Criteria of Symbolicity

A round table organized at the 9th annual Meeting
of the European Archaeologists Association

Position Papers

September 10 - 14, 2003

http://www.semioticon.com
Virtual Symposia

NOTE:

The papers collected in this set are working documents which have not been edited for publication. They should not be quoted without the permission of their authors.

ORGANIZER:

Paul Bouissac, Professor Emeritus,
University of Toronto
(Victoria College)
253 College Street, P.O.Box 429.
Toronto, Ontario Canada M5T 1R5
paul.bouissac@utoronto.ca

PARTICIPANTS:

Eszter Banffy (Archaeological Institute, H.A.S., Budapest), Paul Bouissac (University of Toronto), Philip Chase (U. of Pennsylvania Museum of Archaeology and Anthropology), Michael Chazan (Anthropology, U. of Toronto), Francesco D'Errico (Institut du Quaternaire, U. de Bordeaux), Stephanie Koerner (University of Manchester), April Nowell (Anthropology, University of Victoria), Lisbeth Bredholt Christensen and David Warburton (Theology, Aarhus Universitet).

TABLE OF CONTENTS

This round table will continue online after the EAA meeting in the section "Virtual Symposia" of the Open Semiotics Research Centre: http://www.semioticon.com . Comments and papers should be submitted to Paul Bouissac at: bouissa@attglobal.net

CRITERIA OF SYMBOLICITY

INTRODUCTION

Paul Bouissac

T HE PURPOSE OF THIS EAA ROUND TABLE IS to probe the implicit criteria used by archaeologists for determining whether artifacts are symbolic or not, and to explore the possibility of specifying some context-independent formal properties which could help identify symbolic artifacts with a higher degree of plausibility.

The discovery of early objects whose morphologies bear evidence of being the result of deliberate human actions raises indeed the issue of whether their functions were practical or symbolic at the time when they were created. There has been a tendency in prehistoric archaeology to foreground the practical use of earlier artifacts and to assign symbolic values only parsimoniously to those which were considered to be more recent. This bias is due to the assumption that symbolic artifacts are signs of an evolved cognitive competence which most archaeologists are reluctant to locate too early in human evolution. It is also caused to some extent, by the fact that it is relatively easier to relate artifacts to practical behaviors than to rituals and beliefs, although there is, in this sort of reasoning, an obvious danger of transferring subjective qualities of the inquiry into the properties of the objects to be categorized. A further, perhaps deeper assumption which underlies such a methodological approach is the primacy of material culture over ideational constructions.

Contemporary developments in the conceptual representation of early humans are questioning such interpretative strategies. Over the last two decades, there has been an accumulation of data (such as artifacts relating to probable decorative and burial practices) which tend to push back in time the emergence of symbolic behavior in Homo, thus suggesting that tools and symbols could have co-emerged and co-evolved by drawing from the same cognitive resources. However, the issue of determining whether a prehistoric artifact is a tool or a symbolic object (or a tool with associated symbolic value) remains a daunting challenge in the absence of direct information concerning its actual use and context. Which observable properties of an artifact can count as reliable indications that it once was endowed with symbolic relevance?

Mainly since the early 1990s, this important issue has been debated in major international journals such as *Current Anthropology*, *Cambridge Archaeological Journal* and *Semiotica* (e.g., Chase & Dibble 1987, Byers 1994, Bednarik 1994, Bouissac 1994, Chase 1999, D'Errico 2001) as well as in proceedings such as Conkey et al., eds.(1997), Blench and Spriggs, eds. (1997) and Nowell, ed. (2001).

Some interesting controversies ensued (e.g., Bednarik 1992, Chase & Dibble 1992). But, in spite of these efforts, the practice of inferring symbolic contents in archaeological records remains under-theorized and usually proceeds through ad hoc arguments which rely more on commonsensical assumptions regarding the imagined context of these early artifacts than on consistent analyses of the formal properties of the data. This round table will therefore attempt to lay the basis for a collective reflection toward some theoretically sound criteria for recognizing symbolicity, or, at least, evaluating the degree of plausibility that some artifacts were also or exclusively symbols.

The following position papers will be presented and discussed at the EAA round table. But it is anticipated that this exchange of ideas will be continued in the form of a virtual symposium during the following year, with a view to publishing the proceedings in 2005.

REFERENCES:

— Bednarik, R. (1992) Palaeoart and archaeological myths. *Cambridge Archaeological Journal* 2:27-43
— Bednarik, R. (1994) On the scientific study of palaeoart. *Semiotica* 100 (2-4): 141-168
— Blench, R. & M. Spriggs, Eds. (1997) *Archaeology and Language I: Theoretical and Methodological Orientations*. One World Archaeology Series Number 27. London: Routledge
— Bouissac, P. (ed.) (1994) *Prehistoric Signs*. Special issue. *Semiotica*. Volume 100: 2-4
— Byers, M. (1994) Symboling and the Middle-Upper Paleolithic: a theoretical and methodological critique. *Current Anthropology* 35: 369-399
— Chase, P. (1999) Symbolism as reference and symbolism as culture. In *The Evolution of Culture. An Interdisciplinary View*. R. Dunbar, C. Knight & C. Power (eds.). Edinburgh: Edinburgh University Press. 34-49
— Chase, P. & H. Dibble (1987) Middle Paleolithic symbolism: a review of current evidence and interpretation. *Journal of Anthropological Archaeology* 6: 263-296
— Chase, P. & H. Dibble (1992) Reply to Bednarik. *Cambridge Archaeological Journal* 2: 43-51
— Conkey, M., O. Soffer, D. Stratmann & N.G. Jablonski, Eds. (1997) *Beyond Art: Pleistocene Image and Symbol*. Memoirs of the California Academy of Sciences, Number 23. San Francisco: California Academy of Science
— D'Errico, F. (2001) Memories out of mind: the archaeology of the oldest artificial memory systems. In *In the Mind's Eye*, A. Nowell (ed.) Ann Arbor: International Monographs in Prehistory 13: 33-49
— D'Errico, F. & A. Nowell (2000) A new look at the Berekhat Ram figurine: implications for the origins of symbolism. *Cambridge Archaeological Journal* 10 (1): 123-167
— Nowell, A., Ed. (2001) *In the Mind's Eye: Multidisciplinary Approach to the Evolution of Human Cognition*. Archaeological Series, Number 13. Ann Arbor, MI: International Monographs in Prehistory

CRITERIA OF SYMBOLICITY AND THE ARCHAEOLOGY OF SYMBOLISM. HOW TO FILL THE GAP ?

Francesco d'Errico

UMR 5808 du CNRS, Institut de Préhistoire et de Géologie du Quaternaire
Batiment B18- Géologie, Av. des Facultés, 33405 Talence, France
Phone 33 (0)5 40 00 26 28, Fax 33 (0)5 40 00 84 51,
e-mail: f.derrico@iquat.u-bordeaux.fr

IT IS REASONABLE TO THINK THAT IN MORE OR LESS REMOTE PASTS human societies existed which were organized within cultural traditions lacking the myriad symbols which animate and sometimes disrupt the civilizations of our own time. Is our capacity to interpret reality in symbolic ways and to give a tangible form to those collective understandings the direct consequence of a rapid biological change, linked directly to the emergence of our particular human species, or does it correspond to the final outcome of a long gradual process involving a number of our ancestors or, why not, predecessors such as Neanderthals and early *Sapiens* populations ?

In order to find out which of these models best fits the archaeological record it is necessary to identify diagnostic criteria that may be effectively used by archaeologists to identify past symbolic human cultures. In my view five types of reference data are available to us to create an analogy in this field of study: 1) the identification of natural phenomena that can be erroneously interpreted as the result of symbolic human behaviors, 2) the experimental reproduction of human behaviors producing features, on durable material culture, that may have had symbolic purposes, 3) the cross-cultural comparative analysis of symbolic behaviors produced by modern and submodern traditional societies, 4) the study of the material culture of past symbolic societies, 5) the observation of those among our close relatives that possess, to some extent, the capacity or the potential for symbolic behaviors.

Although criteria of symbolicity relative to each of the above types of data have been published in the litterature, few attempts have been made so far to unify these criteria in a comprehensive research strategy and refine them through applications to concrete archaeological case studies. This is mainly due to the fact that each of these potential sources of analogy falls within the competence of a different discipline (ethology, taphonomy, experimental archaeology, semiotics, cross-cultural anthropology …) approaching the issue from a different viewpoint, and often with a limited understanding of the potential contribution offered by the others. The second and more important reason is that a number of paradoxes appear when it comes to combining the criteria suggested by these disciplines. I will focus here on some examples of these barriers and paradoxes in order to find more appropriate ways to tackle criteria of symbolicity.

Chimpanzees seem fully capable of learning and transmitting complex systems of signs, and understanding articulated and, by definition, highly symbolic human language. But they show little interest in using these cognitive capacities to transform for example gestural conventions into proper systems of signs and embodying them in their material culture. If one can concieve hominid cultures with rather complex systems of signs transmitted from generation to generation but leaving no durable traces, why should we bother with the identification of criteria of symbolicity that can, presumably, only be applied to archeological remains bearing some recognisable traces that their authors possessed symbolic thinking? After all, oral traditions were responsible until recently for the transmission of the more peculiar aspects of human cultural traditions.

Another exemple of the lack of communications between disciplines is provided by cultural anthropology. Modern cultural anthropology abhors evolutionary models for the origin of universals such as symbolism since it fears that they may be used, as has been done by nineteenth-century ethnology, to classify societies according to their "stage of civilisation". Claude Lévi-Strauss is one of the very few cultural anthropologists of the second half of the twentieth century who has developped an anthropological theory comprising a mechanism for the origin of the symbolic function and predicting social behaviours that would demonstrate its acquisition. Although some of these behaviors may be reflected in the archaeological record, thus paving the way for the creation of predictive archaeological models, little interest has been paid by archaeologists to Lévi-Strauss contribution. The taboo of incest, the basis on which according to this scholar symbolic societies organise their social structure and symbolic systems, implies the existence of links of solidarity between males reinforced by ritualised exchanges of gifts. In a number of societies these gifts take the form of mere symbolic objects, often made in exotic or rare raw material or, when functional, of items which differ in their quality of manufacture and design from everyday tools. When do objects that may reasonably be interpreted as such gifts appear in the archeological record ?

Lévi-Strauss's theory predicts others features on which archaeologist may build on. Traditional symbolic societies pay a lot of attention to details of the natural world, including the human body itself, in search of features – colours, flavours, shapes, rythms – on which systems of signs and by extension, of beliefs, can be based. The importance taken by pigments among MSA and Neanderthal populations at some stages of their cultural evolution might well reflect the emergence of this new way of looking at the natural world. Lévi-Strauss's distinction between "sociétés froides", living in an eternal present, and "sociétés chaudes" attributing more importance to events creating a "cumulative history", is also relevant here: it provides an explanation for the apparent low rate of innovation that archaeologists observe when they study early symbolic systems.

Semioticians may claim that in order to demonstrate the symbolic nature of prehistoric societies we must, ideally, find in the archaeological record systems of signs comparable in their organisation to those observed in modern and ethnographically known human societies, that is, a material culture with a range of deliberate human-made representations. The term "range" is used because a system of signs is by definition based on a variety of meaningful representations. While all symbolic societies englobe elements of the natural world in their symbolic systems, there is no way to establish that this was indeed the case for a past society in the absence of other indications of its symbolic nature. We may also expect to find these systems of signs shared by a number of close contemporary human groups. Archaeologically, this should take the form of a cluster of neighbouring sites characterised by similar representations, artefact style and decoration. A symbolic culture can hardly survive in isolation. A powerfull function of symbolic material culture is that of transmitting, reinforcing and preserving cultural identity. This means that the above mentioned cluster of sites should be surrounded by other clusters, characterised by different symbolic material cultures and, possibly, by meaningfull gradients toward the periphery of each region. Even in Lévi-Strauss's "cold societies", systems of signs

evolve, change dramatically or disappear according to historical and ecological contingencies. These changes should also, in principle, be detected by archaeologists either within a particular site stratigraphy or when correlating contemporaneous sites. Symbols are never displayed randomly. They always appear in meaningful contexts, i.e. on media (object, human body, walls, etc.) and at times (periods of the year, moments of individual life…) which grant them communicating power. Although such location may be lost in the majority of cases, it is possible that some of these regularities may survive archaeologically and be detected as consistent patterns.

The difficulty with these criteria does not lay in their pertinence but in the fact that, with the possible exception of relatively recent societies, they do not seem to consistently characterize the behaviors of many Anatomically Modern Human populations (AMH) — much of Africa, most of Asia, all of Australia — until long after their appearence in Europe ca 35,000 years ago. Two hypotheses are possible. Either we consider that societies composed of members of our species existed which were not fully granted symbolic capacities or we interpret this as the result of taphonomic processes (use of perishable media in the production of diagnostic material culture) and/or the lack of adequate archaeological investigation in some areas of the globe. Why then do we not apply either or both of these explations to earlier hominid societies whose material culture is generally interpreted as the clear expression of cultural systems lacking those advanced cognitive capacities? Again, if this may the case, why bother with the search for criteria of symbolicity in the first place?

The truth is that if we recognize in the material culture left by AMH societies only a part of the features which characterize present-day symbolic cultures, either the analogies we currently use to identify the emergence of these new behaviors must be considered as partially inadequate or we must accept that the archaeological record may be in some cases sparse in term of firm evidence of the symbolic character of a human society.

Actualistic data, contextual information and experimental archaeology may help in demonstrating the deliberate character of the representations and identifing affinities in technique and motions. However, an appeal to present-day symbolic societies as a standard by which to establish whether a given archeological context should be considered indicative of a symbolic world implies, in fact, the assumption that the adoption of symbolism was a momentary phenomenon – one stochastic event. And this, even the biological determinists will agree, is contradicted by the available empirical evidence. What kind of inferences should we use then to assess the symbolic character of early, ambiguous, and isolated occurrences? We might be tempted to consider the different features characterizing symbolism in isolation and to interpret the presence of just some of them in the archaeological record as an intermediate step in the process of the acquisition of this new capacity. The first danger of this approach is that of creating "arguments for design", i.e., only when the feature or organ is fully formed can its utility explain its development. The second is that of interpreting as evolutionary trends changes due to taphonomic factors or cultural adaptations. In the absence of reliable predictive models, some meaningful information is provided by the technological analysis of the object., once the anthropic origin of the modification is warranted by contextual and actualistic data,

The use of this analogy is based on the assumption that our ancestors shared with us most neuro-motor constraints, thus enabling us to reconstruct the motions resulting in certain modifications. Of course one cannot tackle meaning through technological analysis nor will the result of such analysis directly account for the development of symbolism. It will nevertheless provide factual information on the type of tool used, on possible changes of tools, on the chronology of the anthropic modifications, and on the time taken to produce them. This information will help us to evaluate the degree of

intentionality of the makers and try to make sense of the sequence of choices and decisions behind their acts in terms of cognitive processes at work. These technical choices, in particular when they can be examined on a number of similar objects, may become integral to any argument on the significance of early symbolic behavior and they can by a step-by-step process generate testable theories on the first stages of development of this capacity.

