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REVIEW ESSAY

American Indian Spirituality, Traditional Knowledge, and the “Demon-Haunted” World of Western Science¹

STEVE PAVLIK

DEMONS AND FLICKERING CANDLES

While browsing through the stacks of my favorite bookstore I came across a title which caught my attention, not to mention my imagination. *The Demon-Haunted World: Science as a Candle in the Dark* (1995), is the latest work by Carl Sagan, probably the most widely read and respected popular scientist of our time. Sagan, a professor of astronomy and space sciences at Cornell University, is perhaps best known for his book *Cosmos* (1980), and for the immensely popular and educational television series of the same name. He also wrote *The Cosmic Connection* (1973), *The Dragons of Eden* (1977), and *Broca's Brain* (1979), to name just a few of his better known works. Intrigued by the title, and admittedly a long-

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time Carl Sagan fan myself, I eagerly took up *The Demon-Haunted World*, and with only the slightest wince of pain at the price, handed over the \$29.95 (plus tax) to the cashier.

Sagan's main purpose in writing *The Demon-Haunted World* is to discredit the increasingly popular belief in the existence of UFOs, extraterrestrial beings, and especially reports of "alien abductions." In the process, however, he takes on a larger concern, that being what he perceives to be a rise in "pseudoscience," and a return to a new "Dark Age" characterized by superstition, mysticism, ignorance, and irrationality.

While I admit to being an **X-Files** addict, a series which Sagan criticizes because "almost never does the paranormal claim turn out to be a hoax or a psychological aberration or a misunderstanding of the natural world,"² I have no particular interest in the existence or non-existence of lifeforms other than those from my own planet. Yes, from time to time I gaze up at the stars and wonder if anyone or anything is staring back at me, but I've never been quite inspired enough to take up a subscription to *UFO Magazine*, *UFO Universe*, or any other publication dealing with extraterrestrials and the paranormal. As a social scientist who works on a daily basis with Native Americans, one of my concerns is how Indian people can continue to survive within a larger mass-society whose value system is largely secular and is a product of the teachings and inventions of western science - a discipline with a long history of dismissing tribal institutions as being primitive, and tribal knowledge as being merely superstition. Sagan's book, unfortunately, continues this tradition by attempting to reaffirm the parochial view that as the "candle in the dark," western science stands as one true source of knowledge. Sagan demonstrates this attitude when he boasts that "Science may be hard to understand... But one thing you have to say about it: it delivers the goods."³ He then goes on to state:

Science teaches us about the deepest issues of origins, natures, and fates - of our species, of life, of our planet, of the Universe. For the first time in human history we are able to secure a real understanding of some of these matters. Every culture on Earth has addressed such issues and valued their importance. All of us feel goose bumps when we approach these grand questions. In the long run, the greatest gift of science may be in teaching us, in ways no other human endeavor has been able, something about our cosmic context, about where, when, and who we are.⁴

Such comments reflect what I consider to be a dangerous state of arrogance on the part of western science. While Sagan expresses his concern that society is becoming more superstitious, irrational, and antiscientific, I am equally concerned that western science is increasingly becoming more ethnocentric, close-minded, and anti-intellectual. I should state at the onset that it is not my intent to cast dispersion on the entire field of science and all of its practitioners, but rather, only on the extremism I see. I've always been fascinated by science and my own personal library includes shelves of scientific literature, mostly in the area of natural science. Indeed, Sagan's *Cosmos* is one of the more well-worn and appreciated volumes in my collection. Moreover, I would stand among the first to praise the many positive contributions science has made toward understanding our physical world and enhancing the material quality of human existence. I look around at my immediate environment and acknowledge that nearly every material item which touches my life is a product of someone's scientific endeavor. It's hard to imagine, for example, a world without automobiles, airplanes, televisions, telephones, radios, typewriters, computers, fax machines, and on any particularly hot summer day in Arizona, air conditioning, to name only a few of what we have come to refer to as "the countless wonders of science."

However, I find it equally impossible to imagine a world without Gods, spirits, angels, saints, ghosts, witches, demons, and other, for a lack of a better name, supernaturals. Some of these beings I know exist; some I think exist. Most importantly, I acknowledge the fact that all of these supernaturals might exist. In sum, I believe in the existence of the supernatural, and it is here where western science and I part company. It is also here where western science parts company with American Indian spirituality and traditional knowledge.

