

The Study of Traditional Narrative and the Science of Human Evolution: Complementary Perspectives

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Introduction

At first glance, oral tradition creation myth and evolutionary science appear to present completely opposing and mutually incompatible worldviews. This review of the discussion begins by pointing to the importance of continued research on the vast body of narrative and poetic composition of indigenous cultures, in particular the creation myths of the oral tradition. Future field research and analysis of texts will provide important insights into the historical development of this literary genre and the cognitive and linguistic foundations of literary creation. However, creationist and similar evolution denial ideologies, still influential in academic fields associated with American Indian Studies and related disciplines, stand as a serious obstacle to future advances in our understanding of these narrative and poetic traditions. A related crisis looms in the same academic disciplines in regard to the broader context of the study of literary creation: the denial of recent findings of population genetics and archaeology that point to a common human origin and patterns of early human migration that resulted in the colonization of the New World. The debate evokes a wider discussion of how or in what way religious belief and scientific understanding might be reconciled.

This essay considers what to many scholars in the fields of Indigenous Studies, Anthropology and Multicultural Education is in fact an irreconcilable contradiction between the creation stories of the oral tradition and the findings of research on human evolution. In North America, for example, the argument is often made that the religious beliefs of indigenous communities regarding human origins form an integral part of their claims to natural resources and of their identity as a distinct people. According to this view, scientific theories of human evolution and early migration (from Asia to the Americas) contradict these claims and undermine Native American cultural identity.

The claimed contradiction, however, is without foundation. The creation myth genre, as we will see shortly, is one of the most important historical foundations of literature, a virtual universal across all cultures. As such, it has been the object of study by literary historians, anthropologists and cognitive scientists, among many others. The reason for this interest is two fold: the creation myths tend to be among the most well-formed and perfected exemplars of tradi-

tional narrative, and they contain some of the most complete expositions of the worldview, philosophy and religious outlook of the cultures that produced them. It is therefore no surprise that they are conferred high degrees of recognition and even reverence by indigenous and non-indigenous peoples alike.

The problem is then posed: what is, precisely, the nature of the differing views on human origins, and how in practice might this apparent conflict be arbitrated? Interestingly, it is in the realm of higher education where the controversy specific to the origin of Native Americans appears as most problematic. Nevertheless, this article puts forward the following working proposal for advancing the discussion: the same overall considerations and the same analytic methods employed in the evaluation of the particular case of "Native American creationism" apply generally to how we should evaluate controversies surrounding all traditional accounts of creation and human origin, for example that of the Christian Bible. The best way to begin is to see how the creation story genre fits into the broader context of the oral and literary traditions of indigenous people, then to examine in more detail some representative examples.

The Foundations of Literature in the New World: A Resource for Research in Cognitive Science

In the Americas there is a long and illustrious record of scholarly investigation of traditional narrative, oral history and poetry spanning more than five hundred years. Early European missionaries such as Durán, Sahagún and de Torquemada were among the first investigators following the Spanish conquest of the Aztec empire; and beginning in the sixteenth century doesn't include the organized study of these literary forms that might have been undertaken in the great centers of learning in Mesoamerica and in the Andes region prior to the conquest. In the twentieth century, ethnologists and students of comparative literature made significant advances in our understanding of the importance of traditional narrative and poetry (Garibay; Zolbrod). But systematic research in this area in more recent years has taken advantage of only a small fraction of the potential that exists, especially in regard to the possibilities of interdisciplinary collaboration between the humanities and the sciences.

As one of the widely studied universal language-related abilities, shared by all cultures and among all normally developing individuals within every culture, narrative deserves special attention. In particular since it diverges in significant respects from face-to-face conversational ability, further investigation regarding its development (e.g., in children) and its cognitive architecture (the interaction of mental structures that underlie skilled performance) should be viewed as theoretically important. Practical implications should follow for a number of applied fields: understanding literacy learning, and more broadly the study of the development of literature, the documentation and preservation of endangered

languages and cultures and their literatures, among other applications (Francis and Navarrete Gómez; Francis). An important complement to the study of narrative from a developmental perspective (i.e., how it develops in children) would be a focus on historical trends, and ultimately its evolutionary emergence, parallel in this way to recent inquiry on the origins of language (Kenneally) and musical ability (Cross) in humans. Interacting with an ontogenetic focus on narrative development (individual life-span time) and a focus on evolutionary origins is a third dimension: cultural change across historical time.

