Dualism: The Great Divide in the Philosophy of Archaeology

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Abstract

In archaeology, biotic phenomena (e.g. human behaviour) must be inferred from a-biotic traces, requiring the process model to be conceptually unified. This unification has been prevented by dualistic ontologies that conceive humans and their purported unique traits as epi-phenomena, ontologically separated from their environment. The resulting encapsulation of phenomena within separate theoretical fields is proposed to be the source of our inability to apply evolutionary theory in archaeology.

The symptoms manifest as ontological deletion, isolation or “freezing“ of the organism within explanatory models, consequently, processes that span the divide for example those that include both biotic and a-biotic components such as technology or culture, have been impossible to integrate with evolutionary theory.

Introduction

Archaeology is a discipline in philosophical crisis, charged with creating a narrative, the story of our species evolution**,** it seeks to further understanding of how, and why, our species unique history unfolded. But, while documenting change in human history proceeds with reasonable success, progress in understanding the mechanisms driving this change has been painfully slow. As Cambridge archaeologist Colin Renfrew points out, archaeology can explain the “when and where” but not the “how and why” of events in the past (Renfrew, 2004)**.** Answering the how and why is now a matter of increasing urgency as humans are of such overwhelming ecological significance.

Explaining “how and why” requires a theoretical archaeology from which to generate hypotheses, something that has not happened yet. This essay discusses why integration of archaeology with science at a theoretical level has proved so difficult.

Archaeology, on the whole, has been described as exhibiting disjuncture, a lack of correspondence between what passes for theory and what archaeologists actually do or aim to do **(Johnson, 2006)**. It is recognised that archaeology, in common with most of the social sciences, has no coherent theoretical basis (Johnson, 2006) and that **t**he ensuing systemic incoherence actively blocks progress, both within the subject, and between it and other disciplines**.** To grasp why archaeology cannot explain the phenomena it catalogues, a short historical detour is in order.

The Incomplete Revolution

In broad historical context the source of this disjuncture can be traced to underlying issues inherited from the western adherence to dualistic Platonic/Christian philosophies. Familiar in academia as the Two Cultures described by C.P. Snow decades ago (Snow, 1959), these paradigms define an ontological separation of humans from the environment, and by logical extension those phenomena once thought to be unique to humans like cognition, society, language. Progress in intervening years has resulted in a confusingly fragmented interface between the humanities and sciences. Archaeology now finds itself stretched awkwardly across this interface.

The criterion of a successful integration of archaeology with evolutionary theory is the ability to create empirically testable hypotheses generated from evolutionary theory, the parsimonious theory of change applicable to a science of archaeology (Dunnell, 1971).

The "Scientific Revolution" pioneered by Copernicus and Galileo in the 16th and 17th centuries was nothing more than the application of the monistic materialism of the Ancient Greek physiologoi to the phenomena of the heavens and the composition of non-living materials, an application that immediately revolutionised physics, cosmology and chemistry. But the fields to which this application of philosophy remained linited, through compromise with Christian and Aristotelian sensibility both biology and the humanities were largely bypassed by the new sciences.

Philosophers and theologians, arguing against the possibility that physical or mechanical laws could have given rise to the complexity of life, maintained the separate causation of biological systems and there concomitant properties.

Thus dualism effectively isolated organisms, including humans, from the physical causal chain of natural science, preventing integration with physics and rendering them unamenable to scientific investigation. Within biology this was corrected in part by Lamarck in 1801 with evolution and Darwin in 1859 with natural selection bringing life forms in general within the remit of natural science.

But again the application was incomplete, this time, humans and all phenomena thought to be unique to humans, were left sacrosanct, resulting in the separation of the humanites and sciences that was such a prominent feature of the 20th century structure of faculties. Archaeology developed predominantly within the social science departments of colleges and therefore inherited a powerful underlying dualistic philosophy. A philosophy, dare I say, essentially medieval in character.

Philosophy in the social sciences inherits oppositional constructs such as mind/ body, natural/artificial, culture/nature and so on, leading to phenomena that monistic approaches posit as biological in origin, for example, language or cognition, to be defined instead as immaterial epi - phenomena, meaning they exist outside or beyond the "natural" material environment. It need hardly be said that once something is construed as "immaterial", it is hardly likely to be amenable to scientific enquiry.

Effects

It is hard for us now to understand the medieval resistance to the motion of the earth, but it stems, I believe, from an identical problem and sheds some light on the kind of process I have in mind here.

Firstly, as the earth was deemed special and therefore categorised as ontologically separate from the rest of the universe, explanation of its origin and state could not, and indeed should not once one is operating within these constraints, be linked to other observed systems or objects. Therefore observations of phenomena in the wider universe were not deemed relevant to the earth. This very effectively stymied research into the origin and history of the planet.