DEMONS OR SPIRITS? CONTRASTING VIEWS OF THE SUPERNATURAL

In the *Demon-Haunted World*, Carl Sagan points out that in the earlier times of most western traditions, the belief in "demons" was so widespread that they were thought of as being natural rather than supernatural. The great triumvirate of Greek philosophers: Socrates, Plato and Aristotle, for example, all recog-

nized the existence of demons. Generally, these supernaturals were viewed as being neither mortal nor immortal, and neither good nor bad. Over time, attitudes began to change in regard to these "powers of the air," who increasingly came to be looked upon as troublesome and evil. Demons were, by the 1200's, seen as being devils or fallen angels with lustful sexual appetites for mortals. Eventually demons became synonymous with witches, and after a Papal Bull issued by Innocent VIII in 1484, the object of an Inquisition. This campaign to search out and destroy witches and other heretics swept through Europe and by 1700, resulted in the execution of at least 200,000 people. Sagans account of the torture and killing is graphic and makes for interesting reading.⁵ While this unfortunate episode in history says much about the dark side of mankind, it says little about the nature of spirits or spirituality.

The Navajos of the American Southwest know that in the beginning, a creator God "sang the universe into being." While other American Indian tribes might not possess a similar knowledge of the origin of life, they know that everything on earth, the plants and animals, the mountains, lakes, and rivers indeed the rivers very earth itself - has life and consequently, a spirit. To most American Indian tribes the world is alive with supernaturals and the reality of mystic or magical powers. In some Native cultures this sacred realm has no definite shape or form, but rather is a matter of spiritual energy. Iroquoian people call this force orenda; Algonquians call it manitu; the Lakota call it wakonda. For many tribes such power takes the form of deities or spirits. Sometimes these supernaturals reside elsewhere and appear only at special times, if at all. Such is the way of the Navajo Holy People and Hopi Kachinas. For other tribes these supernaturals are constantly present and accessible, though rarely if ever seen. They may serve as helpers or guardians, or as tormenters, and perhaps even as dangerous adversaries.

Native Americans, are, of course, not the only people to believe in the supernatural. To the best of my knowledge every major world religion is based on the belief of some type of spiritual being. Christianity, for example, is founded on the premise that there exists a living God, and many Christians also believe in other lesser supernaturals such as angels. Recent surveys indicate that 95% of Americans believe in the existence of a God. Approximately the same number believe in angels. I can only assume the other 5% are scientists.

Western science, is by nature, a purely secular endeavor based on the so-called "scientific method." While science claims to search for truth and knowledge, it limits its findings only to that which is proven by observation and experimentation. Consequently, nothing, including the supernatural, exists until it is revealed through the scientific method. Such self-imposed boundaries places severe limitations on intellectual thought. Moreover, it poses a major problem for people of faith - which is to say most people. In *The Demon-Haunted World* Sagan categorically rejects, for example, the possibility that angels might exist. Individuals who report seeing apparitions of the Virgin Mary and other angels are dismissed as simply suffering from hallucinations. "I think I can see," he writes, "many parallels between Marian apparitions and alien abductions."⁶ Since one man's superstitions are often another's religion, Sagan, in making such a ludicrous statement, is treading literally - on sacred ground.

It stands to reason that if there are no angels, there is also, in all likelihood, no God. Sagan, like most scientists, refuses to come right out and make such a declaration. After all, one does not risk the wrath of the people who fund your projects and buy your books by attacking the very foundation and the credibility of their faith. Scientists may be Godless, but they're not stupid. Instead, Sagan attempts to rationalize the anti-spiritual nature of science by suggesting that we should rethink our definition of what spirituality really is. He writes:

Despite usage to the contrary, there is no necessary implication in the word "spiritual,, that we are talking about other than matter (including the matter of which the brain is made) ... When we recognize our place in an immensity of light-years and in the passage of ages, when we grasp the intricacy, beauty, and subtlety of life, then that soaring feeling, that sense of elation-and humility combined, is surely spiritual.⁷

Only a scientist could envision a spirituality void of spirits. By reducing spirituality to matter, which, of course, lends itself to observation and experimentation, Sagan is able to then reach the logical conclusion that "Science is not only compatible with spirituality; it is a profound source of spirituality."⁸ Thus, western science takes another bold step forward, by not only establishing itself as the one true source of truth and knowledge, but also as the "one true religion."

TRADITIONAL KNOWLEDGE AND THE SCIENTIFIC METHOD

In recent years western science has grudgingly come to admit that so-called primitive societies, including those of Native America, possess considerable knowledge about the natural world. Usually, such admission tends to sound more like patronization than actual acknowledgment and acceptance.