In conclusion, we do not suffer a lack of criteria of symbolicity but rather a plethora of them. Only the critical analysis of the available criteria and their integration in a flexible research strategy will enable us to interrogate archeological material and explore the significance of the earliest possible evidence for symbolic behavior.

BEYOND THE MICROSCOPE: RECOGNIZING SYMBOLING IN THE ARCHAEOLOGICAL RECORD

A. Nowell (U. of Victoria, Canada)

Introduction

THERE IS A CONSENSUS AMONG ARCHAEOLOGISTS that by the Upper Paleolithic some 35-40 kya that humans expressed symbolic behavior through material culture. By the Neolithic onward the wealth and diversity of generally recognized symbolic artifacts increases exponentially. Prior to the Upper Paleolithic, however, there is less compelling evidence for the use of symbols (see discussion in d'Errico et al. 2003). As we move from this point of consensus to the very beginnings of symbolic behavior identifying symbolic artifacts in the archaeological record becomes a very difficult task. This is because the artifacts available for study are few in number, scattered across immense distances and difficult to discern from natural objects in the environment.

Within this context of the origins of symboling behavior great strides have been made in our ability to discern anthropogenic modifications to lithic and bone objects from naturally occurring ones. In recent years, archaeologists have developed generally agreed upon methodology that emphasizes the need to make explicit the criteria by which these objects are evaluated. This methodology involves the combined use of actualistic, experimental and contextual data (e.g. d'Errico and Villa 1997; d'Errico 1991). It is widely recognized that these technical approaches form the backbone of any study into the origins of symboling and represent the necessary groundwork that must be completed before archaeologists can begin to discuss an artifact's significance within the realm of larger questions relating to symboling behavior (d'Errico and Nowell 1998).

By contrast, similarly robust methodology and theory is lacking when it comes to discussing whether or not intentionally modified artifacts are indeed symbolic. This is a theoretical lacuna in archaeology as a whole and is not limited to archaeologists studying the Paleolithic period. Nonetheless, it is perhaps more troubling in Paleolithic archaeology where researchers are working quite possibly within a different cognitive milieu. General assumptions about how the mind works cannot be made here because we cannot assume what we are tying to prove (Nowell 2001).

This position paper looks at why the question of how to attribute symbolic meaning to artifacts is under theorized and argues that this impasse can be overcome in three ways. First, archaeologists

need to work within a theoretical paradigm that allows for the systematic investigation of symbolic meaning. Second, archaeologists need to divorce what are essentially methodological issues of identifying symboling in artifacts from theoretical debates into the origins of symboling. Third, archaeologists must widen the definition of the term "symboling" to encompass "cognition" thereby allowing archaeologists to draw upon and contribute to research conducted within the realm of the cognitive sciences. In these ways, it may be possible to develop a list of criteria that will aid in the identification of inherently symbolic and/or cognitive properties of artifacts.

Cognitive archaeology and the recreation of meaning

One of the main reasons that the identification of symbolic properties of artifacts is under theorized is that archaeology as a discipline has not until recently acknowledged the need to do so in a systematic fashion. There is a long history of debate in archaeology concerning not only how it might be possible to reconstruct the meanings of symbols of peoples and cultures that have long since disappeared (e.g. Leroi-Gourhan 1968; see Nowell 2001) but also if this reconstruction is even requisite to a rich understanding of the archaeological record (Whitely 1998). Emerging from this debate in the 1980's is what is now known as "cognitive archaeology" or the "Archaeology of Mind" (Renfrew 1994; Flannery and Marcus 1996; Nowell 2001; Nowell and Wynn, in prep.). Cognitive archaeology is both a reaction to and a development out of processualism[1]. It shares an emphasis on hypothesis testing and scientific method with this school. One fundamental difference between them, however, is that cognitive archaeology explicitly refutes the behaviorist and materialist notion of many processualists that the mind is irrelevant or epiphenomenal to understanding the past. Many processualists assume that people and the things they create can best be understood in terms of stimulus and response. Therefore there is no need to resort to a mentalist point of view. Advocates of this position do not want to engage in what has been infamously termed "paleopsychology (Binford 1972:98)." Flannery and Marcus (1996:351) counter that the approach taken by cognitive archaeology provides "the opportunity to make mainstream archaeology more holistic whenever possible." In other words, if one studies even "mundane aspects" of the archaeological record such as subsistence, settlement patterns, social organization and the like in the absence of the symbolic and cognitive dimension then one is experiencing a myopic view of the past.

One principle that unites diverse branches within the cognitive sciences is the consideration of the "structures, knowledges, and processes which underlie the observed behaviors, as well as the behaviors themselves (Segal 1994: 23)." For cognitive scienctists the mental concepts underlying a behavior are essential to understanding that behavior. Similarly taking a post-behaviorist stance, cognitive archaeologists argue that the human mind and cognition are fundamental to any understanding of the past because they are key factors in the creation of the archaeological record (Whitely 1998). It is this view of artifacts as the material expression of human concepts and thoughts (see, for example, Chippendale and Tacon 1998) that provides archaeologists with a tool to explore levels of meaning in the archaeological record that were once considered inaccessible (e.g. Hawkes 1954).

The cognitive archaeological perspective on the recreation of meaning is that while "systems of symbols and their meanings have been created, used and manipulated by individual humans they have still been sufficiently shared and patterned to allow for their study and identification (Whitely 1998)." Cognitive archaeologists argue that culture as a shared system of beliefs, customs, values and so on is governed by regulative rules. The analogy that is usually made is to the rules of a chess

game—the rules specify how the pieces are to be moved but they do not determine the outcome of the game. Cognitive archaeologists argue that this is how culture functions as well and why it can be studied. This is related to what Renfrew and Bahn (2000) term a shared *"cognitive map"*. This emphasis on shared behavior differs from a normative approach in that cognitive archaeology recognizes that the rules can be manipulated and used actively. This is where there is an overlap with the post-processualist notion of "agency". It is this interplay which situates archaeology as a science, but what is termed a "historical science" in which ideothetic explanations have a role (Whitley 1998). Cognitive archaeology is a nascent science but it is developing into a powerful approach to looking for the material correlates of abstract or ephemeral concepts such as symbolic meaning (Nowell and Wynn, in prep.).

FOCUSING THE DEBATE

Not only has progress into the question of how to attribute meaning to artifacts been hampered by decades of discussion over whether or not archaeologists should be engaged in this type of research but it has also suffered from being embroiled in more general debates about the origins of symboling. Most notably, these debates include issues of (1) the gradual versus abrupt nature of the origin of symboling, (2) whether symboling behavior is unique to modern humans or more widely shared with Neandertals and perhaps even earlier hominids and (3) whether we should be documenting either the origins of symboling or when a behavioral threshold has been crossed and the ability has become part of a group's behavioral repertoire. There are many studies in this area of hominid behavior but very few that probe the definitions and pragmatics of identifying symboling.

While the origin of symboling is, of course, not wholly unrelated to the identification of symboling, I would argue strongly that it is largely irrelevant to the methodological question at hand. Of course, all method is theory based—drawing a stratigraphic profile presumes knowledge and acceptance of the "Law of Superposition" (Johnson 1999) but in this case our theory should be drawn from semiotics or cognitive science and not be based on our perceptions of human cultural evolution. In the process of discussing the above debates our criteria for identifying what is symbolic can shift and that fluidity often becomes the focus of the discussion. For instance, some have argued, that criteria used to identify intentional burials in the Middle Paleolithic are more stringent than those employed for Upper Paleolithic burials. Similarly, others have argued that if the material culture of some groups extant today were projected into the past the makers of this material would not be accorded "symboling" status and that the majority of a people's symbolic culture would not preserve in the archaeological record. Other researchers counter that the criteria employed do not differ from one time period to another or that archaeologists do have to be more prudent in earlier periods and that it is dangerous to argue from negative evidence. In the midst of this discussion what exactly we mean by symboling and how we can identify it in the archaeological record is lost.

DEFINING OUR TERMS

Not only do archaeologists need to disengage the question of what properties of an artifact are reliable indicators of its symbolic relevance from these other debates but just as Chase (1991) has done for the term "arbitrary", we need to clearly define what we mean by the term "symbolic". This word has been used in archaeology to describe any artifact without a readily apparent "utilitarian" function (thus symbolic equals non-utilitarian) as well as artifacts where there is an "arbitrary link between a sign and its referent". In the latter case some might argue that very realistic figurines are

icons and not symbols. In between these extremes are those who argue that all artifacts are symbolic (e.g. Byers 1994). I would argue that none of these definitions are necessarily helpful and that archaeologists should considering broadening what we mean by the terms symbolic and "symboling behavior" to include general concepts used in cognitive science.

As I have argued elsewhere (Nowell 2001) there is a difference between reconstructing the symbolic realm of peoples living in the Neolithic period onwards and trying to do so for earlier periods. In the Neolithic we can ask "what were they thinking about?" and there are a myriad of ways of answering this question. In many cases we can look at the cosmology, religion, ideology and iconography of these past cultures (Flannery and Marcus 1996). Prior to the Neolithic the question becomes "were they thinking?" in the sense that we must reconstruct the cognitive abilities of our hominid ancestors before we try to understand the specific meanings of symbols. I do not believe we can get back to the "thoughts" of Neandertals making a Châtelperronian point but we explore what are perhaps more interesting questions of cognition.

Segal (1994:22) observes that "archaeology is fundamentally a discipline rooted in cognition. Material objects or relations among material objects become archaeological data only if they can be shown to exist in their current form or location as a direct result or indirect consequence of intelligent behavior." Segal then lists a number of concepts that are useful for addressing cognition in the archaeological record. Specifically, these concepts are (1) visual perception including categorization, (2) intention, (3) memory and the reinforcement of memory through symbolic storage (see for example, papers in Renfrew and Scarre 1998), (4) learning and decision making, (5) reasoning and skill. One recent example of the application of these cognitive concepts is the work of Dietrich Stout (e.g. Stout et al. 2000; Stout 2002, 2003). He combines more traditional ethnoarchaeological studies with cutting-edge PET research to address questions of skill acquisition. Specifically, working with the Langda people of Indonesian Irian Jaya he studies the role of apprenticeship in stone tool making and looks at what residuals of knapping skill would be preserved in the archaeological record. In other studies (Stout et al. 2000; Stout 2003) he identifies the regions of the brain that display increased activity during knapping episodes and he tracks changes in the brain as a novice knapper becomes more skilled. He was also able to demonstrate there is very little overlap between these areas of the brain and those that are involved in language acquisition and production (see also Wynn 1993). These preliminary results have the potential to reconstruct our understanding of the cognitive implications of stone tool industries. Data from the ethnographic record and PET scans represent two very different but complementary approaches to using artifacts to address questions of visual perception, skill acquisition, learning and decision making, memory and reasoning. It is these sorts of innovative approaches that demonstrate the power of cognitive archaeology to address seemingly inaccessible levels of meaning from individual artifacts and archaeological assemblages.

In conclusion, the emergence of cognitive archaeology as paradigm within which to study the past is of great significance to archaeologists interested in unlocking the symbolic dimension of artifacts because this approach gives researchers a framework within which to ask questions and to begin to find answers. As Segal (1994:22) notes, "…it is obvious that archaeology could become a core cognitive science. The study of material culture is an important domain with unique data and methods which can contribute to the general understanding of intelligence." By taking a cognitive approach, separating questions of identifying symboling from debates surrounding the origins of symboling and by broadening our definition of symboling to include concepts from cognitive science, we can begin to overcome the methodological impasse of assigning meaning to artifacts manufactured and used by people and cultures who have long since disappeared.

N̲otes
1- Renfrew (1994) uses the term "cognitive processualism" to emphasize the link between these two movements,

B̲ibliography

— Binford, Lewis. *An Archaeological Perspective*. New York: Seminar Press.
— Byers, M. 1994. Symboling and the Middle-Upper Paleolithic: a theoretical and methodological critique. *Current Anthropology* 35:369-399.
— Chase, Philip. 1991. Symbols and Paleolithic artifacts: Style, standardization and the imposition of arbitrary form. *Journal of Anthropological Archaeology* 10:193-214.
— Chase, Philip and Harold Dibble. 1987. Middle Paleolithic symboling: A review of current evidence and interpretations. *Journal of Anthropological Archaeology* 6:263-296.
— D'Errico, Francesco and Paula Villa. 1997. Holes and grooves: The contributions of microscopy and taphonomy to the problem of art origins. *Journal of Human Evolution* 33:1-31.
— D'Errico, Francesco. 1991. Microscopic and statistical criteria for the identification of prehistoric systems of notation. *Rock Art Research* 8:61-63.
— D'Errico, Francesco and April Nowell. (2000). A new look at the Berekhat Ram Figurine: Implications for the origins of symbolism. *Cambridge Archaeological Journal* 10(1): 123-167.
— D'Errico, Francesco, Henshilwood, Christopher, Lawson, Graeme, Vanhaeren, Marian, Tillier, Anne-Marie, Soressi, Marie, Bresson, Frédérique, Maureille, Bruno, Nowell, April, Lakarra, Joseba, Blackwell, Lucinda and Julien, Michèle. Archaeological evidence for the mergence of language, symbolism and music—an alternative multidisciplinary perspective. *Journal of World Prehistory* 17(1):1-71.
— Flannery, Kent and Joyce Marcus. Cognitive Archaeology. In *Contemporary Archaeology in Theory*, ed. Ian Hodder, pp.350-363. Oxford: Blackwell.
— Johnson, Mathew. *Archaeological Theory: An introduction*. Oxford: Blackwell.
— Leroi-Gourhan, André. 1968. The evolution of Paleolithic art. *Scientific American* 218:58-70.
— Nowell, April. 1995. Comment on 'Concept-mediated marking in the Lower Paleolithic' by Robert Bednarik. *Current Anthropology* 36(4): 621-622.
— Nowell, April. 2001. The re-emergence of cognitive archaeology. In *In the Mind's Eye: Multidisciplinary Approaches to the Evolution of Human Cognition*, ed. April Nowell, pp.20-32. Archaeological Series 13. Ann Arbor: International Monographs in Prehistory.
— Renfrew, Colin. 1994. Towards a cognitive archaeology. In *The Ancient Mind: Elements of cognitive archaeology*, eds. Colin Renfrew and Ezra Zubrow, pp.3-12. Cambridge: Cambridge University Press.
— Renfrew, Colin and Paul Bahn. 2000. *Archaeology: Theories, methods practices*. London: Thames and Hudson.
— Renfrew, Colin and Chris Scarre, eds. 1998. *Cognition and Material Culture": The archaeology of symbolic storage."* McDonald Institute Monographs Cambridge: University of Cambridge Press.
— Segal, E. 1994. Archaeology and Cognitive Science. In *The Ancient Mind: Elements of cognitive archaeology*, eds. Colin Renfrew and E. Zubrow, pp. 22-28. Cambrdige: Cambridge University Press.
— Stout, Dietrich. 2002. Skill and Cognition in Stone Tool Production. *Current Anthropology* 43(5):693-722.
— Stout, Dietrich. Stone tools and the brain: the neural substrates of Mode I knapping skill as revealed by Positron Emission Tomography (PET). Paper presented at the *Paleoanthropology Society* Annual Meeting (Phoenix, AZ). Abstract available at www. Paleoanthro.org/abstrac2003.htm
— Stout, Dietrich, Toth, Nicholas, Schick, Kathy, Stout, Julie, and Gary. Hutchins. 2000. Stone tool making and brain activation: Positron emission tomography (PET) studies. *Journal of Archaeological Science* 27:1215-1223.
— Whitley, David. New approaches to old problems: Archaeology in search of an ever elusive past. In *Reader in Archaeological Theory: Post-processual and cognitive approaches*, ed. David Whitley, pp.1-30. London: Routledge. (Footnotes)

CRITERIA OF SYMBOLICITY: INTRINSIC AND EXTRINSIC FORMAL PROPERTIES OF ARTIFACTS

Paul Bouissac
(University of Toronto, Victoria College)

1. TWO APPROACHES TO IDENTIFYING SYMBOLS.

WHILE ANTHROPOLOGISTS USUALLY CAN ASSESS the functions of most artifacts by correlating them with specific, observable behaviors, prehistorian archaeologists must construct hypothetical behaviors which can never be verified. Assigning functions to prehistoric artifacts therefore relies exclusively on inferential arguments. In practice, except in the case of replications, these heuristics are rarely made explicit and it seems that the most common interpretative strategy consists first of imagining a "culture" on the model of those produced by the ethnographic record and, then, looking at the material data from this holistic vantage point. This *top-down* approach has the advantage of providing at the onset a main frame of reference within which whole clusters of data can be integrated into meaningful virtual behaviors. Moreover, in so doing, blanks can be filled with both hypothetical behaviors and not less hypothetical perishable objects consistent with the general picture that has been set forth. The history of palaeontology and prehistory (Groenen 1994) offers many examples of such narratives through which remnants of the past are construed as illustrations of the stories told.

