest efforts. The increasing reliance on sophisticated analysis produced a new set of problems:

"There is a growing concern about where quantitative techniques are carrying us...our data manipulation techniques are carrying us...our data manipulation techniques have become increasingly complete, mathematically sophisticated, and governed by strict assumption; but, paradoxically, our interpretive frameworks which make such data meaningful have grown looser, more open-ended, fluid and contingent...there seems to be rather widespread skepticism surrounding the ability of conventional data collection techniques to produce data that do not distort, do violence to, or otherwise falsely portray the phenomena such methods seek to reveal..." (Van Maanen, 1979).

Thus, in the early 1980s, Native research and the social science that guided the research, were again in search of a paradigm that would work. Van Maanen observed:

"...there is something of a quiet reconstruction going on in the social sciences...There has come of age that significant realization that the people we study (and often seek to assist) have a form of life, a culture that is their own and if we wish to understand...we must first be able to both appreciate and describe their culture..."

Toward a New Paradigm

The sterility that characterized the findings of much of the "New Empiricism" triggered a movement back towards holistic and qualitative research in Native alcoholism. Theories of Paulo Freire, South American educator, and research by UNESCO prompted researchers to look at culture in a very different way. Freire observed:

Research is a cultural action, if it has a humanist character, it is eminently dialogical and dialectical. In culture based research, 'MEN DO NOT ACT ON OTHER MEN AS OBJECTS'.

Freire concluded that research should not be

"our research on you, but rather a research project in which, together, in dialogue, we will come to know each other better and the reality in which we find ourselves so that we can more effectively transform that reality".

For the first time social scientists recognized that Native people have a voice, and by extension, a way of knowing or science. Methodologies have evolved from this recognition. Participatory research, systems theory and family therapy all focus on relationships, development and the strengths of an existing system. These methods complement Native science and offer the possibility of intercultural scientific exchange. Social work, usually the unwelcome relative to "harder" social sciences, may draw on its theoretical underpinnings of holism to assume leadership in this new paradigmatic shift. Like John Collier in the 20s, social welfare may well be the critical link in creating a golden age in social science and intercultural communication. The first step is to ask Native people, what is Indian science?

INDIAN SCIENCE

Usually we think of research as a process of western (non-Indian) science. Most Indian people are introduced to this science through the countless questionnaires or studies conducted on them about their problems

or culture. Although Indians dislike these intrusions, they often cooperate because it means jobs or money to their communities and because Indians do not know of any other way to do their research. But Indian people survived and flourished for 30,000 to 50,000 years before western science was invented!

Indian science, often understood through the tree, is holistic. Through spiritual processes, it synthesizes or gathers information from the mental, physical, social and cultural/historical realms. Like a tree the roots of Native science go deep into the history, body and blood of the land. The tree collects, stores and exchanges energy. It breathes with the winds, which tumble and churn through greenery exquisitely fashioned to purify, codify and imprint life in successive concentric rings - the generations. Why and how the tree does this is a mystery but the Indian observes the tree to emulate, complement and understand his/her relationship to this beautiful, life-enhancing process.

Traditionally, the young Indian was taught through protocols connected to the trees. Sacred stories were one vehicle. These stories, originating in the dim mists of time, have been repeated in unaltered form through the generations. Part of a traditional story is the following by Chief Donawaak (Colorado, 1985):

"When you're talking to the newborn baby, when that little baby listens, it stays there, everything we say. Anytime that child starts talking, its (the words you spoke to it) going to come out in front, like the tape recording when you play it. That's the reason we talk to our babies so that what we try to teach will stay in its mind. This is what I am doing with the children. These trees we see all around us, the roots are together. Spruce, hemlock, pine tree, birch, everything. All that is growing under some berries, salmonberries, raspberries, everything that is growing has roots. All the roots stay together. Then the grass grows and the flower grows. Right now you see the trees that are coming out, just like a flower growing under the trees. Anyplace where you look there are different colors. When I opened the camp here, they asked me "What are you going to do? Are you going to teach just the Tlingit?" I told them,

"No, this is for everybody." They told me I am crazy. I told them maybe I am crazy. We used to be crazy ourselves. We used to fight with our white brothers. Now we adopt them, different colors. My son was married with white girl. My daughter was married with a white. Some of them are married with the Filipinos. They are all different colors. This is what the flower is. All different colors, what is growing. This is the children, they are growing as the grass and the flower. They are newborn babies, they have to learn."

Although this story teaches the importance of inter-racial understanding, the tree is used to teach the lesson. Spirituality permeates the passage yet no direct reference is made to it.