In *The Demon-Haunted World*, Sagan all but ignores using American Indian examples of knowledge and spirituality - despite the fact that most of his book is based on American experiences. Other than a passing reference to a Harvard ethnobotanist who was enlightened enough to recognize that the Navajos knew of the medicinal values of a certain plant by observing bears eating it, Sagan, after noting that "The myths and folklore of many premodern cultures have explanatory or at least mnemonic value," offers only the following example of Native American traditional knowledge:

Quinine comes from an infusion of the bark of a particular tree from the Amazon rain forest. How did pre-modern people ever discover that a tea made from this tree, of all the plants in the forest, would relieve the symptoms of malaria? They must have tried every tree and every plant-roots, stems, bark, leaves-tried chewing on them, mashing them up, making an infusion. This constitutes a massive set of scientific experiments continuing over generations-experiments that moreover could not be duplicated today for reasons of medical ethics. Think of how many bark infusions from other trees must have been useless, or made the patient retch or even die. In such a case, the healer chalks these potential medicines off the list, and moves on to the next.⁹

Perhaps we are fortunate that Sagan does not attempt to provide further insight as to the activities of Native healers. The one example he does give conjures up visions of an Amazon jungle strewn with the bodies of Native test subjects - victims of primitive experimentation gone amok as a "witch doctor" from some nameless tribe seeks to find a non-lethal medicine by process of elimination. While such an image might make a great Gary Lawson cartoon, it serves a greater purpose in reflecting the lack

of objectivity on the part of one of the world's most respected scientists. Furthermore, I find it hard to swallow Sagan's reference to "medical (read: scientific) ethics." Keep in mind that it was scientists who injected blacks with the syphilis virus at the Tuskegee Institute, and it was also scientists who pulverized the heads of monkeys in a laboratory at the University of Pennsylvania - all in the name of advancing knowledge. In reality, ethics have never been one of western sciences stronger suits.

Sagan gives only one other example of a tribal people utilizing traditional knowledge. The !Kung San people of the Kalahari Desert, he points out, "were trackers of such legendary prowess that they were enlisted by the apartheid South African army to hunt down human prey".¹⁰ After giving a brief narrative of !Kung tracking methods, Sagan rightfully notes that "all of these formidable forensic tracking skills are science in action".¹¹ Unfortunately he goes on to write, "Such scientific thinking has almost certainly been with us from the beginning. You can even see it in chimpanzees when tracking on patrol of the frontiers of their territory, or when preparing a reed to insert into a termite mound to extract a modest but much-needed source of protein".¹² Happily Sagan does not tell us which family of early scientists - the !Kungs or the chimpanzees - came first. Nor can Sagan resist trying to use the !Kung people to further exorcize the demons of his haunted world:

There is no hint in the !Kung tracking protocols of magical methods - examining the stars the night before or the entrails of an animal, or casting dice, or interpreting dreams, or conjuring demons, or any of the myriad other spurious claims to knowledge that humans have intermittently entertained. Here there's a specific, well-defined question: Which way did the prey go and what are its characteristics? You need a precise answer that magic and divination simply do not provide - or at least not often enough to stave off starvation. Instead hunter-gatherers who are not very superstitious in their everyday life, except during trance dances around the fire and under the influence of mild euphoricants - are practical, workaday, motivated, social, and often very cheerful. They employ skills winnowed from past successes and failures.¹³

I found this particular passage troubling for a number of reasons. First, Sagan is displaying the same ethnocentric

patronization that keeps scientists from seriously considering the vast body of sacred knowledge possessed by tribal people. When the !Kung are not taking drugs or dancing around a fire, these cheerful Natives are pretty much like you and I. Secondly, while I know nothing about the !Kung, I quickly reasoned that Sagan doesn't either. Since spirituality and the supernatural play an important role in almost every traditional hunting society, something seemed wrong with his conclusions.