Two arguments can be put forward in support of such a *top-down* methodological approach: first, there is no alternative; second, a narrative, whatever its specifics may be, always forms a matrix from which propositions can be derived regarding human agencies, their relations and their actions. These tentative inferences can lead to discoveries of new data by streamlining the attention of the inquirers towards a specific range of artifacts or the byproducts of their making. Naturally, the absence of evidence, then, may count as much as relevant information as its presence would have and may contribute to revising the initial narrative. A case in point is the shamanism hypothesis developed by David Lewis-William (1995, 2002), whose epistemological strategy is made explicit in the form of a four-stage model of the production and consumption of San rock paintings based on ethnographic evidence. The model is applied to the Upper Palaeolithic parietal art of Franco-Cantabria under the double assumption that this cultural area was indeed shamanic and that the same four stages were implicated in the negotiation of social relations among the local prehistoric populations. A set of consequences are derived from this overall comparative conception and their degree of congruence with the archaeological record are assessed.

The *bottom-up* approach constitutes an alternative strategy. It consists of building up increasingly complex patterns from limited but precise information. It requires exhaustive observations and measurements of artifacts and their surroundings at various levels of analysis and tentative configurations and reconfigurations of the data within middle-range hypothetical interpretations such as the reconstruction of some technological spheres including the selection and gathering of raw material, and the steps leading to the completion of a stone tool or a parietal painting (chaîne opératoire) (e.g. Schlanger 1994). The proof that the method is valid rests on the success of the replicating process and the demonstration that the techniques used in the process are the only ones able to achieve this result. Both gestural and cognitive inferences can thus be confidently made. The next phase in the inquiry is to replicate also the range of behaviors made possible by the stone tools such as killing specific preys, cutting up carcasses, preparing skins, processing wooden implements or preparing pigments for the purpose of painting. It also involves reconstructing the technical gestures which must be assumed to account for the observed effects such as the shape of a tool, the making of a petroglyph or the negative representation of a hand (e.g. Bednarik 1998, Lorblanchet 1991). Partial cultural patterns progressively emerge from these processes like pieces of a jigsaw puzzle in which, however, many gaps remain to be filled regarding notably the social relations and mental representations which can be assumed to have characterized the various populations of tool makers over very long periods of time. But is it possible to apply the *bottom-up* method to the daunting task of reconstructing systems of beliefs in the absence of a known language that would provide fragments of the missing universes of meaning? Some do proclaim this enterprise impossible if not absurd. Others switch to the *top-down* method as the only way out of this apparent methodological dead end.

This paper contends that the *bottom-up* method can be pushed further and that attempts at reconstructing at least in part the mental universe of prehistoric populations should not be abandoned too quickly. A first step in this direction would be to determine the formal features which could qualify some physical remnants as pertaining to some symbolic rather than strictly practical behaviors. This would isolate subsets of artifacts upon which hypotheses could be tested regarding the formal consistency of their organization. Providing proof that some kinds of algorithms generated their structure should lead to a range of virtual cognitive mappings and to hypothetical representations more rigorously constrained than it is the case in the *top-down* method. This, of course, was the approach propounded by Leroi-Gourhan (e.g., 1992) in the wake of Max Raphael's earlier insights (Chesney 1994). Admittedly, Leroi-Gourhan's theory regarding the mapping of images of some animal species unto the topography of the caves is now mostly discredited, as are his sexual interpretations of most geometric signs. However these shortcomings do not come from the *bottom up* method itself but from its faulty application. Indeed , it is now generally recognized that Leroi-Gourhan's model too hastily determined the selective gathering of the data. A merely approximate fit between the theory and the data is not sufficient, mainly when further data are chosen for their congruence with the theory. In fact, the generalization of a tentative insight based on a preliminary set of data amounts to shifting prematurely from the *bottom-up* to the *top-down* method. The approach that is proposed here should be mindful of this danger.

Before addressing the issue of the criteria of symbolicity, a preliminary discussion of the notion of symbol is in order. While this term has a fairly precise meaning within the semiotic system of the American polymath C.S. Peirce (1839-1914), who is considered one of the founders of semiotics, it has been used with a wide range of semantic values by other scholars in a great variety of disciplines (e.g., Whitehead [1927]1955, White 1949, Douglas 1973). Peirce's "symbol" is understood as a sign based on an arbitrary or conventional link with its referent while "symbolism" is used in anthropology to designate all behaviors which are determined by ideologies, values, and beliefs rather than by

purely functional considerations (Robb 1998). These two meanings do not exactly coincide but they overlap in as much that both imply a social ground as well as virtual (mental) operations which elaborate meanings and determine behaviors in the absence (in the eyes of the observers) of obvious, material forces or agencies. It applies also to all forms of computation, linguistic expression and reasoning through the manipulation of artifacts representing classes of objects or abstract entities. Naturally, the distinction between material culture and symbolic culture is an artifact of the research which presupposes that an objective ground exists to positively distinguish the two. In fact, from the point of view of a particular, culturally homogeneous group, the two are intimately blended in actual behaviors. However, because of the apparent lack of a better method, it seems justified to make this distinction at least as a tentative step toward a fully integrated representation of the daily life and history of human populations which are so distant in time that attempting to reconstruct their mental universe at first might seem futile as some have contended (e.g., Hawkes 1954) . Therefore, assuming that symbolic behaviors, based on the storage, coding and communication of information, generally leave some material traces in the form of artifacts and their collocations, it is reasonable to scrutinize objects which do not appear to have any obvious technological functions. But rather than relying on creative imagination in order to sort them out, it will be proposed here to use a formal method of discrimination, keeping in mind that a single criterion can not be sufficient to establish the plausibility that an artifact was endowed with a primarily symbolic value. It will remain to be determined whether some sets of criteria can be considered to be robust enough to lead to confidently assigning a plausible symbolic function to an artifact, whatever this function may be. It is indeed important to distinguish symbolic plausibility from interpretation, the former being a prerequisit for the latter. Naturally, it is assumed that the objects considered bear indeed the irrefutable marks that they have been formed or collocated by the activity of human agencies and that the approximate age of these transformations have been established according to scientific standard procedures.

2. INTRINSIC PROPERTIES.

Five intrinsic criteria will now be examined. These criteria are intrinsic in as much as they pertain to the features of the artifacts themselves irrespective of the various contexts in which they have been found.

The first criterion bears upon the relative *dimensions* of an artifact. Let us assume that a functional stone or bone artifact's dimensions are determined by its congruence with the dimensions of the span of the human hand, its skeletal and muscular structures, so that it can be efficiently manipulated. Ergonomic and ballistic characteristics, taking into consideration the natural variability of human physical dimensions, can at least suggest minimal and maximal thresholds beyond which an artifact is likely to lose its functionality. Very large objects that are difficult to be moved by a single person or very small ones that require particular attention to be distinguished from their surroundings are unlikely to have possessed practical functionality. However, such thresholds are difficult to establish in absolute terms since cooperative manipulations of large objects and insertion of microliths in wooden tools remain always a possibility. Moreover, on the one hand, symbolic artifacts may also require to be congruent with the dimensions of the human hand so that they can be handled, for instance in rituals, and, on the other hand, magic objects whose possession is considered crucial for the success of some activities can be neither too large so as to interfere with these activities nor so small that they can be easily lost. In spite of all these qualifications, it seems that dimension nevertheless constitutes a relevant criterion as long as it is complemented by other characteristics.

The second criterion concerns *density*. The relation of dimensions to weight is relevant to the notion of portability, but, more importantly the density characteristics of an artifact determines the

functionality of its impact and its degree of degradation through use. Lower density material, while often easier to transform, are inappropriate for certain basic functional requirements. There may indeed be a scale of increased plausibility of symbolicity based on the lower density or malleability of the material used for an artifact. However, this also needs to be qualified because very high density objects with weights disproportionate with respect to their dimensions can conceivably be endowed with symbolic values because of their rarity or appearance. Nevertheless, clays and paints at the extreme end of the density scale are usually associated with symbolic expressions.

The third criterion concerns the degree of *complexity* of an artifact, that is, the relative quantity of information it offers in terms of shape, structure, and patterns. "Information" is not taken here in its commonsensical sense but with the meaning of its definition in information theory: a measure of uncertainty or unexpectedness. For prehistorians, the discovery of new artifacts triggers a classificatory behavior depending on the features which are usually recognized as belonging to a particular type of objects dating from a particular period. Thus, assigning a position in a matrix, at a place where it is expected according to the current standard knowledge, yields little information. It is simply "more of the same". But if there are obvious discrepancies between some features of the artifact and what would be expected, then the information value of this artifact may increase to the point that it becomes unclassifiable because it does not fit anywhere. Its characteristics with respect to its presence in the layer where it has been found or its sheer appearance is "mind boggling", "incomprehensible". Of course, this complexity is relative to a particular state of knowledge, and the first reaction of the archaeologists will generally be to try to reduce its information by testing whether it is the result of random or taphonomic factors. If none of these information-reducing strategies hold, then this morphological complexity will be attributed to the cognitive complexity which must be assumed to have generated it. A recent example is the Blombos piece of ochre with its geometrical markings. Let us note, in passing, that this particular object also satisfies criteria #1 and # 2.

The fourth criterion that is proposed can be called *complementarity*. Two or more artifacts complement one another if they can be shown to belong to a whole of which each one is a part. In cultures where there is no evidence of mechanical devices, parts which form coherent sets such as strings of beads and painted or engraved representations are likely to have symbolic rather than practical value. This criterion is related to the previous one in as much as it can be a form of complexity, mainly if some unexpected logic rather than pure randomness is discovered in the composition. Moreover, complementarity can be shown to go beyond a few items and to encompass large sets spread on large cultural areas and showing temporal depth. This characteristic leads to the notion of *type / token* relationship which introduces the next criterion. (See appendix on the type / token distinction)

The fifth criterion consists of evidence of *replication* applied to artifacts which meet the above four criteria. The replication of complex patterns with or without variations on diverse scales and supports is probably the surest indicator that these artifacts were endowed with symbolic value. First it provides absolute proof that the patterns are not due to random or taphonomic causes. Secondly, it allows the inference that they were pragmatically important even if their other morphological and material characteristics disqualify these artifacts for being of any practical use. Further, it may suggest two conclusions: either the variations are the results of copying errors, or they are the results of systemic manipulations of the patterns.

In the former case (that is, variations in the copying of identifiable motifs), it is possible to infer the existence of *types* with respect to which the various realizations which are observed are *tokens* . As for isochrestic artifacts which are related to a single practical function, tokens can be classified according to their congruence with the distinctive features of their respective types. For instance, Leroi-Gourhan interpretation regarding the geometric signs as either male or female symbols

presupposes the existence of a relatively abstract mental representation of two types which can be implemented in a variety of styles, scales and supports. The same applies to his theory of the mapping of animals unto the topography of the caves in as much that species and topological categories provide the *types* which are the sources of the *tokens* (each painted or engraved bison shows variations and each cave has its own structure combining narrow passages and wider spaces). As it was pointed out earlier in this paper, it is not the method itself but its loose application which makes Leroi-Gourhan conclusions questionable.

In the latter case (that is, the variations are systemic), it is theoretically feasible to reconstruct the algorithms which generated the systemic variations. On purely morphological grounds, it is possible to infer a calculus from the variations of a close set of elements. Of course, demonstrating that a system of signs governed by rules can be inferred from the data does not mean that the code can be deciphered, although it is a first step in this direction following the *bottom up* approach.

3. EXTRINSIC PROPERTIES.

While the previous discussions of some formal features concerned bounded items or sets of items taken in isolation, other aspects of an artifact such as, for instance, the place where it was found may be relevant to the determination of its functioning as a symbol at the time of its making and use. Three such extrinsic properties will be now examined: location, distribution and context.

Location refers to at least three possible kinds of information. First, naturally, the geological level which provides information regarding an artifact's temporal depth. Indeed, once taphonomy effects have been considered and the possibility of fraud eliminated, this is the main indicator of its contemporaneous material culture, hence the possibility of relating and comparing this artifact to others and to establish stylistic constants. Secondly, the geographical position yields information about the boundaries of cultural (or tribal) areas and the possible spreading over time of specific behaviors. Thirdly, when the baseline level of action has been reliably preserved, like in some caves or shelters, or can be legitimately assumed like in burial sites, the position of an artifact with respect to human anatomy, either vertically or horizontally, offers crucial information by relating the artifacts to the deliberate gestures which can be presupposed by its position. Gestures and postures can indeed be inferred from the location of a natural object or an artifact as well as from the particular position of the skeleton and the associated artifacts in a burial site. The focus on the original location of an object of interest in absolute and relative terms is a rather recent concern in archaeological research. Naturally, inferences from a location must be made with caution since many causes besides deliberate movements may be responsible for a particular position, such as animal agencies, floods and earthquakes (or archaeologists' mindlessness). However, comparisons can yield information by suggesting consistent cultural constraints regarding the gestures which can be inferred from the position of artifacts.

Distribution applies both to the bounded context and to larger cultural areas. In the former case, how individual artifacts such as geometrical signs and representations of animals or engraved and otherwise marked items are distributed over a surface or a site can indicate a range of constraints which are neither purely practical nor random. If it can be proven that a close set of items was produced or maintained within a bounded span of time by a single population, it is then possible to test their degree of systematicity or, alternatively, to demonstrate their randomness. In the latter case, that is, on the level of extended regional space, mapping the distribution of well defined items or sets of items over large areas may reveal not only significant concentrations but also help locate new sites by projecting structures inferred from fragmentary patterns such as the choice of particular geomorphs (typical landscapes, natural beacons or vantage points) whose practical affordances are not obvious.