Indigenous communities in which the indigenous language is still spoken can contribute decisively to this research, favoring, at the same time, the documentation and preservation of both their heritage language and the genres historically associated with the language (Navarrete Gómez). The latter is an especially important consideration, because in many cases aesthetic and narrative genres are not passed on or circulate within the community in any other language, such as the national language of the country that most community members often speak fluently. In the case of poetic forms, the association with the indigenous language may be so close as to be inseparable for all practical purposes, with erosion of the language potentially threatening the complete loss of these verbal art forms.

Indigenous language communities also provide researchers with a unique and exceptional kind of diversity. In the case of populations that have maintained a certain degree of isolation, traditional stories may have come to be less influenced by literacy and the narrative forms of other cultures. Perhaps examples have been recorded by researchers during a period when these influences in fact could be assumed to have been minimal. Then we can point to a continuum of contact and integration into respective national cultures: of communities that have remained isolated, at one extreme, to situations of a high level of economic, social and linguistic integration. Comparisons would be relevant among the products from indigenous authors influenced to different degrees by the European traditions and literacy, from authors who composed in written form, directly, from transcriptions of the oral tradition, and from compositions systematically restricted to the oral domain. Linguistic diversity offers another point of analysis, an interesting question posed being one related to different hypotheses about the interaction between grammar and the underlying cognitive structures of narrative construction. Given all these dimensions of variation, what specific universals of this discourse type might be revealed, and what are the underlying component knowledge structures of narrative ability? On the other hand, which discourse features are culture-specific? Which of these features are completely autonomous and separate from linguistic knowledge systems, and which are language-specific to some degree? Which constraints on performance and learning are universal and which would tend to vary significantly from one community to another?

Traditional Narrative as Cultural Inheritance and Patrimony of Humanity

In addition to being a resource for the preservation and documentation of endangered languages (a patrimony of the present day indigenous cultures in particular), the continued study of the oral traditions will establish their rightful place along side the great works of world literature. Today, thanks to the accumulated findings of research dating back to the first ethnographers of the Americas, this idea is more widely accepted than ever before; that there exists a fundamental continuity between the written and oral compositions of narrative and poetry. An urgent task is the recording and transcription of this material, as no other method or resource (unlike in the past) can ensure that it can continue to circulate as an object of study and be conserved among present day speakers of the respective languages, including literary scholars and other researchers. The analysis of culture-specific and universal thematic content could proceed in parallel to the study of culture-specific and universal discourse features mentioned in the previous section, all of which is amenable to integration into all aspects of literary study.

Reflection on Human Origins in Literary Studies

The study of the world's creation myths in particular provides one of the richest opportunities for understanding cross-cultural motifs and universal themes. Of the many productive lines of research in comparative literature, recent attempts at applying the methods of an evolutionary perspective (Carroll; Gottschall) stand to benefit greatly from the analysis of the cross-cultural themes of the creation myth genre. Findings from this line of investigation should help researchers to integrate insights from evolutionary psychology into the study of literary universals, and the origins and historical development of narrative and other aesthetic genres. In turn, they will help explain how themes emerge and are expressed differently from one culture to another. Among these are:

- Mythical accounts of human cognition, creativity and language, and how they evolved from primitive pre-human stages;
- The relationship of humans to other life forms, both plant and animal;
- Narratives of catastrophic, near extinction, population loss, and how recovery and repopulation occurred;
- Conceptions of the relationship between natural and supernatural forces, in particular in relation to the individual human life cycle; and

- Complementarity of the sexes and sexuality, fertility and procreation, endogamy/exogamy, polarization of opposites in general, and related concepts of duality;

Motifs and themes for the study of world literature in general would include:

- Origin of the conscious awareness of the world and,
- Conceptions of preconscious knowledge (von Franz);
- Authors' and participants' views of creative processes in art and literature itself;
- Broader understandings of conflict, separation, competition and union/community (beyond the above-mentioned narrower evolutionary domains);
- Aspects of Theory of Mind applied to literature (interpretation of intention, deception, etc.).