Fortunately (or some may say unfortunately) the !Kung, or bush people as they are better known, have long been studied by anthropologists and an extensive body of literature is readily available on these people. A visit to the library confirmed my suspicions that Sagan had selectively used only certain aspects of the !Kung hunting experience to prove his point. Reading the same source cited by Sagan, *The !Kuna San: Men, Women, and Work in a Foraging Society* by Richard Borshay Lee, I found, as radio personality Paul Harvey might say, "The rest of the story." Lee writes:

Hunting being an unpredictable business, the hunter needs all the help he can get. In addition to keeping their equipment in top trim and their knowledge of game movements up to date, the hunters make wide use of divination as well as many other magical aids ... Any man may divine, and most older men make and own a set of five disks. The disks are used to seek information about hunting and to predict the behavior of humans at distant places.¹⁴

This divining session, which Lee describes at considerable length, takes place the day before the hunt. Lee continues by noting:

In deciding where and what to hunt, the hunter seeks both empirical and magical forms of data. In the actual choice of routes and tactics, the empirical data play an important role. The magical data from divination and dreams are more important in telling a man whether to hunt and giving him a feeling of confidence, and are particularly sought after by hunters who feel they are down on their luck.¹⁵

Lee goes on to provide detail descriptions of what he calls !Kung "hunting magic." This includes an elaborate six-part cer-

emony in which young hunters are tattooed using the fat of the first male and female antelopes they have killed. These rituals "give power" to the hunters. They ensure that they will find game, that the animals will not flee them, and that their aim will be true.¹⁶ Lee also gives an example of a hunter who is unsuccessful because his hunting power (magic) was "cold" and that the animals "refused" him.¹⁷ This observation is interesting because it parallels many American Indian societies where hunting success was often not so much a result of skill as it was the willingness of the animal to voluntarily surrender itself to the hunter.

In some professional fields it might be acceptable, if not expected, that its practitioners present only the facts which support their argument, while ignoring or hiding other obvious evidence which is equally important. Lawyers, for example, do this all the time, and it is for this reason we hold them in such disdain. Such tactics, however, have no place in the field of science, where its members are, as noted earlier, supposedly engaged in the pursuit of truth and knowledge.

In discussing only the empirical aspects of the !Kung hunting experience, while ignoring or actually denying the allvital spiritualistic rituals which precede and follow the actual hunt, Sagan is, I believe, guilty of being less than honest intellectually.

Every American Indian tribe possesses a body of traditional knowledge handed down from generation to generation, usually by way of oral tradition. Some of this knowledge is acquired through what might be described as the scientific method-observation and experimentation. Other knowledge, however, is acquired supernaturally. Sometimes this sacred knowledge is revealed to tribal people unexpectedly and unsolicited in visions or in dreams. In other instances knowledge might be sought through use of a sacrament such as peyote. While every tribal member might be subject to receiving sacred knowledge, some individuals acquired more than others to become shamans, medicine men, or "doctors." Navajo medicine men or "singers," for example, acquire their knowledge both supernaturally as well as through an intensive apprenticeship - the equivalent of a medical internship - which might last several years or more depending on the complexity of the healing ceremony being learned. When this apprenticeship is completed, the newly initiated singer will have acquired knowledge and skills equal to, and in some cases surpassing, an education received in any of the nations best medical colleges. Over the years I have been fortunate to have worked

with a number of Native American traditional spiritualists. When in the presence of some of these individuals I could actually feel or sense the awesome power they possessed. These people simply know things that you and I - and western science - do not know. Equally important, because they acknowledge and derive their power in part from the supernatural, tribal medicine people know that some things are beyond the scope of understanding. In other words, there is knowledge that man can never acquire, nor is meant to acquire. While the supernatural world is known to exist, it is never truly understood. Some tribes refer to this as being the "Great Mystery," and their spiritual leaders do not seek to understand every nuance of it. The most powerful shamans and medicine men are those who possess not only knowledge, but also a humility to that power which is greater than themselves. Western scientists would be well advised to adopt a similar attitude.

THE SEARCH FOR COMMON GROUND

It seems clear that in contemporary America - and throughout most of the developed countries of the world - humanity has not kept pace with technology. The near absence of ethical behavior which seems to be prevalent at all levels of government and business; racism; the abuse of women, children and the elderly; brutal acts of terrorism and violence; addictions to alcohol and drugs; escalating rates of teen pregnancy and sexually transmitted diseases; and worst of all, the general hopeless acceptance of such aberrant social behavior as being something which is beyond our control, are just a few of the characteristics of a spiritually-dead society.

Western science has offered few solutions to the core social, political and economic problems which plague our societies. Moreover, by discrediting and rejecting the intellectual knowledge offered through spirituality, science, in many cases, actually contributes to the continuation of these problems.