Context can be usefully distinguished from *co-text*. The former refers to the immediate and distal surroundings of artifacts. It is a very fluid concept whose delimitation often depends on the a priori interpretation of these artifacts. Is the context the total culture or "stylistic" era, or the climate and related plausible modes of survival among the corresponding fauna and flora ? Or is it the cave, the shelter, the camp site, the burial site? It is intuitively considered that information provided by the context can orient the interpretation. The most common ascription of symbolicity to artifacts comes from their presence in the context of a burial. However, in accordance with this latter example, it might be more productive to restrict the conceptual vagueness of context to the more precise notion of *co-text*, that is, the consistent collocation (or spatial association) of two or more artefacts within an objectively bounded space. To be heuristically useful this property requires of course that the exact spatial disposition of the artifacts with respect to one another be a part of the archaeological record as precisely as all the intrinsic properties which were listed above. A corollary of this requirement is that the same principle should apply to items such as paintings and engravings of identifiable objects (let them be animals or geometric signs) which have been collocated in a permanent manner upon the bounded surfaces of a cave or another artifact by those who created them.

4. CONCLUDING REMARKS.

Taken individually, all the criteria which have been proposed above in relation to both intrinsic and extrinsic properties of artifacts may appear trivial or questionable. However, the position of this paper is that not a single one is sufficient to indicate the plausibility that an artefact was symbolic rather than practical at the time of its creation and use. It remains to be determined whether all of these criteria are necessary or whether a subset of them would provide a satisfactory ground for establishing the likely symbolicity of specific items. The possibility of devising additional criteria is also left open. Moreover, it is important to underline that most of these criteria are currently used by archaeologists, usually in a informal manner, in their interpretive reasonings. But it is equally important to emphasize that they do so most often without specifying with enough clarity whether they follow a *top-down* or a *bottom-up* methodology. This leads to circular arguments notably when their primary interest is to attempt to correlate a hypothetical stage in cognitive evolution, sometimes confused with cognitive development, with some characteristics of the archaeological record. The weight of presumptions can be very heavy indeed in the intuitive assessments of the plausible functions of artifacts. Powerful images and metaphors have taken root in the various disciplinary cultures of prehistoric archaeology since their inception in the nineteenth century and still guide to a large extent the specialists' "educated guesses" which are now more than ever the source of fierce debates of the sort usually triggered by uncertain knowledge. One way to emancipate oneself from these biases is to adopt the counter-biases of the scientific method which has empowered human cognition in many domains. The method is not without flaws. In particular, it is long and arduous, and it requires both some intellectual audacity in the formulation of its hypotheses and some readiness to acknowledge that an attractive hypothesis can be irrevocably falsified. It is, at first, much less rewarding than the epic imagination which fills the gaps in our knowledge with vivid images that meet the expectations of the moment. The proposed approach is based on the certainty that the archaeological record, even in its current fragmentary state, can yield much more knowledge than has been extracted from it so far.

REFERENCES:

— Bednarik, Robert (1998) The technology of petroglyphs. *Rock Art Research* 15 (1) : 23-35
— Chesney, Shirley (1994) Max Raphael (1889-1952) : a pioneer of the semiotic approach to palaeolithic art. *Semiotica* 100 (2/4): 119-124
— Douglas, Mary (1973) *Natural Symbols: Explorations in Cosmology*. Harmondsworth: Penguin
— Groenen, Marc (1994) *Pour une histoire de la préhistoire*. Grenoble: Jerome Millon
— Hawkes, C. (1954) Archaeological method and theory: some suggestions from the Old World. *American Anthropology* 56; 155-168
— Leroi-Gourhan, André (1992) *L'Art pariétal: Langage de la préhistoire*. Grenoble: Jerome   Millon
— Lewis-Williams, David (1995) Modelling the production and consumption of rock art. *South African Archaeological Bulletin* 50 : 143-154
— Lewis-Williams, David (2002) *A Cosmos in Stone: Interpreting Religion and Society through Rock Art*. New York: Altamira Press
— Lewis-Williams, David (2002) *The Mind in the Cave*. London: Thames and Hudson
— Lorblanchet, Michel (1991) Spitting images: replicating the spotted horses of Pech Merle. *Archaeology* 44 (6) : 25-31
— Robb, John (1998) The archaeology of symbols. *Annual Review of Anthropology* 27 : 329-346
— Schlanger, Nathan (1994) Mindful technology: unleashing the *chaîne opératoire* for an archaeology of mind. In *The Ancient Mind: Elements of Cognitive Archaeology*. C. Renfrew and E. Zubrow, (eds.). Cambridge: Cambridge University Press.
— White, Leslie (1949) *The Science of Culture*. New York: Farrar, Strauss and Cudahy
— Whitehead, Alfred North (1955) [1927] *Symbolism. Its Meaning and Effect*. New York: Putnam

APPENDIX A
WHEN IS AN ARTIFACT A SYMBOL? THE TYPE / TOKEN DISTINCTION.
Paul Bouissac

Archaeologists are interested as much in artifacts which look alike as in those which look different. A great deal of information can indeed be inferred from observable similarities across time and space. But the search for resemblance is rife with problems. On the one hand, there is a range of degrees of similarity between exact morphological identity and approximate resemblance of appearance or function (e.g., isochrestic tools). On the other hand, two or more artifacts may look alike for a variety of reasons including chance, copying, imitation or multiple implementations of a single algorithm. These problems are compounded by issues such as whether there exist an original model or whether similar ecological constraints can give rise to convergent artifactual morphologies. Natural, functional and cultural forces can equally play a determining role in the emergence of artifacts that look alike, at least in some respects.

The main purpose of this note is to examine a particular case of the generation of artifactual similarities: the *type / token* relation. This conceptual distinction was first proposed by Charles Sanders Peirce as a part of a triadic system. It gave a modern, semiotic form to the old debate in medieval philosophy between those who believed that individual objects or words had conceptual meanings only in as much as they were the reflects of real but immaterial Ideas (in Plato's sense) and those who looked into the production and use of each instances as their only true possible source of meanings. The former were called the Realists, the latter were called the Nominalists. By proposing the *type / token / tone* distinction, Peirce contrasted the pure quality of an experience (*tone*) with its interpretation (*token*) as the result of a rule (*type*). In archaeology, these notions would correspond to the purely physical description of an artifact (*tone*) followed by an interpretation of its particular function such as a "bead" (*token*) through assigning it to a general class of artifacts such as "ornaments" (*type*). All

occurrences of beads are beads because they relate to a general function expressed as a rule, an algorithm which specifies a behavior.

In further philosophical and logical developments Peirce's triadic distinction was reduced to a dichotomy: *type* vs. *token*, to which Peirce sometimes referred as *sign* vs. *replica* or *legisign* (from the Latin *lex* [law]) vs. *Sinsign* (*sin* stands for *singular* or *single*). Later, other philosophers reformulated the relation as "*sign-family*" vs. "*sign-vehicle*" (Morris 1971), or "*sign-design*"vs "*sign-event*" (Carnap 1961), thus denoting single objects or events with respect to their class. The logical implications of these distinctions and reformulations are complex (Russell 1940) and will not be addressed here.

Focusing on the *type / token* relation, as it is exemplified, for instance, to explain how the letters of the alphabet (or any other system of writing) can take many graphic forms without losing their functional value as elements of distinctive words, it is possible to explore the applicability of this relation to artifacts. A theoretical difference can be established between mere copying and implementing a rule of construction with respect to a system of signs. First, copying implies the presence of an artifact (or a natural object) which serves as model for the replicating behavior while producing a conventional sign does not require the presence of a model but simply a mental algorithm that specifies the necessary actions. Secondly, the criteria which determine whether a copy is good or poor are not the same as the criteria which qualify the production of a conventional sign as functional. When children learn how to write or draw they painstakingly produce copies. But once they have mastered the code they have assimilated some basic rules of construction. Their writing skill is made of a set of algorithms such as "draw three intersecting lines to produce the capital letter A". The variety of fonts and personal handwritings shows that the *type* (i.e., the algorithm) can produce an open-ended list of *tokens* (i.e., the many graphs that counts as letter A in a particular population whose members share the knowledge of the type and its value with respect to the other types belonging to the same system). Depending on the occasions, this letter can be implemented minimally or rendered with various emphases and ornaments including colors and decorative elements.

Can archaeologists distinguish whether a single artifact is a copy or a *token* from the mere examination of this artifact? This is doubtful because the distinction becomes an issue only when there are more than one artifact. In this case, it can be hypothesized that there is a scale of similarities with a threshold in the rate of variations indicating that it is likely that the craftmen were concerned with implementing a type rather than producing a copy.

This distinction suggests two possible kinds of symbolism in relation with two hypothetical kinds of motivation for the replication of artifacts: First, the assumed magical power of some natural or artificial objects such as a charms or idols can be believed to be harnessed through making rigorously exact copies of the archetypes. Secondly, some basic distinctive features will suffice to implement the symbolic values of a set of conceptual types through their approximate realizations in replicas which preserves their distinctive structural identities. In this latter case, it can be expected that we are dealing with a set of types which form a system of contrasts such as would be the case for the symbols used in reckoning, possibly based upon the various configurations of the human hands. For this sort of artifacts, the strongest evidence that they are objects to be interpreted as tokens of types ultimately rests upon the demonstration that their diverse positions in clusters are not random but follow some compositional rules. Naturally, the second kind of symbols can be copied by craftmen who do not understand the relation of these tokens to the system of their types, following the process known as "cargo cult".

These considerations on the *type / token* relationship, as opposed to mere copying, are particularly relevant to the evaluation of rock art. Most interpretations, in main stream archaeology, remain focused on the identification of natural objects, usually animal species construed as preys (Mithen), mythical figures (Leroi-Gourhan) or shamanistic personae (Lewis-Williams). On the primary level,

parietal paintings are most often described piece meal in the literature, with an emphasis on the most striking pictural effects in term of resemblance with assumed actual models. Whenever composition is taken into consideration, this is done according to artistic principles, underlying for instance the realism or the stylization of the figures, their apparent dynamic, their blending with the morphology of their natural support, some perspective effects and the like. On the secondary level of analysis, they are taken as documenting the environment, and the individual subjects which have been identified are reorganized in the form of lists with indications of the number of items for each category. Conclusions may then be drawn regarding the composition of the contemporary fauna or the relative importance of some species in hunting or for symbolic thinking.

All these interpretations are equally plausible and equally unverifiable. The *type / token* distinction can, however, suggest another, less intuitive hypothesis. Following the tentative suggestion that some rock art could be hieroglyphic, i.e., made of representations of sounds rather than animals as individuals or as species (Bouissac 1994), Hans Bornefeld (personal communication) notes that in Lascaux, for instance, two complex sequences appear to reproduce each other in reverse order and heuristically proposes a phonologic rendering based on tentative reconstruction of archaic languages. From the point of view developed in this note, the issue is not whether the claim that these "inscriptions" have been deciphered can be substantiated, but whether the sequences indeed show compelling evidence of iterativity and systematicity. The latter should incite archaeologists to further investigate the syntactic forms of comparable clusters and could lead to the conclusion that the representations which "decorate" the cave walls and other surfaces should be treated as tokens of a limited number of types whose symbolic value could then be established at least as virtual systems.

REFERENCES:

— Bouissac, Paul (1994) Art or script? A falsifiable semiotic hypothesis. *Semiotica* 100 (2-4): 349-367
— Carnap, Rudolph (1961) *Introduction to Semantics*. Cambridge: Harvard University Press
— Esposito, Joseph (1998) Type and token. *Encyclopedia of Semiotics*. P. Bouissac (ed.). New York: Oxford University Press (622)
— Morris, Charles (1971) *Writings on the General Theory of Signs*. The Hague: Mouton
— Niklas, Urszula (1979) On the type-token distinction.A case against Nominalism. *Jeltudományi Dokumentumok. Abstracts and Papers.* . Semiotic Terminology, 28 June - 1 July 1979, Budapest, V. Voigt, ed. (71-79)
— Peirce, Charles S. (1958) *The Collected Papers of Charles Sanders Peirce* Vol. VIII, E. Burks (ed.). Cambridge: Harvard University Press.
— Russell, Bertrand (1940) *An Inquiry into Meaning and Truth*. New York: Norton

SYMBOLISM AND STONE TOOL "STYLE"

Philip G. Chase,
University of Pennsylvania
Museum of Archaeology and Anthropology, Philadelphia, USA

WHAT I WOULD LIKE TO DO HERE IS TO REVISIT a topic I addressed over a decade ago (Chase 1991), the question of whether or not the presence of "style" in flaked stone artifacts permits us to recognize the first use of symbols by our ancestors. I do this in part to clarify what could have been better expressed then, and in part because my thinking on the topic has developed.

By using the word "style," I risk being misunderstood. Because there is little consensus on its definition, the reader may understand something other than what I mean. Moreover, for archaeologists, the term will inevitably call to mind the debate in the archaeological literature about the nature of style in stone tools (Sackett 1973; Jelinek 1976; Wobst 1977; Conkey 1978; Dunnell 1978; Stiles 1979; Close 1980; Conkey 1980; Sackett 1982; Wiessner 1983; 1984; Sackett 1985; 1986; Clark 1989; Close 1989; Conkey 1990; Wiessner 1990; Byers 1994; 1999; 2001). Several aspects of this exchange are irrelevant to what I have to say, and there is a risk that conceptual baggage from the debate will cause the reader to misinterpret what I am saying. I will use the word because I cannot think of a better one, but I ask the reader to understand by it no more than I intend.

"Symbolism" is another term that is apt to cause confusion. By symbol, I mean a something whose meaning is determined by arbitrary convention. This definition takes as its starting point Peirce's (Peirce 1932/1960) definition of a symbol as a referential sign. However, as Byers (1994) points out, in culture symbolism goes beyond reference to fulfill other functions. I will have more to say about that below, but the key characteristic of all symbolism is that its meaning is assigned by arbitrary, socially constructed convention.

STYLE

Two themes seem to be common to most of the definitions of style in the literature on Paleolithic archaeology.

1. Style is thought of as something that is associated (for whatever reason) with a given group of people within a given geographical range over a given span of time. As Conkey (1990:6) puts it, "…if there is any one thing we have had in the backs of our minds for the use of stylistic analysis, it has been to find or reveal social units or specific historical entities." How a social or historical group is to be defined is often left unstated, but from an archaeological perspective, style is usually considered to be an index of a historically and ethnically or culturally bounded social unit (Conkey 1980; 1990; Dunnell 1978; Jelinek 1976; Sackett 1973; 1982; 1985; Wiessner 1983; 1984; 1990; Stiles 1979).

2. Style is generally considered to be, in Byers' (1994:379) words, "an overdetermination of form with respect to end-goal requirements." Such end-goal requirements include the practical function to which a tool will be put and the technological requirements of its manufacture. The notion of overdetermination is included even in what Sackett (1982) calls "isochrestic" style, that is, choices made in the process of manufacture among procedures that, from a functional or technological perspective, are equally valid. In this case, it is isochrestic choices rather than "adjunct" decoration that overdetermine the form of the artifact, but the overdetermination still exists. It is also true of the school of thought that holds style to be something left over after the requirements placed on artifact form by function, technology, and the like (Close 1980; 1989; Dunnell 1978; Jelinek 1976). In this case, the presence of style means that artifact morphology does not vary as freely as function and technology would permit.