Three Representative Myths

The Navajo genesis story traces pre-human origins to deep within the Earth. The insect-like Air-spirit people spring forth, evolving gradually into an Earth-surface people. This transformation sets the stage for the formation of society into clans. Conflict between First Man and First Woman provides an opening for the dominance of the evil Alien Gods, to be finally defeated by a new equilibrium achieved between Changing Women and the Sun. The sequence of events that marks the progression from the First World to the Fifth World follows the progressive elaboration of prototypes and essences that in time approach a stage of balance and harmony between male and female (Zolbrod).

Four antecedents to a Fifth World also framed the creation drama of the Aztecs and other ancient Nahuatl-speaking peoples, each cycle of creation punctuated by cataclysm. The originator deity, Ometeotl (two god, god of duality), incorporated both male and female in the same entity. Ometeotl gave birth to the four *tezcatlipoca*, among whom stand out the famed Quetzalcoatl and Huitzilopochli, respectively, the gods of light/mercy and war. Each were claimed to have represented opposing views on the need for human sacrifice during the reign of the Aztec emperors ending in 1521. The successive cycles of destruction, fertility and regeneration are associated in large part with a powerful group of female deities. Following the acopolyses of the previous Suns/Worlds, Quetzalcoatl (Plumed serpent) participates directly in the creation of the first contemporary man and women, retrieving their dry bones from Mictlan, the underworld. With the sacrifice of his own blood, the bones are fertilized and brought to life. Mortal humans (common people) are thus considered *macehualtes*, "deserving ones" of penance. Parallel on this point to the Christian tradition,

among others, their existence in the Fifth World they owe to the sacrifices of the gods (Carrasco; León-Portilla).

Popul Vuh, in its many editions and translations by far the most widely read creation myth of the Americas, owes its notoriety in part to the special circumstances in which it was discovered by non-indigenous researchers and the general public, and in particular to its original written-literary provenance and early diffusion, in writing, among the indigenous peoples of Mesoamerica. Probably composed originally by a writer/scribe from the advanced literate Mayan culture prior to the Spanish conquest, a transcribed version (in alphabetic Quiché, produced in the mid-1500s) circulated for over 150 years among the Mayan communities of Southern Mexico and Guatemala until it came to the attention of Friar Francisco Ximénez, who during the first decade of the eighteenth century copied the original text and translated it to Spanish.¹

The concept of duality in the male-female pair of complementary opposites also pervades the ancient Mayan view of human origins. The Creator/Shaper is Mother and Father of life and of creation. Unsuccessful attempts at forming humans passed through cycles of creation, frustration and holocaust. The first creatures could not speak and acknowledge the deities. Ancestral pre-humans formed of clay possessed an incoherent language. Wooden man and woman prospered numerically, but their form and movement turned out to be deficient. Exterminated in a deluge of resin, they gave rise to monkeys. The successful final creation and shaping of fully formed humans was achieved by molding the fine paste of corn meal and water (*Popul Wuh*; Bassie-Sweet).

As these few examples illustrate, a systematic cross-cultural study of the creation story will sooner or later need to take up what is arguably the most interesting question about this genre: how did it come to pass or how can we account for why it became one of the great universals of the preliterate oral tradition and the early literature of ancient civilizations? In addition, as Zolbrod pointed out (referring to the Navajo Genesis, but most probably applicable across the board), its forms have served as a vehicle for some of the richest narrative poetry passed down to us from *both* the preliterate and literate traditions. He suggests that based on a scientific analysis of the Navajo oral recitations, for example, poetry should not be thought of primarily as a written art form, and that in our study of narrative we have seriously neglected the discourse features of poetic expression constitutive of this prosaic form.

The Creationist Challenge

However, in recent years the prospects for making future advances in these areas face growing obstacles, in large part, ironically, emerging from within institutions of higher learning and from scholars who study indigenous cultures. Centered interestingly and again ironically in North American universities, a

strong tendency, today dominant in many departments and among activists working in communities and non-governmental organizations, has openly challenged the methods of science in the study of the oral and literary traditions of indigenous people. This opposition is part of a broader questioning of basic findings and historical advances of scientific research in history, archaeology and genetics, in particular, and most disconcerting, of fundamental and elementary concepts of human evolution.