There exists an obvious need for western science to expand its intellectual horizon and consider alternative sources of knowledge - to find common ground with spirituality. A few scholars, both scientists and theologians, have recognized this need, and have called for, such unity. The most notable of these far-seeing intellectuals is Ian Barbour, a professor of science, technology, and society at Carleton College in Northfield, Minnesota. Barbour, in his classic book *Issues in Science and Religion* (1966), and a later

work, *Religion in the Age of Science* (1990), argues that while there exists inherent and unbridgeable distinctions in the philosophies, language, and methods of science and religion - distinctions which serve to rightfully separate the two disciplines to the mutual benefit of both - the absolute separation of science and religion is impossible and that there are "significant possibilities for dialogue."¹⁸ It is interesting to note that in *Religion in the Age of Science* Barbour singles out and criticizes Carl Sagan for his "unlimited confidence in the scientific method."¹⁹

Barbour, of course, is concerned with the relationship between science and Christianity. In recent years, no scholar has done more to challenge the notion of western science's infallibility, while calling for a new and respectful examination of American Indian spirituality and traditional knowledge, than has Vine Deloria, Jr. Deloria, who is of Lakota descent, and a professor of history, law, political science and religious studies at the University of Colorado at Boulder, offered his first serious criticism of the scientific establishment in *The Metaphysics of Modern Existence* (1979), a book in which he surveyed and provided his own interpretation of the dissident literature regarding western science's long-accepted explanations as to the origin, nature and future of our universe. In his latest book, *Red Earth, White Lies, Native Americans and the Myth of Scientific Facts* (1995), Deloria critically examines what he calls "two of the most ridiculous of scientific beliefs," namely theories regarding the origin and evolution of mankind - and specifically the place American Indians have in this sequence of events, and the role played by Paleo-Indians in contributing to the extinction of megafauna during the Pleistocene era.²⁰ Deloria concludes this book with an insightful look at an emerging new field of study, geomythology.

Neither Barbour nor Deloria claim to have a monopoly on knowledge. Instead, both are simply suggesting that alternative sources of knowledge exist and must be considered. While the accomplishments of western science have been impressive, its discoveries represent only the superficial surface of all that exists. The time has come for the high priests of science to open their minds and look beyond that which they can see, touch, and perhaps, even understand. If scientists can overcome their prejudices - professional and otherwise - they will come to realize that the demons they now see and fear are largely those of their own creation. In the end, western science might very well come to realize what Special Agent Fox Mulder of the *X-Files* has known

all along, namely that "the truth *is* out there." This truth, however, can never be proven by way of the scientific method.

AUTHOR'S ENDNOTE

Shortly after completing the final draft of this review I received news of the death of Carl Sagan. *The Demon-Haunted World* proved to be his final book. The disagreements and concerns expressed in this review do not detract from the respect and appreciation I will always have for this enormously gifted man. My generation grew up reading the works of Sagan and most of what I know of planetary science I owe to him. Indeed, if it had not been for Sagan I probably would not possess the interest to write this review in the first place. His passing is a loss to all of us and he will be sadly missed by this writer.

NOTES

1. The basic ideas in this essay were originally presented in a roundtable discussion on "Western and Non-western Approaches: Science and Spirituality," at the American Indian Studies section of the Western Social Science Association's annual conference, Reno, Nevada, April 19, 1996. The author wishes to extend his appreciation to his fellow panelists, Vine Deloria, Jr., Thomas J. Hoffman, and Will Wright, for their thoughts and comments which greatly contributed toward the development of this paper. The author alone, however, assumes all responsibility for the content and analysis offered.

2. Carl Sagan, *The Demon-Haunted World: Science as a Candle in the Dark* (New York: Random House, 1995), 374.

3. *Ibid.*, 30.

4. *Ibid.*, 38.

5. *Ibid.*, 118-123.

6. *Ibid.*, 141-148.

7. *Ibid.*, 29.

8. *Ibid.*

9. *Ibid.*, 251.

10. *Ibid.*, 313.

11. *Ibid.*, 314.

12. *Ibid.*, 315.

13. *Ibid.*

14. Richard Borshay Lee, *The !Kung San: Men, Women, and Work in a Foraging*

Society (Cambridge, UK: University Press, 1979), 149.

15. *Ibid.*, 210.

16. *Ibid.*, 238-240.

17. *Ibid.*, 249.

18. Ian Barbour, *Issues in Science and Religion* (New York: Prentice Hall, 1966), 4.

19. Ian Barbour, *Religion in the Age of Science: The Gifford Lectures* (San Francisco: Harper Collins Publishers, 1990), 6.

20. Vine Deloria, Jr., *Red Earth, White Lies: Native Americans and the Myth of Scientific Fact* (New York: Scribner, 1995), 60.