Thus a style is a given pattern or a set of patterns consisting of overdetermination of form that are, in one way or another, associated with a given group of people bounded both ethnically and temporally. I will use this basic definition in this position paper.

Generally speaking, two mechanisms are cited as mechanisms by which a style or styles is associated with a given group of people.

1. Style may be a means of conveying information, including, especially, information about ethnic or personal identity (Conkey 1980; 1978; Wiessner 1983; 1984; 1990; Wobst 1977). In this case, the message and the people are naturally associated. Note that in this case, style is automatically symbolic in nature, since the meaning conveyed by the style depends on arbitrary convention.

2. Style may be the result, intentional or not, of adhering to group standards and norms concerning the manufacture of stone tools ® (Conkey 1980; 1978; Wiessner 1983; 1984; 1990; Wobst 1977; Byers 1994; 1999; 2001; Sackett 1973; 1982; 1985; 1986; Stiles 1979). Byers makes explicit what is usually left implicit, that these standards are cultural in nature, and that these standards and norms have a basis in cultural symbolism.

These mechanisms are not mutually exclusive. In fact, I will argue below that they both point to an underlying phenomenon, an elaboration of simple symbolism into all-pervasive cultural systems.

It follows that if this is how style comes into being, then the archaeological record will be characterized by a pattern of variation in stone artifact morphology that is discontinuous through space and time (see Stiles 1979:5). Any one geographic area will, at any one given time, be stylistically homogenous (unless occupied by more than one ethnic group). That is, the appearance of each category of artifacts will be overdetermined in the same manner (in the same style). At the same time, because

this overdetermination relies on culture, which is mutable, there should be disjunctions in style both across space and through time; adjacent regions or time periods should be marked by different styles. Such is the pattern commonly described for the Upper Paleolithic of Europe (*e.g.*, Mellars, 1973; Laville, 1980; White 1982; Wynn, 1996).

This is entirely logical, and in general I concur in this view. There are practical considerations that make the link between symbolism and the archaeological record less clear than the above summary would imply (Jelinek 1976). Style may be used to convey information about something other than group identity (Wiessner 1983; 1984; 1990; Wobst 1977); not all ethnic boundaries are correlated with stylistic boundaries (Wiessner 1983); style may be associated with ideas that cross-cut stylistic boundaries. Moreover, the archaeological record may contain artifacts whose morphology represents not a desired end product but the processes of breaking, resharpening, etc. to the point where the tool becomes useless (Frison 1968; Jelinek 1976; Rolland 1981; Dibble 1987; 1989; 1995). Such problems are relevant, but lie outside the scope of this paper.

My purpose here is to investigate whether or not such a patterning of the archaeological record can serve to identify the point at which the use of symbolism became a significant part of the adaptation of our hominin ancestors. On this point, I am skeptical, for two reasons. First, I believe that it is altogether possible that symbolism could have been adaptively important without affecting lithic morphology. Second, I believe that a patterning of the archaeological record rather similar to that described above could, at least in theory, have been produced without symbolism.

- I will argue that symbolism is reflected in stone tools only if it has evolved beyond simple reference into elaborate, all-encompassing cultural systems that set standards for what an artifact should look like and assigned cultural meanings to those appearances.

- I will argue that even in the absence of symbolism, memetic traditions may have produced patterning in the archaeological record that fit my definition of style.

In order to do this, of course, I must first explain what I mean by three key concepts: memetic traditions, referential symbolism, and fully elaborated culture. These distinctions are usually not made in archaeological discussions of style.

MEMETIC TRADITIONS

Most scholars who argue that species other than humans also have culture define culture in terms of social learning, social transmission of information, and the traditions that arise from social transmission (Boesch, et al. 1994; Boesch and Tomasello 1998; McGrew 1998; Whiten, et al. 1999) . This definition is also used by a major branch of sociobiology that analyzes human culture under rubrics such as "dual inheritance" or "memetics."

The term "meme" was coined (Dawkins 1976:192) to refer to particles of information or behavior analogous to genes. When one individual learns a meme from another individual, that meme is reproduced and transmitted. Some memes will be adopted more frequently than others, a process that is directly analogous to natural selection of alleles. Defining culture in terms of memes permits an essentially Darwinian analysis of cultural evolution through natural selection – at the level of memes rather than genes (hence the term "dual inheritance"). This is why the concept appeals to sociobiologists who wish to apply scientific, evolutionary analysis to culture without equating cultural evolution to genetic evolution.

This model is grounded in observations of both human and non-human behavior and learning. There is no doubt that bits of behavior or knowledge that fit the definition of a meme are invented and passed from one individual to another in non-human species. Two of the most famous examples are sweet potato washing among Japanese macaques and the opening of milk bottles by tits in Europe (Kawamura 1959; Kawai 1965; Itani and Nishimura 1973; Fisher and Hinde 1949). Moreover, there is also no doubt that among non-human primates, the adoption of different memes in different populations produce systematic differences in behavior or memetic traditions. Different groups do the same things in different ways because they have learned different memes. (Nishida 1986; Whiten, et al. 1999; Perry and Manson 2003; Van Schaik, et al. 2003). For example, different groups of chimpanzees have different methods of making termite fishing wands, of breaking open nuts, different postures when being groomed, etc. (Whiten, et al. 1999).

There is also no doubt that many behaviors or ideas that humans learn in a social context resemble memes in that they are created or invented by one individual or group of individuals and then transmitted socially to others – gunpowder, the diatonic scale, and double-entry bookkeeping, for example. Such memes often compete against one another, as for example, did VHS and Beta standards for video tapes.

However, in spite of this resemblance to memes, what happens among present-day culture bearing humans is also quite different from what is found in other species. This can best be understood if we analyze how memes and symbols are created and transmitted. Consider, for example, sweet potato washing among macaques . One individual discovered that washing a potato in sea water had some desirable effect (either adding a salty flavor or removing grit). Other individuals learned the same thing, not by invention, but by observing her and then trying it for themselves. There are three things to note about this process. First, the invention of sweet potato washing was an entirely individual process. Second, an individual benefits by washing sweet potatoes whether or not any other individual does so. Third, each individual is free to adopt or not to adopt the practice; the choice is a private, not a public, one.

Compare this to a simple symbol, to a word, for example. The creation of such a symbol is a social, not a private act. Even if one individual creates a new word, it cannot be used until others have agreed to the meaning of that particular sequence of sounds. By the same token, the benefits of a symbol (in this case communication) depend on its acceptance by everyone involved. It will do me no good to speak English to someone who does not know the symbolic conventions of English. Finally, this social nature of symbols means that an individual who fails to adopt important symbols will be excluded from the social system. Adopting or refusing to adopt a symbol is a social, not a private, act.

REFERENTIAL SYMBOLISM

At its simplest, language consists of a set of conventions for communicating meaning. These conventions are both phonological and syntactical. Certain sound combinations (words or morphemes) refer to certain concepts by arbitrary convention. At the same time, conventions concerning inflection, word order, etc., permit speakers to express different relationships among concepts. Thus, "The dog bites the man," "The dog bit the man," "The man bit the dog," and "The cat bit the dog" all convey different ideas. Underlying all of these sentences, however, is the basic fact that symbolic conventions permit speakers to refer to different things, and the referential nature of these conventions make it possible to communicate about these things.

Today, in a cultural context, language goes beyond reference. For example, speech acts such as oaths or incantations are more than referential communication. But reference is the heart, the *sine qua non* of language, and symbolic reference makes human language a much more powerful and flexible tool for communication than any system found in other species.

CULTURE

My notion of human culture is very different from a definition based on memetic traditions. It seems to me that human culture, like the symbolism that makes it possible and that represents its most primitive form, is created by social convention rather than by individuals. These conventions function at the social level, and accepting or rejecting them is a social rather than an individual act.

In human culture as it exists today, symbolism goes beyond reference (Byers 1994). Oaths and incantations, for example, are cultural acts that depend on a set of symbol-based cultural conventions (rules, values, concepts and definitions, etc.). The referential symbols of language need only refer to things that exist even without culture (objects, perceived classes of objects, sensations, beliefs about causation, etc.). However, culture creates things that have no existence outside a symbolic cultural and that depend on symbolism for their very existence – supernatural beings, myths, social statuses (policeman, wife), symbolic objects (scepters, rosaries), beliefs (astrology, theologies), values (piety, chastity), and so forth. Modern culture creates all-encompassing systems that assign symbolic meaning to almost anything we humans perceive, think, or do.

As Byers (1994) has made quite clear, almost nothing we do can be separated from its place in the symbol system, because that system now provides rules for defining what is or is not appropriate. Almost any action, large or small, is judged not only in terms of its practical consequences, but also in terms of its symbolic meaning or value within the cultural system.

In the present context, what this means is that the making of artifacts is constrained not only by their practical function and by the raw materials and technical knowledge available, but also by cultural norms and standards, norms and standards that rely upon symbolism for their very existence, even if they themselves have no referential meaning.

I would argue (as would Sackett, I believe), that this is what creates style. It does not matter whether or not people are deliberately trying to express their identity in either the form or decoration of stone tools. As long as cultural standards govern their manufacture, then stone tools will be constrained in their morphology. As a result, the morphology of a population of stone tools will serve as an index of the population of people who shared those cultural standards. (Even if in practice the archaeologist may face serious problems reading the archaeological record correctly, the principle still stands.) For example, metal paper clips sold in the United States differ markedly in form from paper clips sold in France. I know of no evidence that would indicate that Americans and Frenchmen are using paper clips to mark their national identities. Rather, the stylistic differences result from the different standards followed in the manufacture of these paper clips. These cultural standards do not express social identity, yet they nevertheless constrain their form.

With these three concepts in mind – memetics, referential symbolism, and fully elaborated, symbol-based culture – we can now turn to the question of whether the appearance of style in the stone tools left behind by our hominin ancestors coincides with the appearance of symbolism as a part of their adaptation. (Among other primates, a capacity for symbolism apparently exists, but it is not

expressed in the wild.) As I stated above, I believe that there are two reasons why style is not a good index of symbolism. I suspect that symbolism can exist without style and that style can exist without symbolism.

Can Symbolism Exist without Style?[1]

Cooperation is common in many species other than humans. Cultural values and cultural norms do not motivate this cooperation. Rather, individuals cooperate because it is in their interest to do so. For example, a single wolf will find it dangerous if not impossible to kill an animal as big as a moose (*Alces*),[2] but a pack of wolves can do so, and, because a moose carcass is large, there will be meat for everyone. Although the motivation may not be social in nature, the process of hunting cooperatively would nevertheless be improved by enhanced communication. In other words, by serving to coordinate cooperative activities, even those motivated by entirely individual concerns, a purely referential language would have a real adaptive benefit.

We can imagine, then, a hypothetical population of hominins who used referential symbolism for linguistic communication, but who had not extended symbolism and symbolic ideas into the all-encompassing cultural systems that exist today. These people would be cooperating and they would be using language to do so, but their cooperation, like that of wolves, would be motivated by their individual calculations of cost and benefit. Their social lives, like those of wolves or chimpanzees, would be conducted in the absence of a symbol-based culture: there would be no cultural standards for behavior.

This is a hypothetical population, because we do not know if there ever was any such population. However, until it is shown that no such population ever existed, or that no such population could have existed, we should consider what the archaeological record left behind by such a population would have looked like.

In the absence of cultural standards, the making of stone tools would, like the making of a chimpanzee's termite wand, be carried out with only practical considerations in mind. In other words, the morphology of a stone tool would reflect the purpose for which it was intended, the nature and availability of raw material, and the technological knowledge of the makers, but would reflect no cultural standards beyond this.

In addition, there would be no question of what Sackett (1986) calls active style, the deliberate use of style to convey cultural information, for the simple reason that no such cultural information would exist. These hominins would distinguish among friends, enemies, and strangers in the same way that chimpanzees do, by personal acquaintance. They would have no reason to express ethnic affiliation.

There would be no culturally defined roles (such as shaman or husband) to be marked stylistically. There would be no culturally defined activities (such as marriage or initiation) to be marked stylistically. Roles and activities, social and practical, would, like those of chimpanzees, be both practical and social, but they would neither be defined nor constrained by culture. Thus the use of style to indicate intention, as described by Byers for Upper Paleolithic and later populations, would no more apply to this population than it would apply to chimpanzees. As a result, style as I have described it above would simply not exist.

The stone tools and debitage left behind by such a population would look exactly like that left behind by a population of similar intelligence that used neither symbols nor language.[3]

CAN STYLE EXIST WITHOUT SYMBOLISM?

I defined style as an index of a culturally and historically bounded group of people. It can serve as an index because it consists of overdetermination of form. Judging from the literature, most archaeologists seem to assume that this overdetermination is the result of cultural (and therefore symbol-based) standards and meanings. If this were true, then style could not exist without symbolism.

Yet style is observable, albeit not in lithic technology, among primates who do not make use of symbols and whose behavior is not constrained or guided by symbolic culture. Rather, the source of variation lies in memetic traditions. From the perspective of technology, perhaps the most striking example comes from the work of McGrew, Tutin and Baldwin 1979) found that some chimpanzee groups peeled the bark off twigs used for termite fishing while others did not. This would clearly be a stylistic difference, yet it is also clearly memetic rather than symbolic in nature.

Just how applicable these examples are to the hominin archaeological record is problematic. Certainly, in some cases there is little doubt that cultural standards underlie patterns of systematic variation in artifact form through time and space. Few would argue, for example, that this was not the case in the Upper Paleolithic of Europe – certainly not of the later Upper Paleolithic. Remember, however, that our purpose here is not to understand the Upper Paleolithic but to try to find the earliest use of symbols as an adaptation. If we look at earlier patterns of variation, their origin is less clear.

A number of scholars have recognized that the Mousterian industries of the Levant seem to fall into several categories, based on the kinds of flakes removed from cores (Copeland 1975; Jelinek 1981; Meignen and Bar-Yosef 1992). For our purposes here, the kind of variation from one category to another was well expressed by Meignan and Bar-Yosef (1992:143):

1. The first group includes assemblages which display mainly broad, radially prepared flakes….

2. The second group includes assemblages with elongated blanks (blades, subtriangular blades and points) which were produced mostly by recurrent unidirectional methods (often converging)….

3. The third group is characterized by the production of short blanks (flakes and short, broad-based points) that are mostly obtained through unidirectional recurrent methods (often converging), but also by radial reduction….

These different kinds of assemblage are found at several sites in a limited region and replace one another through time. In these respects they fit the criterion of style. Note that the differences among them do not concern tools that have been shaped by retouch. Rather, the differences lie in the methods by which flakes were removed from the cores. It is not clear if the methods of core reduction were intended to produce flakes of a given shape, or if flake shape was a byproduct of the chosen method of core reduction.

Let us assume for the moment that the differences among the assemblages were not the product of different functional requirements of different adaptive strategies. In this case, the variability in the Levantine Mousterian assemblages would certainly seem to fit the definition of style given above. The question remains, however, whether these differences reflect different symbolic cultural standards, or whether different methods of core reduction were simply memes. That is, youngsters learning to work stone would learn the methods used by their elders not because of any cultural conventions, but

simply because flintknapping at this level of sophistication is not simple, and learning from available models would be more efficient than trying out a random variety of strategies.