Within the field of American Indian Studies (AIS), and allied disciplines, the creationist views of Vine Deloria Jr. on questions of evolution, the Earth's geological past, and the first human colonization of the Americas, starting with *Red Earth White Lies*, are perhaps the most widely cited.² What is noteworthy is that critiques of this version of creationist ideology tend to appear almost exclusively outside of the field (Brumble; Sokal; Springer). Most surprising, a search of the literature in AIS reveals a uniformly uncritical assessment of his writings (see Fixico; Sandoval; and papers in Denzin, Lincoln and Smith; Mihesuah and Wilson; and Pavlik and Wildcat for representative examples), and a widespread self-censorship among other scholars associated with work in Native American communities in anthropology and related social sciences.

From other quarters, there is the tendency to grant undeserved recognition to pseudoscientific notions concealed under the guise of "traditional knowledge." In an otherwise thorough critique of New Age-type thinking about Native American cultures that has become popular in the general public, including an objective review of Deloria's sensational and fantastic theories, Jenkins (233) incorrectly elevates *Red Earth White Lies* as lending "academic support" for a creationist theory of the peopling of the Americas. To be fair to the author, the characterization of "academic" was probably a slip of the pen. Nevertheless, being precise about standards of scholarship is important. For example, in their discussion of the theory of human migration to the Americas, Klug and Whitefield cite Deloria's *Red Earth White Lies* as refuting the Bering Strait land bridge migration theory. The "migration dogma" is opposed because it contradicts the creation stories of the oral tradition (125-126). This claim appears in a textbook for preparing classroom teachers to work with Native American children.

A common thread in the rejection of "non-indigenous" research findings is the confounding of scientific theory and oral tradition and religious belief, all portrayed as epistemologically equivalent. Making use of the now familiar post-modernist obfuscation, preconceptions, "frameworks," paradigms, myths and theories (archaeologists have their own "creation stories") are all taken as just one kind or another of "narrative." Research evidence as "story" suffers from the same subjectivity ("ideological" especially) as all other kinds of observation and interpretation. Casting the theory of the population of the Americas across a Siberian land bridge as a "stereotype," Mihesuah, in *American Indians: Stereo-*

types and Realities, ascribes to supporters of the monogenesis of humanity a belief that "Indians had to have migrated from the Old World because, in their estimation, Indians could not have created their own civilizations without Old World influence." (46). "Many Indians refute the migration theory." Each tribe has its own creation story, and they "universally recognize the Western Hemisphere as their motherland" (47).³ According to this view, the difficult confrontation of scientific evidence and debate over interpretation of historical research findings is overridden by political and ideological considerations; "tribal stories" simply take precedence over "stories created by outsiders."⁴

On more extreme views, it has been proposed that so called "Native Creation" theories should be taught to indigenous young people in school as the first and primary theories, as part of a "Native Science" curriculum. That the "spiritual connection with the earth and all its life-forms.... [serves] to establish a Native American view of the natural world that stands in sharp contrast to that of Western science" (Pavlik 81). Pavlik prefaces these notions with the stunning assertion that "Native Americans are creationists" (80).⁵ Such views logically follow from the false dichotomy, uncritically taken at face value by many commentators in the field of Multicultural Education, between so called "Western science" and "Indigenous science" (Cajete 487-496). These spurious categories are related to the postmodern idea of "local science" (understood as counterposed to "global science"), and that findings from empirical research are in essence "culturally relative" (Sillitoe: 1-23).

But contrary to the claim of Klug and Whitefield, mystico-religious speculations as offered in Deloria's *Red Earth and White Lies*, and pseudoscientific expositions of evolutionary theory such as Pavlik's cannot refute any scientific theory. Oral tradition versions of human origin do not and cannot stand as counterevidence to research findings of archaeology and population genetics. The oral tradition creation myths and empirical findings of scientists belong to two completely separate domains of knowledge. Despite the attempt by postmodernist theorists to cast doubt on scientific discovery, a strong consensus among investigators from diverse fields has emerged in recent years on both the question of human origins and the colonization of the Americas, topic of the next section.

The Evidence from Evolutionary Science

When genetics provided Charles Darwin's theory of evolution by natural selection with a mechanism of inheritance, anthropologists were able to begin to ask the right questions about human origins. Archaeological findings could now be integrated into coherent evolutionary models; and recent breakthroughs in the study of the human genome have contributed decisively to narrowing the field among competing theories (Ward).

