WHY ARCHAEOLOGY MUST BE A SCIENCE

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Resumo: as relações antagônicas entre a ciência e a religião têm sido recorrentes ao longo de toda a História Ocidental. Os debates pós-modernos situam discordâncias diferenças cosmológicas entre povos nativos tradicionais e cientistas colonialistas insensíveis. Esta dicotomia simplista paternaliza tanto os nativos quanto os arqueólogos. A busca por um denominador comum revela implicações éticas para o futuro dos nativos e para a arqueologia.

Palavras-chave: arqueologia, ciência, religião, cosmologia, pós-modernismo

The annual budget for all archaeology funded through the United States National Science Foundation has risen from 3.8 million dollars in 1994 to 4.8 million in 1997 (John Yellen, NSF archaeology program director, personal communication). The National Endowment for the Humanities has suspended most of its granting operation for primary research altogether, though it could be reinstated any day and some archaeology is still supported. NSF funds place archaeology on a par with social psychology and at less than 1/3 of the funding rate of economics, which received over 18 million dollars in 1997. Even linguistics got a million and a half more than archaeology.

New data provided by Zeder (1998) in her statistical profile of the American Archaeologist show that archaeology receives an additional $60 million dollars per year for
contract research; this is research motivated by the endangerment of archaeological sites, not pure research. This is certainly a significant sum, but in comparison to the amounts of funding available to astronomers or to medical research, it is small potatoes indeed. And unlike most academic grants, these grants usually include the salaries of the principle investigators. If a significant number of the 300 plus recipients of this money pay themselves $30,000 per year, the amount of their funding for research slips to a very modest level.

Accepting the number of members of the Society of American Archaeology as a rough estimate of the number of archaeologists in the United States, there are only about 6,000. On a national scale, even including the money available for contract work mandated by law, the level of support for basic research is trivial. In the circles of power of the political establishment, archaeologists seem an unlikely group to attract the anger of oppressed minority groups. Their opportunity to oppress has been very limited in comparison to branches of academia with vast memberships and enormous funding bases, such as economics or sociology. But such accusations are increasing and strangely, unlike the authors of *The Bell Curve*, archaeologists are not criticized for oppression through bad science, but for trying to use science at all. This anti-science movement in archaeology is bad for archaeology, but in the long run it is worse for oppressed peoples. It seems worthwhile to figure out why this is happening.

In one way or another, almost all of the intellectual debate among archaeologists over the last 50 years has centered on the nature of science. Critiques of the discipline in the 40's and 50's for devolving into stamp collecting and a descriptive wasteland peopled by artifacts led to the revolution of the New Archaeology, as it has come to be known. To make a long story short, the New Archaeologists were determined that fact grubbing as Clyde Kluckhohn had called the archaeology of the 1940's would be replaced by a scientific discipline with explanatory power.
There can be no doubt that the motives of the new archaeologists were reasonable, if arrogant. Like other more famous intellectual revolutions this one involved a certain amount of revisionist history (no archaeologist of the previous generation had ever done real science), some head chopping (the new archaeologists were known for their brutal attacks on old fogies), and many of the people who were most useful during the initial battles were forgotten when the spoils were divided up (the discipline remained firmly under the control of white men, despite the fact that a number of promising women and a few people of color took graduate degrees during this time).

The New Archaeology was a largely American phenomenon spurred by legislation signed into law by Richard Nixon that poured a huge amount of new money and jobs into archaeology. A discipline that had been mostly antiquarian and populated by wealthy and socially connected individuals became almost overnight a discipline with more jobs than trained practitioners and a new legal standing among government offices.

With the surge of young scientists into archaeology came a new sense of responsibility. So much archaeology was being done, and so many inexperienced archaeologists were running projects, the need for quality control was immediately apparent. Besides, government grants and public contracts came attached to strings of accountability of a sort that were unknown in the heyday of the antiquarians.