It is my opinion that we simply cannot answer this question. On the one hand, geographically limited memetic traditions can be observed among non-human primates today. However, we cannot observe the spread or persistence of these traditions on a geological time scale. The fact is, quite simply, that no population of technologically sophisticated, acultural stone tool makers exists today. We cannot observe their behavior even over the space of days or years, much less over millennia. What this means is that our ideas about what such a population would be like, or even whether such a population ever existed, cannot be tested. No matter how well thought out or how thoroughly grounded theoretically, our ideas on the subject will always, I fear, be untestable and therefore subjective.

Some Potential Sources of Confusion

At the beginning of this position paper, I stated that the conceptual baggage from debates about style might make it more difficult for the reader to understand what I was trying to say. I also stated that there were things I could have expressed more clearly in my 1991 paper on style. I would like to address both of these issues from the perspective of the model described in this paper. I will do this on a topic by topic basis.

Style as Cultural

I defined style as patterns of overdetermination of form that serve as indexes of historical and ethnically bounded populations. This definition excludes an underlying symbolic, cultural component. I used this definition because it seems to me that it is a sort of lowest common denominator of what archaeologists mean by the term.

However, for those who consider style to be a means of conveying information, the symbolic, cultural component is an essential part of the definition of style. This, however, is a matter of terminology that does not change the essence of what I am trying to say. I could have accepted symbolism as an integral part of the definition of style and still said exactly what I did in the preceding pages simply by changing a few words. (In fact, I did exactly that in an earlier draft.)

Active and Passive, Cultural and Memetic, and the Concept of Standards

In my 1991 paper, I used (or, perhaps, misused [Sackett, personal communication]) Sackett's (1986) distinction between active and passive style. To Sackett, the distinction between active and passive style depends on whether a flintknapper is consciously trying to communicate something by style (whether adjunct or isochrestic). If I read him correctly, he assumes that passive, isochrestic choices are governed by cultural standards in essentially the sense that I have described them here.

I, on the other hand, was essentially concerned with the question of whether or not such "standards" could in fact be memetic rather than cultural in nature. I had not developed this idea sufficiently at the time to communicate it clearly. I made another error which Byers, 1994 #3} pointed out, that of equating style with reference. For this reason, I misused the term active style to mean style used deliberately as a referential symbol. I misused Sackett's term passive style to mean essentially what I might better have called memetic variation – differences among peoples in the artifacts they make that are the product not of cultural differences but of different memetic traditions.

In short, as I see it today, there are two potential sources of stylistic variation in the archaeological record, one cultural and therefore inherently symbolic (but not necessarily referential) in nature; the other, memetic and therefore independent of the use of symbols.

To my mind, some scholars have fallen into a trap by failing to distinguish adherence to memetic traditions – doing things in the way one learns from others – with adherence to cultural norms. The problem, as is so often the case, is verbal in nature. The term "standards" can be used for both memes and cultural norms, yet only one of these requires or implies a symbolic context. Following memetic "standards" is not the same thing as adhering to symbolic cultural standards. (I personally would limit the word "standards" to cases where others expect and demand that one does things in a certain way. This is true of cultural standards, but not of memetic traditions.)

Mental templates, Shaping, Imposition of Form, and Standardization

There seems to be a sentiment that shaping stone tools to fit deliberate mental templates reflects a symbolic way of thinking (*e.g.*,Holloway 1969; Gowlett 1984). The use of mental templates would be reflected in the archaeological record by standardization of artifact form, and perhaps by increased working and shaping of artifacts:

> …in many if not the majority or Upper Palaeolithic tools the artisan seems to have invested much effort to control and modify the shapes of the original flake blanks, to achieve a distinctive and im monst caases relatively standardized appearance in the form of the finished tools. In the majority of Lower and Middle Palaeolithic tooks, by contrast, this element of imposted form seems to be lacking; most attentions during tool manufacture seems tohave been paie to the strictly functional properties of the working edges… (Mellars 1996:382).

There is insufficient space to do this topic justice here (see Chase 1991), but a few words are in order.

First, unless one assumes that prehistoric flintknappers were essentially banging away randomly, or else that they were going through rote movements with no idea of what they were doing, then clearly they must have had some kind of end product in mind, even if it was only a useable edge. In other words, the mere presence of a mental template does not imply language or symbolism.

Second, it is true that cultural standards will, by limiting what is acceptable, decrease variability in artifacts. However, there are other factors that will have the same effect, and it will often be difficult to distinguish between the two. Moreover, cultural standards and cultural meanings are emic phenomena, and what is culturally important to the maker of a stone tool may be not be what the archaeologist, from an etic perspective, takes to be important. In other words, the archaeologist may try to measure standardization using his or her own etic concepts of what should be standardized, yet at the same time miss the emic standards used by the flintknappers, or *vice versa*.

Finally, it is true that if one wishes to use artifact form to convey information, then the more effort one expends shaping an artifact the greater the potential for making subtle distinctions. However, there are other reasons for shaping an artifact. For example, Bisson (2001) found that in most Mousterian levels at Skhul, scrapers were made according to a few simple (practical, not necessarily symbolic cultural) rules, but that in level B1, scrapers were more heavily shaped. This shaping, however, appears to be related to hafting, rather than to any attempt to convey cultural information.

Conclusions

It has not been my purpose here to join in the archaeological debate about style. For the most part, that debate has concerned why modern, culture-bearing peoples invest their artifacts with style, and the implications of this for drawing inferences about prehistoric ethnic boundaries on the basis of archaeological patterning. My purpose, by contrast, has been to investigate whether a particular kind of patterning in the archaeological record can be used to identify the point at which symbolism became a significant part of hominin adaptation. To this end, I have tried to use "style" in a way that is compatible with, or at least the lowest common denominator of what most lithic specialists take it to mean. I have then asked two questions.

The first question was whether symbol using peoples could have produced an archaeological record devoid of style. I believe that this is possible because it is not symbolism *per se*, but rather the elaboration of symbolism into all-encompassing cultural systems that produces style. Since referential symbolism in the form of language can, on its own and in the absence of overarching cultural systems, be explained as adaptive, then it follows that referential culture could have existed without style.

The second question was whether style could be produced by anything other than symbolic culture – whether simple memetic traditions could be responsible for geographical and temporal variation in the patterns of overdetermined form. This seems to me to be an unanswerable question, because it cannot be tested. Whatever answer we give must be subjective, and this means that any inferences about symbolism and symbolic culture on the basis of apparent stylistic variations in the archaeological record must likewise be subjective. Since there are less ambiguous grounds for inferring the presence of culture (artistic or other evidence of mythology, ritual, etc.), it seems to me that the archaeological correlates of style alone are probably not a very useful tool.

Notes

1- The ideas in this section have been published in more detail elsewhere Chase (1999, 2001).

2- "Elk" in British English.

3- Certain authors have argued on psychological grounds, that the mental capacity for language and for tool-making must have evolved together, and others have argued that language was necessary for planning and therefore for advanced technologies (Gibson 1983, 1986, 1996, Parker and Gibson 1979, Noble and Davidson 1996). Whether this is correct is beyond the scope of this paper. However, even if the presence of language may be inferred from the technological achievements of Paleolithic flintknappers, it does not follow that the use of language entails style in the making of artifacts.

REFERENCES

Bisson, M. S.
Interview with a Neanderthal: An experimental approach for reconstructing scraper production rules, and their
      imiplications for imposed form in Middle Paleolithic tools. *Cambridge Archaeological Journal* 11(2):165-184.
Boesch, C., P. Marchesi, N. Marchesi, B. Fruth and F. Joulian
      1994   Is nut cracking in wild chimpanzees a cultural behaviour? *Journal of Human Evolution* 26:325-338.
Boesch, C. and M. Tomasello
      1998   Chimpanzee and human cultures. *Current Anthropology* 39(5):591-614.
Byers, A. M.
      1994   Symboling and the Middle-Upper Palaeolithic transition:A theoretical and methodological
      critique. *Current Anthropology* 35(4):369-400.
      1999   Communication and material culture: Pleistocene tools as action cues. Cambridge *Archaeological*
      Journal 9(1):23-41.
      2001   A pragmatic view of the emergence of Paleolithic symbol-using. In *In the Mind's Eye :*
      Multidisciplinary Approaches to the Evolution of Human Cognition, edited by A. Nowell, pp. 50-62. *Archaeology*
      Series 13. International Monographs in Prehistory, Ann Arbor.
Chase, P. G.
      1991   Symbols and Paleolithic Artifacts: Style, Standardization, and the Imposition of Arbitrary Form.
      Journal of Anthropological Archaeology 10:193-214.
      1999   Symbolism as reference and symbolism as culture. *In The Evolution of Culture: An Interdisciplinary*
      View, edited by R. I. M. Dunbar, C. Knight and C. Power, pp. 34-49. Edinburgh University Press,
      Edinburgh.
Clark, G. A.
      1989   Romancing the Stones: Biases, Style and Lithics at La Riera. In *Alternative Approaches to Lithic*
      Analysis, edited by D. O. Henry and G. H. Odell, pp. 27-50. *Archeological Papers of the American*
      Anthropological Association No. 1, Washington, D.C.
Close, A. E.
      1980   The Identification of Style in Lithic Artefacts. *World Archaeology* 10:223-236.
      1989   Identifying style in stone artefacts: a case study from the Nile Valley. In *Alternative Approaches to*
      Lithic Analysis, edited by D. O. Henry and G. H. Odell, pp. 3-26. Arch. Papers of the Am. Anthro. Assoc.,
      No. 1.
Conkey, M. W.
      1978   Style and Information in Cultural Evolution:Toward a Predictive Model for the Paleolithic. In
      Social Archaeology:Beyond Subsistence and Dating, edited by C. L. Redman and e. al., pp. 61-85. Academic
      Press, New York.
      1980   Context, structure, and efficacy in Paleolithic art and design. In *Symbol as Sense: New Approaches*
      to the Analysis of Meaning, edited by M. L. Foster and S. H. Brandes, pp. 225-48. Academic Pres, New York.
      1990   Experimenting with style in archaeology. In *The Uses of Style in Archaeology,* edited by M. W.
      Conkey and C. Hastorf, pp. 1-17. New Directions in Archaeology. Cambridge University Press, Cambridge.
Copeland, L.
      1975   The Middle and Upper Paleolithic of Lebanon and Syria in light of recent research. *In Problems in*
      Prehistory: North Africa and the Levant, edited by F. Wendorf and A. E. Marks. Southern Methodist
      University Press, Dallas

Dawkins, R.
      1976   *The Selfish Gene.* Oxford University Press, Oxford.
Dibble, H. L.
      1987   Reduction sequences in the manufacture of Mousterian implements of France. In *The Pleistocene*
      Old World: Regional Perspectives, edited by O. Soffer, pp. 33-45. Plenum, New York.
      1989   The Implications of Stone Tool Types for the Presence of Language during the Middle Paleolithic.
      In *The Human Revolution: Behavioural and Biological Perspectives on the Origins of Modern Humans,* edited by
      P. Mellars and C. B. Stringer, pp. 415-432. Edinburgh University Press, Edinburgh.
      1995   Middle Paleolithic scraper reduction: background, clarification, and review of evidence to data.
      Journal of Archaeological Method and Theory 2(4):299-368.

Dunnell, R. C.
    1978   Style and function: A fundamental dichotomy. *American Antiquity* 4:192-202.
Fisher, J. and R. A. Hinde
    1949   The opening of milk bottles by birds. *British Birds* 42:347-357.
Frison, G. C.
    1968   A Functional Analysis of Certain Chipped Stone Tools. *American Antiquity* 33:149-155.
Gibson, K. R.
    1983   Comparative neurobehavioral ontogeny and the constructionist approach to the evolution of the brain, object manipulation and language. In *Glossogenetics: The Origin and Evolution of Language*, edited by E. de Grolier, pp. 37-62. Harwood Academic Publishers, London.
    1988   Brains size and the evolution of language. In *The Genesis of Language: a Different Judgment of the Evidence*, edited by M. E. Landsberg, pp. 149-72. Mouton de Gruyter, Berlin.
    1996   The ontogeny and evolution of the brain, cognition, and language. In *Handbook of Human Symbolic Evolution*, edited by A. Lock and C. R. Peters, pp. 407-431. Clarendon Press, Oxford.
Gowlett, J.A.J.

1984   Mental abilities in early man: A look at some hard evidence. In *Hominid Evolution and Community Ecology: Prehistoric Human Adaptation in Biological Perspective*, edited by R.A. Foley, pp 167-192. Academic Press, London.

Holloway, R.L.

Culture, a human domain. *Current Anthopology* 10:395-412.

Itani, J. and A. Nishimura

1973   The study of infrahuman culture in Japan: A review. In Precultural Human Behavior: *Symposia of the Fourth Congress of the International Primatological Society*, Volume 1, edited by E. W. Menzel, pp. 26-50. S. Karger, Basel.

Jelinek, A. J.

    1976   Form, function and style in lithic analysis. In *Cultural Change and Continuity: Essays in Honor of James Bennett Griffin*, edited by C. E. Cleland, pp. 19-33. Academic Press, New York.
    1981   The Middle Paleolithic in the Southern Levant from the perspective of the Tabun Cave. In *Préhistoire du Levant: Chronologie et Organisation de l'Espace depuis les Origines jusqu'au VIeme Millénaire*, edited by J. Cauvin and P. Sanlaville, pp. 265-280. Centre National de la Recherche Scientifique, Paris.
Kawai, M.
    1965   Newly-acquired pre-cultural behavior of the natural troop of Japanese monkeys on Koshima Islet. *Primates* 6(1):1-30.
Kawamura, S.
    1959   The process of sub-culture propagation among Japanese macaques. Primates 2(1):43-60.
Laville, H., J.-P. Rigaud and J. R. Sackett
    1980   *Rock Shelters of the Perigord: Geological Stratigraphy and Archaeological Succession*. Academic Press, New York.
McGrew, W. C.
    1998   Culture in non-human primates? *Annual Review of Anthropology* 27:301-328.
McGrew, W. C., C. E. G. Tutin and P. Baldwin
    1979   *Chimpanzees, tools, and termites: Cross-cultural comparisons of Senegal, Tabnzania, and Rio Muni*. Man 14:185-215.
Meignen, L. and O. Bar-Yosef
    1992   Middle Paleolithic variability in Kebara Cave, Mount Carmel, Israel. In *The Evolution and Dispersal of Modern Humans in Asia*, edited by T. Akazawa, K. Aoki and T. Kimura, pp. 129-148. Hokusen-Sha, Tokyo.
Mellars, P.
    1973   The character of the Middle-Upper Paleolithic transition in Southwest France. In *The Explanation of Culture Change: Models in Prehistory*, edited by C. Renfrew, pp. 255-276. University of Pittsburgh Press, Pittsburgh.

1996　*The Neanderthal Legacy: An Archaeological Perspective from Western Europe.* Princeton University Press, Princeton.

Nishida, T.
　　1986　Local Traditions and Cultural Transmission. In *Primate Societies,* edited by B. Smuts, D. L. Cheney, R. M. Seyfarth, R. W. Wrangham and T. T. Struhsaker, pp. 462-474. University of Chicago Press, Chicago.