Western science does not include religion and sacral stories in its paradigm, yet spirituality is the foundation of Indian science or truth seeking ways. Because of this difference it is important that the two systems remain discrete yet connected through an infrastructure that promotes understanding and unity. These considerations have been addressed in a number of Indian projects such as the Tlinget, Chilkoot Camp, whose founder we quote above.

One of the tenets of American Indian science is that the search for truth and learning is a spiritual relationship between the individual and the Creator. The rule that governs the behavior between elders and the younger learner is therefore that of helper rather than instructor. The Elder does not interfere in the relationship between the individual and the Creator. As the little story at the beginning of this paper illustrates, for American Indian people, the search for truth and the scientific method begins with approaching an Elder.

Approaching Elders

The first question that comes to mind in approaching Elders is "Who is an Elder?" While Elders generally can be thought of as anyone 65 years of age or older, today there is much confusion about the term. Many people travel across Canada and the United States purporting to be experts in

Native medicine or Native healing but who, in fact, have been raised away from the culture, may not speak their own language and may not even have entered the formal kind of discipline and training required of traditional healers.

Because we live in a bi-cultural world, it is easy for these articulate and visible personalities to rise to prominence and fame in the non-Indian academic circles. These same people deceive many young Indian people who are alienated from their cultural identity. Generally, an "Elder" will have some particular training or expertise in an area of life. Medicine people who represent the finest of Indian Elders can be characterized by their deep and abiding sense of humility, by their commitment to a traditional and natural way of life. This true American Indian scientist usually leads a life of poverty and has dedicated his/her life to Native people and the continuity of the natural world. A final note on Elders is this. Just like any other culture, some American Indians know a bit more about science than others. Although all American Indian Elders have a story to tell and have built up certain knowledge and wisdom over years of living, this is not to be confused with what we are talking about here, which is the specific understanding of traditional Native American ways of coming to knowledge.

Barriers to Traditional Science

Because of the colonialism and the disruption of traditional American Indian life, many accomplished younger Native people do not know how to approach an Elder. This is a critical issue because cultural protocols do not permit the Elder to share information without being asked. The problem lies in the fact that young people who have been assimilated and colonized do not know these protocols; moreover, Elders are not aware that the young do not know how to approach them!

Even if an Elder is approached in a proper manner he still may not accept the young person. Again, the accepting or rejecting of the applicant

follows culturally dictated behavior. If an Elder responds, "I do not know" or simply shakes his/her head, the answer is no. But if the Elder says, "I'm getting old, it's difficult for me to remember", the door is opened for future visits.

The visit is an essential ingredient of Native scientific methodology. The visit includes introductions, establishing the relationship between the Elder and the younger person (i.e., - Who is your clan? Who is your family? What is your Indian name?) socializing including humor, and finally raising the purpose of the visit. Through visits a contract is established. Often the contracting process requires several visits, the apprentice will do chores around the Elder's home, listen attentively and follow directions about mundane activities. Through this process, trust is established and a genuine interest in the welfare of the Elder is promoted. This is important; the Elder is about to share knowledge that is powerful, sacral and often of a personal nature - the recipient must be prepared.

In addition, the process of the visit teaches the younger person the qualities that are necessary for becoming a Native American scientist. These qualities include tremendous self discipline, patience, a willingness to share, faith and a belief in prayer. The rather extended period of time for these visits also demonstrates to the elder that the young person is leading a good life or is committed to a good life. The evidences of this good life are abstinence from alcohol and drugs and a morally correct life in a cultural sense. For example, the life of a future American Indian scientist, who is also a woman, would demonstrate that she takes care of her children, is willing to serve her community, and knows and obeys the rules of the culture.

When an Elder accepts an apprentice he will often share knowledge without asking, "Why is it that you want to know?" It is enough for the

Elder to detect a sincerity and a true desire on the person's part to learn. Sometimes, even if a person is involved with alcohol or drugs, an Elder will patiently listen to this person and then share some piece of traditional knowledge that the Elder feels may help guide the individual back to himself and out of substance abuse or addiction. The wisdom that the Elder is passing on, although learned personally, derives from tribal experience and from a collective effort to know throughout time. The outcome of this science and knowledge is that people learn to live in balance in relationship with all other living things. Therefore, the Elder faced with the young person who has serious life problems will share traditional information, but only when asked; they never volunteer it.

Learning that comes from an Elder is characterized by questions. Elders often teach by leaving us with a riddle, or with some question in our mind like the question posed about the tree, fence and person. The result is we go away curious, and wanting more. Furthermore, the way the information is passed to us from Elders causes us to think deeply, to look at our own lives intensely to try to figure out what the Elder was wanting us to see. This distinction is important. Unlike Western science, Native science relies on total involvement of the person with his or her environment. Coming to truth in an Indian way involves spirit, body, mind and relationships. While Western science stresses cognitive abilities and powers of reasoning, American Indian science relies on these two facets as part of the total way of coming to knowledge. American Indian science is based on observation, experience, information and prayer.