While a lively debate continues on a number of secondary issues related to the timing of the first patterns of dispersal, contact (transfer of genes) among the early diverging populations, and explanations for past and present genetic diversity, a growing convergence has developed on the most important points. One interesting discussion, for example, revolves around the questions of when the Western Hemisphere was populated by humans and by which route or routes. No serious researcher today entertains the idea that an autonomous hominid family of archaic human precursors independently arose in the Americas, separating itself from a common primate ancestor that we share with modern non-human primates. That is, the ancestors of present day Native Americans can trace their lineages back to the same original founding branch of modern humans to which all populations of the Old World can, and vice versa (Fagan; Stone and Lurquin).

The first archaeological findings (still widely recognized in the field, and at the same time subject to discussion and debate, as in all sciences) estimated entry of nomadic populations from Siberia between 12,000-15,000 years ago. More recent evidence (also debated) suggests an earlier arrival, or series of arrivals, perhaps as much as ten to fifteen thousands years earlier. In other words, all credible theories of human "origins" in the New World propose models of *migration and colonization* from Asia, to date the strongest claim involving the utilization of a land, or possibly coastal, route across what is today the Bering Strait (Powell; Cavalli-Sforza; Fagundes et al.; Fiedel; Klein and Schiffner).

Related to the issue of the timing of original migrations is the larger debate between proponents of the single-origin ("out-of-Africa") hypothesis and the multiregional hypothesis (in reality, another variety of "out-of-Africa" theory). The multiregional model begins with evidence that more primitive ancestors of *Homo sapiens* dispersed from Africa leading to the emergence, for example, of Neanderthals in Europe and *Homo erectus* in Asia. From this widely accepted view, the more controversial claim is made that the resulting separate regional populations independently evolved into modern humans, assuming, at the same time, that contact and admixture among the dispersed populations was sufficient to keep divergence in check. Starting from the same assumption of the first "out-of Africa" dispersal of human ancestors, the single-origin model places the emergence of *Homo sapiens* relatively recently, in the same region, exclusively, and only once. Subsequent migrations into Asia and Europe encountered independently evolved separate species at one or another stage of extinction. Converging evidence from linguistics, archaeology and especially recent findings from population genetics appear now to strongly favor the single-origin model; that the origin of present day Europeans and Chinese can be traced to modern humans that evolved in Central or Southern Africa, not to *Homo neanderthalensis* and *Homo erectus pekinensis*. Discussion continues, nevertheless, on the possibility of some degree of admixture between the "early" and "late" out-

of-Africa migrant populations (Weaver and Roseman). In any case, in contrast to Asia and Europe, the American continent was first colonized by fully evolved *Homo sapiens*. The Americas were very unlikely, according to the preponderance of evidence to date, to have been previously populated by any species of archaic hominid. On this account, in contrast to the European expansion throughout the "New World," the immigrant ancestors from Asia of today's Native Americans truly did colonize a virgin continent (Fagan; Lurquin and Stone).

Early speculations by some archaeologists once toyed with the idea that the search for pre-*sapien* human ancestors might include the New World. But all credible fossil evidence to date and, most importantly, converging studies of mitochondrial and Y chromosome DNA have definitively placed the ancestry of Native Americans among the peoples of Central Asia and Siberia. These ancestors were clearly fully formed *Homo sapiens* who earlier had begun to colonize the world from their evolutionary genesis in Africa between 40,000 and 60,000 years ago (DeSalle and Tattersall).

Studies of the Human Genome

Opposition to the scientific study of human origins and early migrations is related to widespread confusion regarding research on genetic variation, for example by the Human Genome Diversity Project (HGDP). Instead of engaging investigators in a constructive manner on important issues of ethics (e.g. the problems of informed consent cross-culturally and cross-linguistically) and potential future benefits to indigenous communities, many activists and concerned individuals have simply turned their back on all aspects of the research. The possibility of a better understanding of the history of human populations and what genetic structures are shared among the peoples of the Americas, Asia, Europe and Africa is viewed with deep suspicion in part because it would contradict "indigenous peoples' knowledge about their origins and histories" (Harry 53). Representatives of the Indigenous Peoples Council on Biocolonialism (IPCB) have been especially vocal in expressing a wide range of fears and dire objections in a series of *Briefing papers* posted on their website.⁶ References to the HGDP as the "Vampire Project" and sinister warnings to indigenous communities that genetic data could lead to the production of biological weapons for conducting genocide against them, set the tone of the IPCB's approach. The following assertion is made regarding the findings of evolutionary science:

The cosmologies of indigenous people are environmentally and culturally specific and are not congruent with popular Western theories, such as the Bering Strait migration theory or Darwin's theory of evolution. The assumptions posed by the HGD Project that the origins and/or migrations of indigenous populations can be "discovered" and scientifi-

cally “answered” is insulting to groups who already have strong cultural beliefs regarding their origins. (Briefing paper on “The Human Genome Diversity Project and Its Implications for Indigenous Peoples”)

In the section on *Resolutions*, a “Declaration of Indigenous Peoples of the Western Hemisphere” categorically states that: “we the Indigenous Peoples and Organizations participating in this meeting from North, Central, and South America reject *all programs* [emphasis added] involving genetic technology.”

To be sure, major recent advances by investigators associated with the HGDP and other research centers on population genetics are on the cutting edge of adjudicating long-standing open questions that remain regarding the origins and migration of indigenous populations. To suggest that scientific discoveries about such important historical questions might be “insulting” to indigenous communities borders on the same condescension and paternalism reflected in the pronouncement (by Pavlik, above) that “Native Americans are creationists.” Contrary to the suggestion by Mihesuah, (“monogenist”) theories of evolution and of a single origin of humanity, decisively strengthened today by genomics, do not diminish the achievements of the pre-conquest New World civilizations. This evidence from science cannot in any way imply that indigenous peoples of the Americas required outside assistance from a more advanced society in the development of their cultures. What kind of “Old World influence” could the hunter-gatherer nomads from Siberia, twenty thousand years ago, have possibly contributed to the first urban cultures of Mesoamerica many thousands of years later? The relatively high degree of genetic homogeneity across all cultures and ethnic groups worldwide, another central finding of the study of our DNA (Cavalli-Sforza), promises to unlock many other puzzles regarding universal features in language, in the capability of using language for creating literature, in musical competence, and in other uniquely human mental capabilities that underlie cultural innovations in art and technology generally. Genetics has pointed to a conclusion, perhaps more clearly than any other field of study, that these properties of cognition are shared in the same proportion by all human populations because they can be traced ultimately to a common evolutionary origin. In light of this debate, it is interesting to note that historically so called “polygenist” theories of cultural and ethnic diversity have arrived at completely different conclusions (Anderson and Perrin).

Conclusion: Why Does It Matter?

In the end, it is difficult to avoid a troubling conclusion from the above review of the growing influence of this special variant of creationism: That important sub-fields of the broader discipline of Indigenous Studies are in the throws of a deep-going crisis of scholarship. Researchers in allied fields of lin-

guistics, anthropology and history, who know better but have maintained a complicit silence, have a responsibility to bring the findings of current science to bear on what needs to be a new discussion. Exploiting the creation myths of the oral tradition for shortsighted political purposes and for promoting creationist ideologies has become perhaps the most serious intellectual roadblock to the further development of the study of this important genre of narrative and verbal art. The unhappy coincidence in recent years between creationist interpretations of the oral tradition and the radical post-modernist disdain for the scientific method has reinforced openly anti-scientific tendencies within AIS, Multicultural Education, and Cultural Studies, these tendencies gaining influence even in mainstream Anthropology, History and Literary Studies.

As has been demonstrated by the analysis of Navajo, Aztec and Mayan creation mythology by Zolbrod, León-Portilla and Bassie-Sweet, the narratives of this genre constitute a high value resource of the first order for understanding the development of all sub-types of literature and related aesthetic genres. Indirectly, they provide scientists with a motivation and framework for hypothesizing about the emergence/evolution of the human capacity for creating these prosaic and aesthetic discourse forms. Among the important objectives of comparative literature is a full explanation for why narrative and poetic genres of such advanced form and complexity emerged so early in the historical development of human cultures, preceding the advent of writing, institutions of formal education, social differentiation and division of labor associated with urbanization, etc., apparently by thousands of years. To take the dimension of the oral-written comparison as one example, an important research objective is the description of the resources available to the traditional narrator and poet. What accounts for the essential continuity between the products of oral and written composition in these domains? The ancient texts of today's indigenous cultures hold one of the keys to this persistent research question (Finnegan; Johnson). With the application of more refined analytic tools and the integration of methods from other disciplines, new and important understandings on this and other questions in the humanities and in the history of literary creation should be expected in the coming years.