Noble, W. and I. Davidson
　　1996　*Human Evolution, Language and Mind: A Psychological and Archaeological Inquiry.* Cambridge University Press, Cambridge.

Parker, S. T. and K. R. Gibson
　　1979　A developmental model for the evolution of language and intelligence in early hominids. *Behavioral and Brain Sciences* 2:367-408.

Peirce, C. S.
　　1932/1960　The icon, index, and symbol. In *Collected Papers of Charles Sanders Pierce,* vol. II, edited by C. Hartshorne and P. Weiss, pp. 156-73. Harvard University Press, Cambridge.

Perry, S. and J. H. Manson
　　2003　Traditions in monkeys. *Evolutionary Anthropology* 12(2):71-81.

Rolland, N.

1981　*The interpretation of Middle Paleolithic variability. Man* 16:15-42.

Sackett, J. R.

　　1973　Style, function, and artifact variability in Palaeolithic assemblanges. In *The Explanation of Culture Change: Models in Prehistory,* edited by C. Renfrew, pp. 317-325. University of Pittsburgh Press, Pittsburgh.
　　1982　Approaches to style in lithic archaeology. *Journal of Anthropological Archaeology* 1:59-112.
　　1985　Style, ethnicity, and stone tools. In *Status, Structure and Stratification: Current Archaeological Reconstructions,* edited by M. Thompson, M. T. Garcia and F. J. Kense, pp. 277-82. University of Calgary, Calgary.
　　1986　Isochrestism and style: A clarification. *Journal of Anthropological Archaeology* 5:266-277.

Stiles, D. N.
　　1979　Paleolithic culture and culture change: Experiment in theory and method. *Current Anthropology* 20(1):1-21.

Van Schaik, C. P., M. Ancrenaz, G. Borgen, B. Galdikas, C. D. Knott, I. Singleton, A. Suzuki, S. S. Utami and M. Y. Merrill
　　2003　Orangutan Cultures and the Evolution of Material Culture. *Science* 299(5603):102-105.

White, R. K.
　　1982　Rethinking the Middle-Upper Paleolithic Transition. *Current Anthropology* 23(2):169-192.

Whiten, A., J. Goodall, W. C. McGrew, T. Nishida, V. Reynolds, Y. Sugiyama, C. E. G. Tutin, R. W. Wrangham and C. Boesch
　　1999　Cultures in chimpanzees. *Nature* 399:682-685.

Wiessner, P.
　　1983　Style and social information in Kalahari San projectile points. *American Antiquity* 48:253-76.
　　1984　Reconsidering the behavioral basis for style: a case study from the Kalahari San. *Journal of Anthropological Archaeology* 3:190-243.
　　1990　Is there a unity to style? In *The Uses of Style in Archaeology,* edited by M. W. Conkey and C. Hastorf, pp. 105-112. *New Directions in Archaeology.* Cambridge University Press, Cambridge.

Wobst, H. M.
　　1977　Stylistic behavior and information exchange. In *Papers for the Director: Research Essays in Honor of James B. Griffin,* edited by C. E. Cleland, pp. 317-42. *Anthropological Paper, Museum of Anthropology,* University of Michigan, No. 61.

Wynn, T. G.
　　1996　The evolution of tools and symbolic behavior. In *Handbook of Human Symbolic Evolution,* edited by A. Lock and C. R. Peters, pp. 263-287. Clarendon Press, Oxford.

Symbol for them / Symbol for us?

Lisbeth Bredholt Christensen & David A. Warburton

Conceptions

There are several conceptions of the word "symbol". From the basic sense of the word—that of "a sign representing something else"—interpretations vary. Symbols are thus today distinguished from other signs by not being translatable into one, unambiguous meaning. Paul Ricoeur talks about symbols as being elements with "surplus of meaning" (Ricoeur 1976). While this is true today, it may not always have been true. We simplify by suggesting that symbols resist reduction in the way that icons are most effective because reducible. Somehow established by convention, symbols are then imbued with diffuse and unclear associations and meaning.

Questions

Using something (e.g., a Cross) as a symbol means that the item in question has its own existence (as a physical object intended for execution), and that its role is not served by its own existence (a utilitarian implement), but rather by the fact that some form of code is shared among those familiar with the item or behaviour in question and its true role (i.e., as representative of a community). This implies a shared ideological understanding.

Symbols are thus social: something can be a symbol only if at least two people agree so.

Although symbols may be both verbal and material one must ask whether a symbol can be a symbol without it having been agreed upon *in language*. Does a symbol require a mutual verbal agreement between at least two people for something (e.g., a tool) to be also a symbol? It is peculiarly characteristic of scholarly literature that symbols are frequently taken to be basically verbal and dependent upon language, e.g., Lévi-Strauss refers to the "effectiveness of symbols" in terms of words and metaphors without any reference to material objects (Lévi-Strauss 1972).

It is commonly said that symbols are human. It is also commonly assumed that symbols "make use" of language and that language is what separates humans from animals. Is it, however, possible that language is not as old as mankind, but that it did not emerge until the Neolithic and that symbols therefore are no older than that?

In this paper we want to discuss some different issues. Emic-etic aspects of symbolism. Is it possible, or even relevant, to try to get to their conception of symbol? The historical character of "symbolism"; in prehistory we may be dealing with the origins of symbolism. Where did symbolism begin? The language-based character of symbolism. What role does language have? The relevance of distinguishing "practical" from "symbolic" in prehistoric material. Is this possible and/or legitimate?

What is the significance of the explosion of symbols from the Neolithic and the Bronze Age? Can we extrapolate backwards or should we draw a line, putting the Palaeolithic and Neolithic into separate categories when discussing "symbolism"?

EMIC-ETIC

The purpose of the present round table is presented as concerning, i.a., "the issue of whether their [early objects] functions were practical or symbolic *at the time when they were created*" (our emphasis), as well as attempting at answering the question about "Which observable properties of an artifact can count as reliable indications that it *once was endowed with symbolic relevance?*" (our emphasis).

As such, the aim of the round table is somehow to find a methodologically sound way of getting at "their" – the prehistoric peoples' – concept of symbolism and to be able to reconstruct "their" way of distinguishing between "practical" and "symbolic". Such an aim is in accordance with mainstream anthropology whose purpose, according to the Encyclopaedia of Cultural Anthropology, is ultimately to reach and reconstruct an emic perspective (ECA 1996, Emic/etic perspective). "Emic" is opposed to "etic" and may be defined as a perspective that "focuses on the intrinsic cultural distinctions that are meaningful to the members of a given society" (ECA, Emic/etic perspective, 382). Opposed to this, an etic perspective "relies upon the extrinsic concepts and categories that have meaning for scientific observers" (ibid.).

The distinction emic/etic thus focuses on two perspectives from which to view material: (a) an internal and (b) an external perspective. The distinction emic/etic also puts the finger on the difference between Anthropology and Prehistory, namely that the emic perspective is accessible only via verbal information, and thus inaccessible in terms of the limits of prehistoric material.

Posing questions about prehistoric symbolism and prehistoric distinctions between practical and symbolic is relevant and legitimate. Such queries can, however, only be answered on an etic, and not on an emic level.

"Symbol" is our term: prehistoric peoples did not use it. Talking about "symbolism" in prehistoric material could mean imposing "our" categories onto "them" rather than "us" recognizing and reproducing "their" categories.

These are, however, also the conditions for scholarly work: In attempting to understand the people under study *we* create categories by which *we* distinguish phenomena of *their* culture.

On this basis (prehistoric "symbols" being "our" interpretation of "their" world as "we" see it), we can ask the question: Does it make any interpretative sense to distinguish between practical and symbolic? One can perhaps enquire about the value of distinguishing the "practical" from the "symbolic", any more than the "religious" from the "mundane". These distinctions did probably not exist for the people and the cultures under study.

By contrast, we should appreciate the fact of the challenge that it is Prehistory which offers information about the "origins of symbolism". We cannot deduce from known forms (e.g., crosses) how any given form came into being

We will opt for a more holistic approach, taking material culture as such and as a whole as symbolic and as open to interpretation, without attempting to reconstruct emic categories. This approach is in line with Foucault and Collingwood. Although we need not adopt the genealogical approach as such, its aims may be useful to prehistory. The purpose of a genealogical investigation is not to ask for the "self-understanding" of the text (in our case, material), but instead to ask what the text (or material) itself does not "consciously" know is the subject. Genealogy is opposed to hermeneutics. The hermeneutic perspective attempts to understand the text in its own terms—to approach the text's own understanding of itself. The genealogical perspective poses wholly new and different questions. For a genealogical perspective, no questions are given or necessary or obligatory. The scholar should not work on the premises of the text but on her/his own premises. The scholar should herself formulate questions that cut across / oppose the text itself.

It may be suggested that such a perspective opens up much wider perspectives.

History & Prehistory

There are several systems linking "signs", "icons", "indexes" and "symbols". "Gestures" and "words" are frequently assumed to be symbolic. Regardless of the particular order of any given authority, there is usually a hierarchy in which a "symbol" has a greater "surplus of meaning" than a "sign".

How do these concepts come into being? At the most elementary level, one can check the OED.

In Greek the word meant only a "sign", "token", even a "ticket" or "license" according to the standard Oxford Dictionary of Greek (Liddell & Scott). The Oxford English Dictionary says however, that it is, i.a., "An object representing something sacred" or even "a formal authoritative statement of the religious belief of the Christian Church". A decisive change has taken place between the ancient and the modern definition, at least partially related to the appearance of the Christian Church and its specific use of symbolism.

This means that we have infused "meaning" into a term which we then oblige ourselves to define. More importantly, however, it also means that something which was eminently practical (a "ticket" or a "sign") has been assigned to a domain where it is assumed to have no "practical" value, at least by procedural definition if the "symbolic" is to be separated from the "practical".

The suggestion that among the criteria for a "symbol" must be the fact that it represents something related to belief is related to Christianity. In prehistoric archaeology things identified as representing "belief" are identified precisely because we cannot find any other purpose for them. However, the process of filling a symbol with meaning is precisely a historical process in the creation of meaning.

THE IMPACT OF LANGUAGE

The difference between a Greek concept of "symbol" meaning a "sign" (cf. Liddell and Scott) and the definition given by the OED suggests a historical development of the term, from meaning something concrete and practical to meaning an untouchable thought. This development has certainly occurred in the last few thousand years. How much of the entire evolution of the human understanding of this type of symbolism has taken place since the beginning of the Bronze Age? And how much did the Neolithic bequeath? Was there any symbolism in the Palaeolithic?

Most agree—we do not—that sophisticated language can be traced back to the Upper Palaeolithic. This assumption effectively eliminates a gap in the development of expression during which people will not have had an "abstract" means of describing "tools" or "symbols", let alone distinguishing them. Before the development of any kind of language, conceptual thought will have been even more concrete and sexual since only compelling and memorable images could provide a means of categorizing the creations of the human hand.

It seems to us that in most definitions of symbols and in most treatments of symbols, be they archaeological or not, it is assumed that "symbolism" and its use is innate in mankind and that it has existed continuously the past 40,000 years. In other words, it is assumed as a matter of course that "symbols" existed and were used consciously in the Palaeolithic as well as in the Bronze Age, and in precisely the same manner. "Symbol", then, is assumed to be a constant, closely connected and almost identified with being human.

Contrary to this point of view, we want to suggest that "symbols" came into being only with the beginning of language, and that languages with abstract values may be quite recent. The result may have been a transformation of forms of expression which may have begun as little as 10.000 years ago. We therefore suggest that "symbols" existed only rudimentarily in the Palaeolithic (if at all) and that they can only be talked about as a partly "conscious" phenomenon from around the beginnings of the Neolithic.

The language of the material culture of the Neolithic is that of capacity and content: containers to be filled. Such materials lend themselves to metaphorical transformations. These meta-

phorical transformations employ and enhance language. This type of language—for expressing thought—is a common phenomenon today. But how old is it?

The capacity to express is visible in the material culture of the Neolithic and the languages of the Bronze Age. To what degree are we justified in making similar propositions about the Palaeolithic? What is the difference between "overwhelming potentiality" which cannot be expressed because there are no words for it, and a "surplus of meaning" which cannot be expressed because the number of associations is infinite, and thus inexpressible because of individual limitations and not because of the limits of language? Will this have no impact on the "meaning" of material objects?

The initial stage is the creation of a thing: a painting, an axe, a vessel, an ornament. A next stage is developing a "name" for that. It is only in the "final" stages that (a) objects become "otherworldly" symbols simply by virtue of names which were once descriptions, and (b) the process of creating objects which are consciously "symbolic", representing the real world in terms of the metaphor. In this fashion, a perfectly ordinary object, e.g., a jar, can be given a sexual significance through a name or suitable decoration. The reverse happens when, e,g, creating a statue of a woman and calling it "Aphrodite" so that the symbolic comes to represent "sexuality" and the world of being, but also much more.

The role of language in expressing the thought and allowing the transformation should not obscure the fundamental influence of the environment in determining the means of expression: the forms of reference remain the same. We can recognize a statue of Aphrodite as a symbol. We can also recognize a jar as a symbol. The issue is exactly at what point we can assert that the jar was a symbol. The concept of the woman as a "vessel" is reasonable. Does a jar decorated with a face and breasts "represent" a woman or does the character of the woman as a "vessel" fade into an inanimate jar?

Are metaphors symbols? Or what is the relationship between metaphor and symbol?

Gardiner (1963) stresses that language use is about discussing "things". Lakoff & Johnson suggest that human thought is to be understood through metaphor. We would prefer to argue, with Gardiner, that human language can only express relations of "things", and therefore that "metaphor" is the only possible means of expressing something which is not a thing. Applied to language, this may or may not be debateable, but applied to symbols there can be no doubt that these are "things". They are, however, "special things".

Many have followed Lakoff & Johnson, assuming that metaphors are a way of thinking, rather than arguing—as we do—that metaphors are a means of expressing a thought rather than a thought. And that this means of expressing thought is dependent upon language. The human mind processes images and uses these images to "describe". These "descriptions" are formed metaphorically in the absence of any other means to express the thought. The basis of the thought can frequently be an artefact, and the means of expression will be in terms of the environment. Language transforms this capacity, introducing an interface which can distort and organize impressions.

We find it to be crucial that in prehistoric archaeology we face the *origins* of symbolism. Archaeologists should therefore bear in mind that the symbols in the archaeological material do not necessarily look like symbols in modernity, and certainly not symbols as they are defined and discussed in textbooks. Can we assume that "symbols" (as well as religion) were "born" full-fledged

as we know them today? Or rather should we—when looking at the archaeological record—look for incipient symbols, would-be-symbols, experiments of symbols, rudiments of symbols?

We suggest that, contrary to the means of defining and identifying symbols today (as signs referring to something else by way of association/ convention / as signs with a surplus of meaning), what we today see and interpret as prehistoric symbols, were in fact at that time not invested with any meaning in this sense. The history of the world is the "production of meaning" (Merleau-Ponty), and directly related to "history" in the sense of those divisions of human life which can be defined. As the origins of symbols and as experiments of symbols, these cannot have been more than mere signs with a potential, and that this potential was realized in the course of history, during which they were filled with "meaning".