One of the fascinating aspects about American Indian science is that when we are given a bit of information or told the traditional story, we carry this information around with us. As we move through life, we begin to get an insight and an understanding as to what the story was all about. This is what the Tlingit call "HASHAGOON" - our ancestors making a path

for us. In other words, American Indian science collapses time and space. Indian stories, which may be 50 thousand years old, guide Indians through their lives today as if they were newborn.

Another aspect of American Indian science is its ability to integrate and synthesize all the living relationships or events in life today. When they rely on a story to guide them through life, they are not only integrated with the natural environment around them and with their living relations but they are also integrated in the timeless past and culture of their ancestors. Because American Indian cultures are so ancient, and the stories so old, there is almost no human experience or learning that has not been recorded in these stories. Moreover, the stories are tied so intricately with motion, relations, and a sense of collapsed time, that there is a spiritual essence to them which people often describe as timeless.

"When my Grandmother used to tell me stories, I would close my eyes and I would feel as if I was walking through that time. I could just imagine everything the way that it looked, the tools that people used, what kind of clothing they wore, how the weather felt, what people were feeling; it all came alive to me! It is as if I was right there at the time."

When American Indian people come to an experience in life, the stories make Indians feel that they have walked through this experience before. Thus ancient wisdom helps them in their decision making and learning of today.

A final distinction concerns the values that science rests on. Western science places value on progress and change. Looking at human behavior, Western sciences often study the way that human behavior has changed in respect to technological advances. For example, modern day psychology might look at the emergence of new kinds of stresses and behaviors on a human being as a result of owning a car. In the old days, American Indians did not have cars but we had canoes. Certainly, there were stresses

around acquiring, owning and maintaining a canoe as well, but the American Indian science does not focus on change and technological advances. Instead, it focuses on continuity and balance. As a result, the story, or the scientific findings of the American Indian science, would talk more about the experiences that a Native man or woman has had with canoes. In other words, we would be looking more at the human being's relationship to the canoe and how to work the relationship so that through it balance, harmony and integrity of the culture and the person is maintained. Among Iroquois people the term "Skamagogah" links the tree and peace in its definition of science.

Vine Deloria (1986) explains succinctly differences between Western and Indian sciences:

"Western science resolves itself into certain "laws" which describe the natural world. These laws are makeshift descriptions of the manner in which physical reality appears to operate but they are often regarded by Western scientists as inviolable. Phenomena that fall outside the prescribed patterns of behavior are said to be "anomalies", which can be disregarded when explaining how the physical universe functions. Eventually, of course, the Western scientists must deal with the so-called anomalies. These phenomena form an increasingly large body of knowledge and facts which cannot be explained using the acceptable paradigm into which the rest of scientific knowledge is deposited.