So archaeologists increased their emphasis on science, both as an ideal and as a practice. But science, as its philosophers have long known, has a life of its own. That is, if practitioners really live up to the objectivity and replicability they espouse, they relinquish at least some control of their product. The empiricism that the New Archaeologists enshrined opened the door of the discipline at least a crack and allowed in some individuals who were not part of the old white male networks. And despite the New Archaeologists’ notorious lack of introspection, the scientific method also
provided a reflexive yardstick that could be used to measure the quality and accuracy of their claims about the past.

In the early eighties, some newly strident voices began to point out that the New Archaeology was not living up to its own standards and was claiming the authority of science to promote a colonialist view of the world. Science, said the more radical of the post-processualists (as these new archaeologists dubbed themselves) was a peculiarly embedded western belief system that was merely an ideology like any other. Elites were merely using the cultural capital of science to maintain their hegemony in the academy and the control of public resources.

From an economic perspective, it seems clear why these voices were heard first in Great Britain, where tenure was abolished and research grants almost completely disappeared. If all archaeology is helplessly culturally embedded and politically motivated anyway, why worry about the loss of academic freedom that was only ever illusory at best? And if new data cannot break through cultural preconceptions, there is no need to apologize for a lack of primary research. Unfortunately for native peoples buying into this nihilistic stance (which itself immediately took on a heavy endowment of cultural capital in the United States, where many in the intellectual establishment rather regret the Boston Tea Party), if objective reasoning and data hold no authority, then only might is left to make right. Science may be hegemonic, but it holds no contest with real religion or real capital. Money and religion may bend science to their ends, but at the very least this proves that it is a different animal from either. If science is just another religion, then the sacred traditions of First Peoples stand no chance against the hegemony of Christianity or Islam.

On the other hand, winnowing past the florid prose of the post-processualists, it is possible to see the point that needed to be made. Processual archaeology was dominated by a homogenous group, who lacked any experience of cultural diversity in their professional lives and consequently
approached the science of human beings as a much simpler proposition than it is. It is easy to feel comfortable with the proposition that all women are biologically and functionally inclined to inhabit “private space” if there are few examples to the contrary in the researcher’s experience. It is possible to develop a much neater definition of a “tribe” (ever striving for greater adaptive success as a chiefdom) if there are no anthropologically educated colleagues among the tribes under study to give a subtler picture. Much of processual archaeology was bad science, from which correlation many post-processualists reached the conclusion that science is bad. There is much to recommend the idea of multiple interpretations of archaeological data, and this possibility need not conflict with a scientific approach, especially where such a complex data set is under study (YOFFEE, SHERRATT, 1993; WYLIE, 1993). But the attitude that “digging is a pathology of archaeology” (TILLEY, 1987, p. 275) does conflict with scientific methods and goals. From a feminist perspective it is impossible to ignore that Shanks and Tilley (1987), young gentlemen of European descent, rule out all sources of power except their own; exactly what they attack processual archaeologists for doing. The difference is that anyone can learn to use the scientific method, but one must be born an Englishman.

But a funny thing happened to post-processualism when it got dragged out of the ivory tower and faced with living people. As usual, economic forces had an impact. Once upon a time there was a small English village that wanted its archaeological record probed and protected to help its inhabitants make a case for land rights against the British government. Villagers got an archaeologist named Ian Hodder involved to help them prove their case. In 1991, in a major journal article, Hodder, the main frontman for the post-processual movement turned a corner. He discovered from working with people and data that to deny the existence of verifiable interpretations of the past (some sort of approximation of truth) was disempowering to people with a genuine stake in the archaeological record of their history.
Hodder’s response was decisive; he made it exactly clear why archaeology must seek objectivity. People in the present have a stake in the past, whether it pertains to their land rights or to their ideas about the essential nature of humanity. There must be a way to answer the claims of rapacious governments and evil political orders; the Nazis did archaeology, apparently just another mediation “between what happened and its representation” to Shanks and Tilley (1987, p. 134), on par with, say, archaeological research at Starr Carr or Copan. To be ethically responsible, Hodder proposed that the discipline of archaeology must have a standardized methodology, which he described carefully as a set of practices. These would not have displeased Popper or Russell: Hodder’s methodology is a perfectly clear (if inelegant) statement of the scientific method.