But failure to break with the denial of evolution ideology, today seemingly highly influential in key areas of AIS, will only hold back these advances. No useful purpose is served, least of all to indigenous communities, by continuing to perpetuate the folly that the creation stories of the oral tradition might in some way contradict the migration theory of the peopling of the New World or refute the fundamental genetic unity of all human populations. Evidence that lends support to a scientific theory or disconfirms or falsifies it must come from empirical findings. These findings are derived from data produced by investigations that apply research methods of the same type that contributed to the formulation of the theory. The kind of evidence that is useful in refuting a theory, for exam-

ple, is comprised of information of the same type. Questions about the origin of humanity and evolution require the application of specialized research procedures of clearly defined disciplines. Aside from these requirements, the migratory patterns of early humans to the Americas involve events that are simply too remote in time for narratives passed from generation to generation to be able to provide any reliable information relevant to the specific research questions at hand, much less to challenge data from archaeology and genetics.

The content of oral tradition human origin legend corresponds to a different kind of knowing and reflection entirely. It cannot be verified or falsified by any method. Belonging to the domain of narrative and verbal art, the legendary accounts of the origin of humans have value for understandings in realms of knowledge that are separate and apart, understandings that are metaphorical, for example. Given that creation myths offer a wide variety of versions of human genesis (i.e., empirically, they cannot all be true at the same time), these versions can in fact be unified utilizing interpretive tools specific to metaphorical understanding. On the other hand, the *study* of these accounts and other literary creations has the potential of providing complementary perspectives to the research on all of the scientific problems discussed so far, complementary understood here as compatible with the same methods of rational inquiry.

To say that oral tradition narrative and scientific research belong to two separate domains of knowledge in no way degrades the value of the former, quite to the contrary. As the brief review of the literature in the first sections of this essay has shown, the study of oral tradition narrative and poetry is important precisely because its forms are so advanced. The discussion in the field of comparative literature on the differences between compositions of the oral and written traditions is complex and needs to be deferred for now. But, it is clear that the indigenous narratives and poems of the Americas are of the same category to which belong the classical works of Vedic literature of India, the *Book of songs* of the Zhou Dynasty and the Homeric epics.

Just as there is no sharp dividing line in time between history and prehistory, the disciplines devoted to the study of history and prehistory maintain a close contact and mutual interdependence. They share the same general methods of systematic data-based inquiry and similar rules of evidence. The task of learning about the past of America's indigenous peoples faces unique obstacles, for one because the recording of events and gathering of primary evidence for so long had been in the hands of those who colonized them. As the first European chroniclers wrote their accounts, libraries of irreplaceable historical archives and artifacts were burned. The reconstruction of this history will be difficult. More difficult, in fact, it has already become. The circumstances that have resulted in a compromised study of American prehistory, obliged to continue fending off the challenge of creationism *within academia itself*, inevitably begin to corrupt the study of history. It is entirely conceivable that oral traditions could contribute to

understanding recent history, even involving events many years prior to the European contact. But nothing but confusion and potential discredit of this resource results by confounding, as in Sandoval's "A Question of Origins," the possible usefulness of the oral tradition for the study of recent historical events and the claim that the same oral tradition provides counter-evidence to theories of human evolution, hypotheses about the patterns of migration out of Africa, and findings of genetic science that confirm the evidence for the populating of the New World via a northern route across the Bering land bridge or along its coast.

What is at stake is the professional preparation of an entire generation of new investigators, young people in our high schools and universities, many with valuable linguistic abilities in indigenous languages. Students in large numbers are at risk of being profoundly miseducated regarding the basic tenets of the scientific method, the broad consensus today on the findings of evolutionary anthropology, paleontology, population genetics, and fundamental concepts of biology. As was alluded to earlier, a new critical approach and open discussion is needed to reorient important sub-disciplines in the larger field of Indigenous Studies toward new directions. No coincidence should occur to anyone that it is in the United States where this misinformation has penetrated more deeply than in many other countries with large indigenous populations. The influence of creationism and other obscurantist ideologies in society at large, and in academia particularly, continue to contribute, for example, to the crisis of science education.