Secondly, ontological isolation required that it also must be static, because that which moves must interact and such interaction was unthinkable, as the earth was fundamentally separate from the rest of creation. Hence, we look in wonder at intelligent protaganists in these old debates arguing what seems now so obviously absurd. But to uphold the medieval paradigm as it was, they were forced to defend the indefensible.

And just as the logic of Aristotelian physics could not countenance the motion of the earth, modern

dualistic philosophy freezes humans within the environment and this is the reason our models are not dynamic but static. Archaeological data remains isolated and because of this also must remain static. So, despite repeated calls for dynamic models, no such models can be constructed. The problem remains below decks, in the philosophical engine room so to speak, and far below the awareness of archaeological theory as it now stands.

As archaeologists we should be concerned with change and consequently our most useful evolutionary perspective is one that emphasises adaptation as a dynamic process rather than as a static state." (Mithen, 1990:p8)

In keeping with this, neither have developments in physics, such as relativity or non-linear dynamics, been possible to incorporate within archaeological theory, not because of unwillingness, but because it is philosophically prevented. Therefore archaeological data remains isolated, inaccessible and cannot be digitised or held on a database that allows universal integration..

And so our ability to generate data is unimpeded, but or ability to record and manipulate data is extremely limited. There is no translation through scales and patterns of change over large spans of space and time cannot be effectively studied.

This situation has become increasingly untenable as the sciences advance and archaeology does not, highlighting more and more the inadequate nature of its philosophical basis.

The Broken Inference Chain

The archaeological inference chain has been severed by this same problem.
Archaeology must infer human behaviour and development from the technological record, an inference that must be made directly across the paradigmatic boundary discussed above. Practically speaking, the inference must be drawn from a-biota (tools etc) and applied to biota (humans), but it is precisely between living and non-living systems that dualism splits our fields, and so it is at this point our models can be predicted to break down.

And this is what we see, processes occurring across the boundary have been impossible to define, and exist only as the archetypal “black box” categories of social science. Vaguely defined areas such as technology and culture, both of which straddle the boundary, endure as obscure, undefined

categories of phenomena, with the result that they are therefore generally omitted from process models.

Splitting the Data Stream

If it is true that the problems within archaeology stem from this paradigmatic source then we should expect effects across a wide range of disciplines whenever they attempt to cross the divide. And it is the case that problems integrating biotic and a-biotic phenomena are not unique to archaeology. Similar difficulties have occurred within biology, ecology, neuroscience and complex systems theory. We see isolation, freezing effects and curious mirror like errors whenever synthesis is attempted, which I believe are the effects of this underlying dualism.

Intriguingly, confusion over the units of replication or the selective process seem to mirror each other in biology and archaeology. Sitting on opposite sides of the divide and looking at the same phenomena from a different perspective, the dualist ontology functions like a prism that bifurcates the data streams within each discipline and between them causing what I can only describe as a double image or reflection where their should be a single system.

For example, ecological system models must include the a-biotic environment as well as the life forms that are the studies focus, but this has proved curiously troublesome. Odling Smee and Laland, the proponents of niche construction, reached similar conclusions as to the neglect of active processes. Their focus on the active, dynamic interactions of a creature with its environment are of course correct. I believe they identified the same freezing effect prevalent in archaeology, in other words, the life forms they study are inherently static in system models that include the wider environment. The model described here would predict just such an outcome. It would also predict that phenomena identified across the divide are split by the underlying dualism so that they will manifest as a reflection, or doubling of processes on ones own side of the divide.

An example of this is that after their identification of niche construction, Odling Smee and Laland then posited it as a second parallel process to natural selection *"we shall have to recognize that evolution depends not on one, but on two general selective processes: natural selection and niche construction"* Odling Smee et. al. have been criticised for this claim as it has been pointed out that it is unnecessary and unparsimonious to suggest a second major selective process operating within

evolution. The identification (or misidentification) of phenomena as parallel replicators or selective processes is, I believe, a manifestation of the distortion effect of dualism, simply because the data becomes un-integratable and therefore a second process or force must be created to account for the seemingly parallel, but unconnected, phenomena observed.

Similarly, the memes proposed by Richard Dawkins (Dawkins, 1976) are characterised as replicative units under selection, a parallel selection process. And again this has been criticised as unecessary and unparsimonious addition to evolutionary theory, as well as a false analogy. But what is of interest here is that Dawkins felt the need to propose a parallel process for phenomena that are beyond the dualistic divide from his native biology, and again they appear as a parallel reflection of phenomena studied in his own field.

In archaeology, the fact that technology is of central importance, places it right at the coalface of the great divide, consisting as it does of a system where inanimate matter is in contact with life forms. This means that any successful definition of technology must smoothly integrate information across the paradigm boundary, a process that can be predicted to fail under current philosophical conditions, as we have seen above. And indeed it remains the case that archaeology has failed to scientifically define technology or to integrate the study of its development with evolutionary science or indeed even physics.