Unfortunately, this approach still constructs science as something ethical and nice that European or Euro-American men do for the natives. The egalitarian implications lost on Hodder show that the perspective of lay people and aborigines was still being excluded from science. Instead, Native American belief systems are being styled as antithetical to science, and this is being taken up as crucial to the survival of their traditions and their claims for human rights. “Indians see archaeology” as a ‘last stand’ in their struggle to maintain their land base, identity, and sovereignty (FORSMAN, 1997, p. 109). Certainly this is a tragedy for archaeology. The voices of women have brought agency to a deadened past, who knows what a generation of Native Americans and other First Peoples could contribute to science? But Native Americans and archaeologists have inherently different perspectives, we are told by one of these new antiscience revolutionaries. The only way to be ethical they tell us is for the Native American perspective to be treated as equal to a scientific perspective.

In his introduction to an important recent book, Archaeologists and Native Americans: stepping stones to common ground, Downer (1997, p. 24-5) states
Archaeologists and Native Americans have inherently different perceptions of the past, [and] Neither the spirit nor the letter of NAGPRA (the Native American Graves Protection Act) can be complied with in the absence of dialogues among archaeologists, museum personnel, and Native Americans in which all participants are equals.

In the same volume, Deer (1989, p. 42) argues that archaeological desecration of sacred places “has its roots in the fundamental imbalance between spirit and science” and complains that archaeology “has never seriously considered Native American Spirituality as relevant to its own concepts and practices”.

The history of this perspective is long and politically complex. Like the scientific perspective, it takes up a position based on data and experience, and it correctly identifies the control of information about tradition, heritage and the cultural past as a source of power in the present. Native peoples, thought to exist outside history (Wolf, 1982) and the world system (Wallerstein, 1974) were the focus of inquiry for colonial powers. The impetus of the research (at least its funding, if not its research design) was to identify the exact nature of the superiority of the west and justify its hegemony, either explicitly or implicitly, and the body of knowledge about other people generated during the age of imperialism became the discipline of anthropology.

Needless to say, the subjects of such inquiry were quite often mistreated, having their traditions as well as their homelands and human rights thoroughly mangled (Hayton, 1989; Swidler et al., 1997). As disadvantaged groups have begun in the recent past to gain hard-won access to education and information, many have found themselves and their traditions written up as though they were an animal species without reference to their humanity at all, much less their intellectual traditions (Echo-Hawk, 1997; Tsosie, 1997). Anthropological and archaeological writings either make no reference to the group’s own knowledge about themselves as
historical actors, or use ideologically laden specialized knowledge out of context in a clinical way that diminishes its authority.

These are not idle complaints. For example, some aboriginal Australian groups construct their social order in terms of access to sacred knowledge. More important and powerful people are allowed know more about the mysteries of aboriginal cosmology; achievement is rewarded by further education (WILLIAMS; MUNUNGGURR, 1989). Publication of large amounts of sacred knowledge literally endangers aboriginal social order.

A similar issue is related to land rights, frequently a life and death issue in the modern world. Where buried ancestors are proof of ownership, the vision of the European or American archaeologist digging up the bones of Native Americans takes on a sinister cast, especially in the light of the long history of reprehensible treatment of Native Americans and the unremitting land theft by Europeans in the New World (FORSMAN, 1997; ZIMMERMAN, 1997) and elsewhere.

Unfortunately, the position that the way to achieve cultural autonomy and self determination is to reject a scientific perspective is not well supported by either logic or history. Rejection of scientific inquiry by one group does not stop other groups from inquiry, nor does it increase the chance that the perspective of the native group will be heard in the modern circles of political and economic power. Members of the establishment may smile benevolently at the native peoples placing their religion above science and putting a stop to expensive government funding of archaeological research, perhaps hoping native peoples will also reject modern medicine and costly healthcare. After all, much of what we know about human disease and its cures has come from the dissection of cadavers, many of whom in life were Europeans who would vehemently have objected to such desecration. No one would suggest that First Peoples have no right to the benefits of such knowledge; the problem is that knowledge gained from the archaeology of First Peoples has rarely been shown to benefit anyone, least of all the descendants
themselves. It is reasonable to suspect that this stems significantly from the fact that native peoples have been, and continue to be excluded from the scientific project, where full membership continues to be a source of economically useful information and political power. It seems clear that the position that to be an authentic Native American or member of any group of First People requires the rejection of science as a source of knowledge has the direct result of marginalizing native peoples by denying them access to this traditional source of power – in the west, but also in almost any cultural tradition knowledge is power.