Some kind of accommodation between religious belief and cultural identification with the creation stories on the one hand and scientific education on the other hand must be possible. Of the different alternatives, the approach favored in this article first draws a sharp distinction between the different domains of knowledge in each case. Secondly, a different logical problem is posed for scientists in their evaluation of articles of faith regarding human origins and the arguments of creationism; see Note #4. The former, belonging to domains of knowledge outside the purview of science, allow for kinds of understanding that are simply not pertinent to any type of research claim or hypothesis. In contrast, creationism elevates its argument to the level of a competing theory; and as such scientists have the responsibility to engage it directly. To be clear, according to the approach outlined here, researchers have no interest in challenging the figures and metaphors of religious/spiritual understanding. Lastly, in the study of creation myth it should be kept in mind that most investigations apply methods of inquiry that are non-scientific (not to be confused with unscientific), corresponding to a third category of interaction with scientific research, different from that involving religious faith and pseudo-scientific creationist theories. Scholarly non-scientific investigation interfaces with scientific research in a number of interesting and productive ways.

Notes

¹In an attempt to reconcile religious beliefs about the origin of humanity and early knowledge of world geography, some sixteenth-century missionaries speculated that human migrations had reached the Americas by land routes or by means of navigation across stretches of open sea from Asia (de Acosta; de Torquemada). But most importantly for our discussion, these hypotheses, as interesting as they are historically, do not count as evidence for or against any modern theory of population dispersal out of the Old World.

²Beginning with the idea that humans may have preserved a record of the Earth's earliest cataclysmic geological events in the oral tradition, in *Red Earth White Lies* Deloria implicitly either moves the origin of humanity back billions of years or that of the Earth up to only thousands (235-37). Rejecting the accumulated evidence from the fossil record (40, 121, 347-246), all research advances in the study of the evolution of life forms since the publication of Darwin's *The Origin of Species* amount to a "dogma" no different in kind from that of Christian fundamentalism (Deloria, *Evolution, creationism and other modern myths* 13-22). As evidence for an alternative theory: "a number of tribal traditions describe creatures that may have been dinosaurs" (*Red Earth* 240). Based on these spectacular hypotheses regarding the formation of the Earth and the origins of humanity, Deloria has effectively "eliminated the Bering Strait theory as a possible explanation of the source of the occupation of the Western Hemisphere by American Indians..." (*Red Earth* 81). Following this logic, any other theory of migration to the Western Hemisphere would be excluded as well.

³In regard to the creationist theory outlined in Note 2, a concern expressed by Harry regarding the evidence that Native Americans share an ancestry with peoples who colonized the Americas from Asia is especially revealing. It clearly flows from considerations that are completely unrelated to gaining a better understanding of the facts of evolution, human origins, dispersal of early populations, patterns of migration, and how all people today are genetically related. Claims "that contemporary indigenous populations are actually not 'indigenous' to the geographic area they currently occupy...are used by opponents of land claims and treaty rights" (Harry, "Genetics and Native Identity" 53). Whitehead, writing in an online issue of *Native Peoples Magazine*, follows up on this theme: "If you're not really from here, then you're not entitled to resources, either. In this view, the Bering Strait Theory also represents an attack on the cultural identity of Native American students. With all the troubles and challenges that young Native Americans face today, like suicide, diabetes, alcoholism and so on, one thing that's proven to be a positive force is cultural identity and the preservation of ways. It instills pride in students. But to go the school and have usually non-Indian teachers telling you that you're not really from here only adds to the problem" ("Taking Back our History"). Whitehead and other propo-

nents of the evolution denial position need to explain how understanding that Native Americans share a common ancestry with migrant populations from Asia who began their journey to the Americas *30,000 years ago* constitute an “attack” on indigenous young people’s cultural identity. And what could the idea behind the phrase “not really from here” possibly mean? If a migration theory of the peopling of the New World is rejected, then it should be clarified what “really from here” might mean.

⁴Mihesuah, “Should American Indian History Remain a Field of Study?” (148).

⁵In this discussion it is important to distinguish between the ideology of creationism and a religious belief in divine creation as an article of faith. While the two might coincide in the worldview of a given individual, they are not the same. The former implies a well-elaborated argument that deliberately *counterposes* a non-natural or pseudo-scientific explanation for human origins to current scientific theories. The latter does not necessarily imply such a counterposition for the holder of the religious belief in question. In regard to specific articles of faith, per se, science has nothing to say, unlike in the case of the claims of creationism.

⁶Website of the Indigenous Peoples Council on Biocolonialism: www.ipcb.org/.

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