How to define technology, for example, remains a complete mystery to archaeologists, as Lambros Malafouris has helpfully described. *"To exemplify, this territory is familiar, as when the hand grasps a stone and makes it a tool, yet it remains terra incognita, since — despite a long genealogy of analytic efforts— just what this grasping implies for the human condition remains elusive, and refuses to be read in the narrative fashion that hermeunetics have promised"* (Malafouris, 2004)

In traditional archaeology the focus has traditionally been on a single element in the system, the tool, the object or material, it has been increasingly realised this cannot be understood in isolation. Tool use, once the pride of the anthropocentric view, has been observed in increasing numbers of species, across taxa. chimpanzees, bottlenose dolphins, birds such as New Caledonian Crows. A fact putting pressure on archaeology to integrate explanation of human tool use with the many examples in the animal world.

"But the significance of tool use doesn't lie in the fact of tools," Hauser explains, "but rather in how they're

conceived and used." (Hauser,)

Tools exhibit many of the features of biological selection, apparent design, bursts of increasing complexity over time, stasis, inheritance of characteristics and contingency. These features have puzzled many archaeologist and have led to many attempts to explain the development of technology using evolutionary theory, and again, remembering that this explanation must cross the paradigm divide, we might predict that, unless the deeper philosophical issues are dealt with first, these attempts will fail.

The result has been that archaeology has invariably run into the same effects as encountered in ecological and biological theory noted above. Cultural Transmission theory, Selectionist archaeology and Behavioural archaeology have all (falsely) posited parallel general forces of evolution, or parallel units of selection with the result that debate over what counts as a "unit of selection" in the evolution of technology has raged within the subject. (Boone and Smith, 1998, Lyman and O'Brien, 1998, Maschner, 1996)**.** The outcome being merely that they are generally left only with the question, what is it that is being selected? And so archaeology remains just as theoretically isolated and fragmented as before. As Colin Renfrew has said "But we still seem a long way from any well-integrated view that can bring these disparate fields together."

Conclusions

The occurrence of this remarkably similar problem in both archaeology and ecology reinforces, at least in my mind, the identification of the philosophical division between biota and a-biota at an ontological level as the source of these discontinuities. The important point is that the effect on data has been identical in both subjects, both have static descriptions of what are dynamic systems.

From these analogies, it is clear that something very similar is happening across a wide range of disciplines, when evolutionary theory is applied to across the paradigm boundary, it results in erroneous conclusions such as parallel replicators or processes parallel to natural selection. In this analysis, this does not occur because the approaches are wrong, but because the ontological framework to which they are being applied is incorrect, resulting in duplication, an effect indicative of a dualist paradigm interfering with our models. Stemming from a common source, these errors occur as mirror images of each other.

In this way inherited dualistic philosophies have resulted in subtle but profound shifts of emphasis in fields of research. So for example in biology and archaeology, the assumption that the environment is only that which is beyond the body leads to the search for sources of environmental change to be concentrated almost exclusively externally to the organism, and while the importance of behaviour is recognised in biology (Baldwin,189) it has been consistently underestimated (Odling Smee, Laland).

We can see that dualism, by forcing the separation of either the organism from the environment (archaeology), or the environment from the organism (ecology) creates our inability to integrate biotic and a-biotic phenomena into cohesive system models and results in a skewed emphasis across many disciplines.

Also, because the physical causal chain is broken, static linear models predominate across all disciplines, resulting in motion in general to be overlooked as an essential element in the environment. Therefore motion has not been, or cannot be, recognised or modelled as a part of the environment exerting its own unique selective force. Finally, models lacking motion of any kind, certainly cannot include attributes of motion such as relativity or scale and so these have not been addressed at all.

Recognising this, we may consciously proceed with the development of a revised philosophy beginning from a holistic approach. The need for which has been recognised in the call for non-dichotomous thinking from several scholars in the archaeological field (Hodder 1999; Thomas 1996, Webmoor, Witmoore, 2008). Similarly, calls from the natural sciences on the other side of the divide, consilience from biologist E. O. Wilson, or neuroscientist V. S. Ramachandran and numerous others show that physics, biology and the human sciences require synthesis.

It is hoped that archaeology, with its unique problems and perspectives in this area, spanning as it does this most ancient of divisions, may contribute to the new synthesis now being pursued across

the life sciences. As 'humanity begins with things' (Serres with Latour 1995:166), "archaeology is in a prime position, a third space (which is yet to be articulated) with regard to the humanities and sciences, to set innovative and cutting edge intellectual agendas"(Webmoor, Witmore, 2008)

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