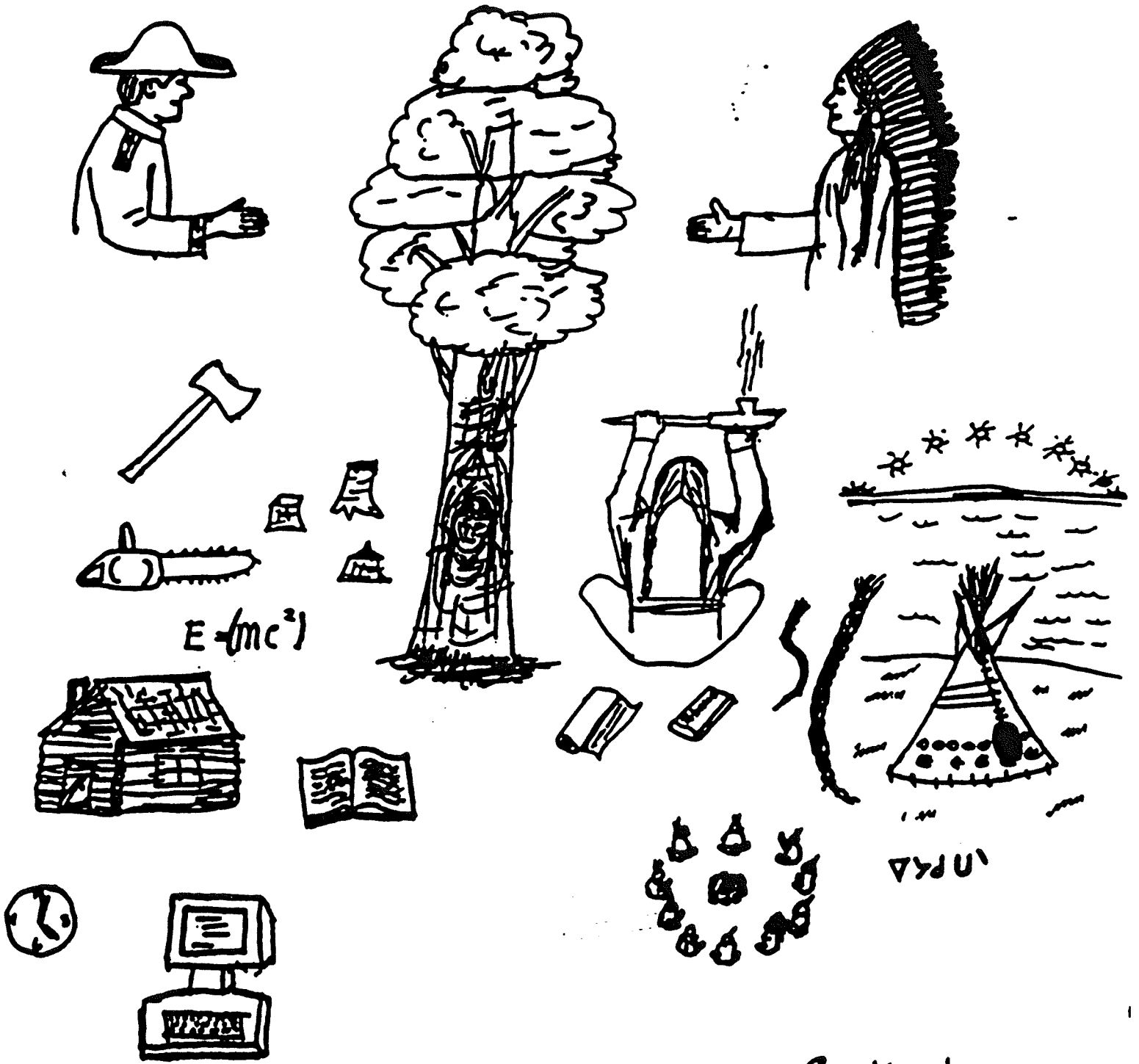
American Indian knowledge of the work does not suffer this structural handicap. While tribal peoples did not have a detailed conception of the whole planet in the sense that Western scientists presently do, they did have a very accurate knowledge of the lands they inhabited and the plants, animals, and other life forms that shared their environment. It is also becoming increasingly clear that they had a fairly comprehensive knowledge of the heavens with their own set of constellations and stories."

Table I

Comparison of Indian and Western Science

Indian	Western
Subjective - you put yourself into it	Objective - separate yourself and feelings from what you are studying
Spiritual	Separate religion from science
Methods include talk with Elders, prayer, fasting, ceremony	Methods include measurement, breaking things down to their smallest parts; cutting into something to see how it works
Main purpose to understand 'why'	Main purpose to describe 'how'
Outcome, balance within and with the natural world	Outcome, a report, findings, usually some life has been destroyed through the research process and something man-made now exists
Community control	Expert control

Diagram I
Comparison of Indian and Western Science



Graphics by.
W. S. Janvier

Bridging the Gap through Experiencing

As can be seen both in Diagrams I and II, there are two very different styles of presenting observations of phenomena. Indian people rely on the verbal work to discuss phenomena. Concepts are often presented in an abstract way including many stories to illustrate these abstract notions. The recipient of the information hears of the experiences of the presenter as well is asked to look at their own life experiences and gain a new holistic, spiritual understanding of these experiences. Learning is primarily at the affective level.

In comparison, the western style of presenting scientific information is primarily through written papers. Concepts are presently concrete with clear connections of the relationship between one concept and another. Information is presented at a cognitive level, yet at times "how to's" or specific behavioral information is also presented.

Diagram II

Comparison of Indian and Western Information Sharing Styles

Indian	Western
Discuss	Write
Abstract	Concrete
Storytelling	Academic presentations
Experiential	Cognitive
Affective	Behavioral

We suggest that the bridge between the Indian and Western scientific approaches and styles can be built by experiencing both presented together. In order for this togetherness to occur it will necessitate the Indian scientist learning to accommodate the Western scientist in terms of participating in moving beyond verbal discussion to the written paper. In order for the Western scientist to understand the Indian scientist, the Western scientist will need to learn the skills, protocols and patience to discuss. Recipients of the knowledge of both the Indian and Western scientists need to observe

both the verbal and written sharing of information by these scientists in order to experience and thus understand how Indian and Western science mayhance each other. On a larger scale, the uiversity can initiate processes, develop models and define structures for integrating the sciences.

In conclusion, we return to the question that opens this paper. "What is the relationship between the tree, the man and the fence?" When you have the answer to this question, you will, as the Elder promised, really know something.

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