Women were once considered unable to do science and excluded from the academy. Scientific rigor was thought to undermine their femininity and their authenticity as women (FARNHAM, 1987). Many women believed themselves to be the intellectual inferiors of men, or at least intellectually different enough to be averse to critical analysis. Others still take the position that women and men are different but still equally capable (BARBER, 1994). A few scholars have even argued that women’s science would be a different animal from men’s science (HARAWAY, 1989). But women can no longer be kept out of the academy or convinced they have no right to demand verification for claims made about their gender and sex. Native Americans have the same right to enter the academy, to demand verification and to follow new paths of analysis that have relevance to their goals and needs in the modern world.

To say that Native American beliefs are equal to science is parallel to saying that Christian beliefs are equal to science, which is a view no established archaeologists espouse. Contrary to the common suggestion that there is only one set of Native American beliefs, there are many (TSOSIE, 1997); to treat Native Americans as a single group with a simple set of goals and one belief system is hegemonic indeed. This denigrates religion as some sort of standardized method (which the practitioners of many religions would resent) at the same time it denigrates science as only pretending to exist outside
the arena of faith. Science and religion are not equal any more that science and gender roles are equal. These are independent approaches to experience; they can contribute information to each other, but they are not the same.

In answer to the question of why the cultural background of the scientist should matter if science is indeed objective, we can employ the same arguments marshaled to defend feminist approaches to science. As Lloyd (1995), has shown a change in the data set of interest, improved recognition of sample bias, or an increase in the rigor required of the analysis is hardly an indication of inferior objectivity or quality of scientific research. When women were only the subject of research, and never participants, assumptions loading hypotheses and strangling interpretations were easier to miss. Successful science must stand up to scrutiny by other scientists, whether they are feminist, Hindu, homosexual, or Native American scientists. Already among archaeologists, recognizing the fact that Native People would be reading the results of the research conducted has improved the quality of the science (FERGUSON, WATKINS, PULLAR 1997; JACKSON, STEVENS, 1997). Concern about the repercussions of their claims and the seriousness of their audience has made many archaeologists more aware of their limitations and more respectful, as well as more accurate, in their interpretations.

Not only is empiricism not imperialism, it may be the best defense of the powerless against oppressive ideology. Here the example of gender studies in archaeology is again useful. Over the last 10 years, over 500 papers on the archaeology of gender have been presented at meetings, mostly by women (CONKEY; GERO, 1997). Not all of them are equally useful, women do not do good science just because their hearts are pure and their politics correct. But the quality of the thinking and research on gender has improved dramatically and anyone who has kept up with this literature knows that it has expanded what we can know about the past and has improved the science that we practice (NELSON,
Gender studies have also changed what we know about the human past—gender stereotyping is at last really on the run. This is a job that cultural anthropology could not do on its own. Archaeological data have the special ability to combat essentialism. Now that women finally have a chance to do archaeological science, they are improving it, and doing some of the most rigorously scientific research being done.

The political context of all science, but especially reconstruction of the past that the modern world values for determining human rights, requires that scientific claims be as verifiable as possible (Salmon, 1997). If there is no objective standard that stands apart from belief, then whose beliefs are more important? A study of history suggests that in the long run ideological battles are won by money and political power, which neither archaeologists nor Native Americans have in enough quantity to play for global stakes. There are well known instances in which Native Americans have won protection from archaeological invasion of their heritage, only to lose out in the end to rapacious developers and professional looters. This does not mean that archaeology should win over Native American beliefs, but while archaeological science and Native American religion fight battles of principle, both are losing the war. The G.E. Mounds case, for example, where archaeologists and Native Americans were cast as antagonists, resulted in a resolution determined and carried out unilaterally by General Electric (Jeske, 1994). Neither respect for Native Americans nor science was involved; this was purely respect for money.

All scientific knowledge is provisional; this is one primary way in which scientific knowledge differs from religion, which is, by definition, not provisional. This fact humbles archaeologists at the same time it empowers people who value sources of absolute knowledge. If archaeologists really are scientists, they must be cautious about claims that have repercussions in the modern world, and should strive for a balanced consideration of alternative hypotheses. So many...
variables are involved in human experience that it is rarely possible to rule out competing hypotheses with much confidence. Choosing which hypotheses to test and which explanations to emphasize is a political act, not merely an exercise of scientific objectivity. Scientific freedom can only survive in a climate of scientific responsibility.

This is what Wilk (1999) calls the ugly baby principle of archaeological ethics. Chances are the extraordinary beauty of a stupid child is more likely to be commented upon at Christmas dinner than its intelligence. If scientific freedom can only be expressed through damaging revelations, it really is time to examine our objectivity. Despite implications to the contrary, there are few instances in which a recent archaeological reconstruction unequivocally opposed a Native American view. On the other hand, there are many cases in which scientific investigations were successfully based on the historical memory and living beliefs of First Peoples. A good example is the investigation of the Little Big Horn battlefield where Custer was defeated. Native American descriptions conflicted with army records; when archaeologists mapped the battlefield, they showed that the Native American account was correct (Fox Jr; Wood, 1997). In reality, archaeology is much more likely to support a Native American perspective than to refute it. But this is not enough, Native Americans should have the opportunity to wield the power of science for themselves.

Forsman (1997), a rare Native American archaeologist notes that one of the peculiarities of western culture is the attempt to own everything, making archaeological research an issue of owning the past. Scientific reasoning is often described as uniquely western, a style of thought invented by western philosophy. Leave it to a white man to try to get a copyright on common sense!

Bronislaw Malinowski, infamous for his racist personal diaries that reveal what he ‘really’ thought of the Argonauts of the West Pacific, believed that primitive cultures used magic instead of science. In simple societies, he argued,
people blend the distinction between practical knowledge of agriculture and the magical spell used to protect crops. Levy-Bruhl spent his career trying to show that primitive people are prelogical and think like children, an attitude extended to women through much of European history. But anthropologists know better now, in part because Levy-Bruhl could never come up with replicable evidence. There are deprived people and devout people, and people with systems of thought very different from European thought. But there are no primitive people of the sort Malinowski believed in, incapable of telling trial and error from spiritual technology. The point is that scientific reasoning is often interwoven with religion, but it is not absent or indistinguishable to its practitioners, since it is always there.

Scientific reasoning is not at all specific to a particular culture, whether traditions are guided by Jesus, or Beauty and Harmony, or Ixchel. When a Navajo woman makes a pot, she uses techniques developed over time through trial and error. Obviously her knowledge has emotional and spiritual value, but it also has the pragmatic value of producing a useful pot. This is science in its purest form – finding out what works and making it better.

Purists will rightfully point out that any system of useful knowledge is not the equivalent of science. No other systems of understanding have the accumulation of new information and the refutation of what is known as their ultimate goals. Nevertheless, the suggestion that increased information about the world and improvements in technology are uniquely European preoccupations is false. And the idea that First Peoples are more likely to be blinded to reality and objective evaluation by their religious beliefs and cultural background than people of European descent is beyond inaccurate; it is humorous!

Of course, capitalist European culture, old and fat and rich, has made a fetish out of trial and error and had the leisure time to perfect this simple human behavior to apply to any area where better knowledge can create more profits.
Exploited and oppressed people without a tradition of ownership have had little leisure time and little say in how science would proceed or what areas of knowledge would be emphasized.

First Peoples have been excluded from the human project of science by the reification, by anthropologists and others, of the concept of culture. Anthropologists used to preach that traditional cultures are static and historically isolated. The flip side of this model is the notion that non-Western societies are compromised by innovation and change. Like the trial and error employed by any farmer or potter, cultural innovation and flexibility are also common to all human organization. And cultures borrowed and learned from each other in the past as in the present day (Wolf, 1982). This point is still difficult for some archaeologists to grasp, since historically the idea of static primitive cultures has been supported by evidence of durable traditions in material culture, such as the Oldowan tool industry of Europe and Asia or the Chichén ceramic technology of the Maya Lowlands. Ethnoarchaeological observation and improved understanding of the relationship between material culture and other facets of human culture, suggest that dramatic cultural change and increasing inter-group contacts are often the motive for conservative artifact traditions, rather than isolation and a lack of originality. The idea that people make the same tools for millennia and the same pots for centuries because they cannot come up with alternatives denies material culture its important expressive function and ancient people the characteristics of human agency, long reserved only for civilized culture. If the archaeological record shows anything decisively, it shows variation and change everywhere in all periods of history; evidence of dramatic cultural change in settlement and subsistence frequently occurs along with static tool traditions. Careful replication of material cultural styles is an important means of communicating across cultural boundaries. Experimentation and the proliferation of new forms may indicate conversely that some aspects of culture
have become reliable and stable, though never static. Humans have always lived in exciting times.

First Peoples have been pressured to solidify their beliefs and dam the stream of culture; cultural integrity has meant living in the past, a value that western culture does not require of itself. But today anthropologists realize that cultures use rich historical data to negotiate the present.

A few years ago a popular artist and epigrapher decided to teach living M aya people to write hieroglyphs. The intention was not to offer education or new intellectual opportunities to these M aya, but implied that Mayanness was equal to science, so that just by virtue of their heritage the M aya would have special understanding of a script that has been dead for 700 years. The results of this program seem to have been that some M aya people now support themselves by carving glyph signs to sell to tourists. But a group of educated M aya people are having a different impact.

In 1992 a group of prominent M aya linguists spent a week studying the Annals of the K aqchikel to answer the question “From what point did we exist as K aqchikel, who said we were K aqchikel?” One of these focal points was the K aqchikel rebellion against Iximche’, an important point in the political emergence of the K aqchikel. But oddly, the study group took particular interest in a brief passage in which four female combatants were described. The group had otherwise shown no particular interest in feminist issues, but explained to anthropologist Warren (1996, p. 97) when she asked that “the idea of women warriors was appealing because it demonstrates that women were held in respect and occupied positions of prestige in the original cultural system”.

This reading of history embedded in the political present, but it is also accurate. The M aya not only have history, they are in history. The constructions they create have both meaning and objective reality. They provide an important challenge to traditional scholarly authority, not because they are M aya by biology, but because they are M aya by ex-
perience. Objectivity does not disappear under evaluation and emphasis.

The significance of this example is that it shows what most First Peoples, but few archaeologists, seem to know. History and tradition are living things. All cultures have complex multistranded heritage that provides a constant source of information and dialog with the present day. Modern women of many cultures now need data from the past to combat the oppression of essentialist beliefs about gender. By bringing objectivity, or at least the goal of objectivity to the common sense method of investigating our past, known in Euroamerican culture as science, we have opened a new path to the future; not antithetical to tradition and history, but built from a better understanding of tradition and history.

Teacher Forsman (1997, p. 110) suggests that archaeologists need to communicate their findings in a way that is less technical and more personal. “This might necessitate placing more priority on people and their beliefs and understanding of the world than on our scientific values”. This is beautifully said, but understanding people’s values and beliefs is the scientific goal of archaeology, and archaeologists are most remiss when they fail to apply this goal also to the present. Empiricism is not imperialism: scientific ethics require that archaeologists seek the help of Native Americans and other groups of First Peoples to sever this correlation.

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Abstract: adversarial relations between science and religion have recurred throughout Western History. Postmodern debates construct disagreements as cosmological differences between innocent, traditional native peoples and insensitive, career-mad, colonialist archaeologists. This simplistic dichotomy patronizes both First Peoples and archaeologists. The search for common ground is shown to have ethical implications for both the futures of First Peoples and the future of archaeology.

Key words: archaeology, science, religion, cosmology, postmodernism

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