Defining the "Criteria of Symbolicity" is thus actually another step in this same process by which incipient meaning is poured into ancient containers which were empty.

VALUE & MEANING

It is assumed that "symbols" have some "meaning" and "meaning" is usually associated with some "value" (even in the sense that mathematical expressions have a given "value", where the term "value" means simply a numerically expressed content). In the Graeco-Roman world it was considered incorrect to dedicate iron—rather than bronze—objects to the gods or the dead. In Hindu thought, a stone temple is tens of thousands of times more valuable than one of brick or wood. The intrinsic value of the object in terms of "price" was thus a component of the "value" of a "symbol": not the object itself, but the "price" transformed its "value".

In the Near East, there is a leap from the Neolithic to the Bronze Age. Up to the end of the earliest phase of the Neolithic, one finds objects of bone, decorations in colors, figurines in clay, etc. It is only during the Bronze Age that objects of intrinsic value—gold, lapis lazuli, etc.—began to dominate to "symbolic" world, whereas the intrinsically symbolic of the Neolithic was primarily symbolic through its character and not its material—clay, stone, etc. The offerings of earlier ages—boars' mandibles, dentalium necklaces—only became symbolic through context (burials). This again stresses that our approach to "symbolicity" must be grounded in a social and technological context.

CRITERIA?

We are looking for things which somehow became distinctly symbolic. We must also look for a reasonable time "when" symbols became "symbolic". We must also discuss our reasons for explaining "how" and "why" they became "symbolic"—even if we cannot answer, we must lay the thoughts on the table.

Our concept of symbol must be that we agree that a "symbol" must have a "surplus of meaning"—as opposed to an ordinary item. A symbol must be an expression of something (Saussure) and it must be recognizable (Peirce). It can achieve its symbolic state by any means. One debate in

Semiotics opposes a Saussurian perspective and a Peircean one; the former arguing that the relation between a symbol and its meaning is not wholly arbitrary but contains some form of motivation (e.g. the goddess with a scarf over her eyes as symbol of justice) and the latter arguing that a "symbol" is characterized by the fact that it refers to its object *only* by convention and habit—in contrast to icons and indexes—(a classic example is the cross).

We cannot choose between Saussure or Peirce, because the distinction is illegitimate, the issue is not how the "surplus of meaning" came to be identified with an object, but that it did. Our problem is that it is almost impossible for us to identify any genre of symbol according to the meaning assigned to it before the appearance of language. Once we know that the goddess of justice is blindfolded because justice must be impartial, we can follow the system. Once we know that the son of god was allegedly executed by being nailed to a cross, we can follow the system. Otherwise a blindfolded woman with a sword and a balance might be a prostitute, and a cross might be a geometrical symbol generated by mathematics such as those of the Hindu mandala. Obviously the key point is the agreement, not the origin of the metaphor. In prehistory we cannot identify meaning.

REFERENCES

— Gardiner, A. H. 1963. *The Theory of Speech and Language.* Oxford: Oxford University Press.

— Lakoff, G. 1990. *Women, Fire, and Dangerous Things: What Categories Reveal about the Mind.* Chicago: University of Chicago Press.

— Ricoeur, P. 1976. *Interpretation Theory: Discourse and the Surplus of Meaning,* Fort Worth.

THE STATUS OF ETHICS IN CONTEMPORARY EPISTEMOLOGY AND ONTOLOGY, AND THE PROBLEM OF MEANINGS AND VALUES (THE SYMBOLIC) IN ARCHAEOLOGY.

Stephanie Koerner

School of Art History and Archaeology,

University of Manchester

INTRODUCTION

THE LAST SEVERAL DECADES HAVE SEEN A VIRTUAL EXPLOSION of areas of debate and literatures in the human sciences and humanities centering on a series of historically and philosophically interrelated conceptual dichotomies. Until around the 1960's such dichotomies as those of nature-culture, symbol-function, myth-history, culture-evolution, the mental and the material, science-values, western - non-western, functioned as a common axiomatic basis for delineating disciplinary divisions and debating predominant paradigms for research within these. The late 20th century saw these constructs come under convergent, if not sometimes identical sorts of scrutiny, in fields as diverse in their subject matter, as those closest to physical science, such as the philosophy of science, and human sciences which traditionally focused on societies that used to be characterised as lacking science and even history, such as anthropology (and pre-historic archaeology). Little by little researchers became concerned that the categories, which so evidently structured their fields of inquiry that they went unremarked, were products of complex historically contingent circumstances.

A range of factors have been involved, including the host of socio-cultural changes that have challenged predominant gradualist and punctuationist pictures of world history. There have also been sophisticated critiques of the generalisations about human nature, history and knowledge that underwrote not only problematic 19th and early 20th century paradigms for intellectual culture, but also several powerful colonialist, imperialist, and nationalist political 'meta-narratives' (for instance, Benjamin [1940] 1992; Adorno [1963] 1973; Foucault [1972-1977] 1980). Today there is widespread cross-disciplinary discussion of the challenges facing attempts to 'go beyond' apparently unresolvable debates over the abovementioned conceptual dichotomies. Something of the difficulty of these challenges, as well as archaeology's potential relevance is suggested by Descola and Pálssen's (1996) argument that:

Going beyond dualism opens up an entirely different landscape, one in which states and substances are replaced by processes and relations; the main question is not any more how to objectify closed systems, but how to account for the diversity of the processes of objectification (Descola and Pálssen 1996:12).

The aim of this contribution is twofold. The critical dimension examines the bearing that the 'critique of meta-narratives' may have upon archaeologists' discussions of the 'problem' of 'the symbolic'. Emphasis falls on themes relating to concerns to "probe the implicit criteria used by archaeologists for determining whether artifacts are symbolic or not" (Bouissac 2003). One of the questions posed is that of whether it is likely that satisfactory approaches to the 'problem' can be formulated on the basis of conceptions of 'the symbolic' that hinge on its opposition to 'the pragmatic' or 'functional'.

The constructive dimension argues for the relevance to attempts to "specify properties of symbolic artifacts" (cf. Bouissac 2003) of an ontology of the historicity of human agency and the symbolicity of artefacts, which gives ethics central roles. Together, these dimensions may indicate how some issues posed by discussions of "criteria of symbolicity" articulate with arguments for going beyond dualist paradigms, as well as such questions as: "If human agency is important for understanding particular events, does it need to be included in approaches to long-term trajectories of historical change?"

1. The 'Problem of the Symbolic' and the Critique of Dualist Paradigms for Human Agency, History and Knowledge

Starting in the 1970s paradigms for research structured around the aforementioned dichotomies became the focus of sophisticated anthropological critiques. Especially influential have been the publications of Marc Augé's *The Anthropological Circle. Symbol-Function, Culture-Evolution* (1977), Eric Wolf's *Europe and the People Without History* (1975) and Johannes Fabian's *Time and the Other. How Anthropology Creates Its Object* (1983). Among other things, these works brought light to an extraordinary range of the consequences (theoretical, methodological, social, ethical) of dualist paradigms for human nature, history and knowledge. An example has been the denial of the coevalness of differing contemporary ways of life through the reduction of cultural *differences* to imaginary *distances* in supposed social evolutionary time. One of the issues posed is that of the ways in which such confusion of cultural difference with temporal distance has been used to legitimate the rendering of some people invisible (so called 'minorities') to the ethical faculties of members of powerful 'majorities' (cf. Gaitta 2000; Geertz 2000).

Since the 1980s, such critiques have had several impacts on archaeology, including increased critical awareness of dynamic relationships between change in archaeological ideas and in the contexts in which researchers carry out their work (e.g., Hodder 1986; Shanks and Tilley 1987; Yoffee and Sherratt eds. 1994). Another example is the literature on the persisting influences of Enlightenment and Romantic philosophies of history. For instance, Bruce Trigger (1995) writes the following about opposing 'processualist' and 'post-processualist' paradigms for archaeological research.

European thought has been dominated for over 200 years by a pervasive dichotomy between rationalism, universalism and positivism on the one hand and romanticism, particularism (or 'alterity'), and idealism on the other. The first of the philosophical packages was initially associated with French liberalism, the second with German reaction [Dumont 1991]. Both ethnic nationalism and post-modernism (which is the essence of post-processualism) are products of the romantic side of the polarity (Trigger 1995: 263).

A detailed examination of the embeddedness of the 'problem' of the symbolic (versus the pragmatic or 'purely' functional) in the history of dualist paradigms for the human sciences and humanities lies beyond the scope of this paper. Instead, this first section concentrates on aspects of the meta-narratives critique, which relate to concerns to "probe the implicit criteria used by archaeologists for determining whether artifacts are symbolic or not" (Bouissac 2003), as well as challenges facing attempts to go beyond dualist paradigms for human nature, knowledge and history.

1.1 Dualist Paradigms for Human Nature and Knowledge

Despite the variety of the works of major contributors to the meta-narratives critique, several common foci have been crucial. One is the critique of the epistemic bases of dualist paradigms for *human nature* and *knowledge*. At issue is the series of essentialist categories that underwrites the notion of a transcendental, timeless, and placeless human agent, which has functioned for over two centuries as the supposedly universally valid foundation for understanding all human thought and behavior. This critique has powerful implications. It concerns the interdependence of a wide range of dualist categories (including those of subject-object, mind-body, nature-culture, symbol-function, science-values, western - non-western, etc.), and challenges claims about the existence of an a-historical standpoint from which one can make judgements about reason, knowledge, appropriate action, and what is definitive of being human.

It bears stressing from the onset that ethical implications are intrinsic, not optional. The aforementioned epistemic dichotomies hinge on an (explicit though, today, largely implicit), ontic division of the world between two types of entities: (1) perceiving things, or more specifically, the minds of human subjects, distinguished in relation to some notion of the capacities of the human mind for *rational freedom and moral responsibility*, and (2) all the rest, that is, extended things (like nature and society), which are determined by forces of *causal necessity*.

Notable too is the importance to this notion of an ontic gap of premisses that we can know *a priori* that no empirical inquiry can illuminate relations between the aforementioned parts of human beings, that is the res cogitans and res extensa parts of human beings. One of the questions that arises is that of whether we can think of other cases of this situation. For Descartes and his contempories, very important were the cases of the human-divine, and the immanent and transcendent, but also within the long history of dualist traditions there are the cases of the finite-infinite, and particular-universal.

1.2 Historical Meta-narratives

It is difficult to overstate the importance to efficacy of these paradigms for *human nature* and *knowledge* of narratives concerning *history*, which are rooted in Enlightenment and Romantic images of the 'Scientific Revolution' and 'Birth of Modernity'. The critique of these narratives has significant range of implications too. It indicates how the aforementioned dichotomies and images standardise the criteria whereby human experience and culture can be said to vary (e.g., Friedman 1992; Miller ed. 1995; Wilk 1995; Koerner 2001). It enables us to understand something of how colonialist, imperialist and nationalist ideologies exploit these criteria to eclipse discrepant experience and render some human beings 'invisible' to the ethical faculties of their contemporaries.

Some features of these narratives are of extraordinary antiquity, dating to the earliest horizons of traditions that have been seen as constitutive of the history of western intellectual culture. Examples pertinent to our present considerations include: (a) dualist structures, (b) notions that human history forms a unilinear trajectory, and (c) essentialist premises concerning the conditions of historical knowledge. These sorts of features motivated Collingwood's ([1949] 1956) arguments concerning the modes of reasoning, which can be expected to result in *universalising, providential, apocalyptic,* and *periodised* modern historical generalisations.

Let me say a bit about these before turning to features, which lack modern precedents.

Essentialist approaches to ontology have been given foundation roles in dualist paradigms (ancient and modern) for (a) methodological premises concerning the conditions of historical knowledge as well as (b) theories about patterns of historical unities and variability, and continuity and change Ontology is about 'being', about how the sorts of things that exit came into being, and why there are these rather than other sorts of things. Since antiquity, essentialist modes of reasoning have been stretched between opposing foundational poles, with absolute unity and permanence, on one side, and dis-unity (pure flux), on the other (McGuire and Tushanska 2001). Questions about change (in particular, historical change) are rendered problematical by this dichotomy. The most influential approach has been that of Aristotle [384-322 BC] in the *Metaphysics* ([1908] 1960), which centers on the question: If something can be said to be subject to change, what is the essence of that something? He offered three options: (1) the unchanging aspect, (2) the changing aspect, and (3) both, that is, the interaction of changing and unchanging aspects. In the paradigms that we are considering the significant option is (1) and the others have to be reducible to it.

It helps to underscore the importance of this focus on the *unchanging* essence of things to the long history of reductions of ontology's task to classification. A persistent dimension of this history has been the replacement of questions of how things come into being by such questions as: "What (underlying substances) makes particular items what they are?" "What distinguishes them from one another?" "What timeless substances distinguish different categories of items?" Answers to these kinds of questions are supposed to add up to universally valid generalisations about the range of categories in terms of which all things existing at all times can be classified (McGuire and Tushanska 2001: 45-47).

Modern versions of these modes of reasoning have underwritten the most influential paradigms (a) for the conditions of historical knowledge and (b) options for historical description and explanation since the Enlightenment and Romantic movements. Essentialism permits only a-historical theories of knowledge (such as those structured around the aforementioned subject - object dichotomy). Further, it permits only options for historical description and explanation that fit these theories of knowledge (such as narratives centring on nature-culture, symbol-function, individual-society, western - non-western dichotomies). The terms used in these narratives must simultaneously be valid for all times and places, and account for their variability. The constraints these requirements impose on options for historical (archaeological) description and interpretation are severe. Modern options centre on the ontic dichotomy of *perceiving things* (human minds and, in some approaches, God) and *extended things* (all the rest, like nature and society). One option treats history as a perceptual experience, which exists in the minds of individual subjects (as cognitive 'content' of 'mental states'. The other treats history as an 'extended thing' that can occur in a different forms, such as the social types: band, tribe, chiefdom and state; or cultures of different times and places: Neolithic Britain, Bronze Age Denmark, medieval France, Renaissance Italy, Modern Europe, etc..

These constraints have had profound impacts on predominant paradigms for conceptualising both the nature of the archaeological 'record' and the factors most responsible for the diversity of the human

past. Some examples are mentioned in Linda Patrik's paper, "Is There an Archaeological Record?" (1985). Patrik's paper indicates that key contrasts between influential 'processual' and 'post-processual' options are motivated by the above outlined modes of reasoning. While the former treat the 'record' as a fossilised imprint of the operations of the material and ideational (symbolic) components of past social systems, the later treat the record variously as a 'text', which can reveal the operations of past symbolic systems or aspects of the 'cognitive content' of the minds of past individuals.

Relating to the wider aims of the present paper, it can be noted here that these options permit only negative answers to the questions mentioned at the onset of (a) whether human agency must be included not only in approaches to particular events, but also in frameworks for long-term trajectories of historical change, and (b) whether is it possible to illuminate fundamental historical thresholds, ruptures, transformations, without resorting to teleological notions of progress or purpose? One of the most basic reasons is that the requirements of dualist paradigms involve the reduction of individual human actions, events, even fundamental ruptures and transformations to the *particulars conceived as a category in relation to the particular-general dichotomy*. That is, they must be emptied of all content and reduced to a cluster of properties, which facilitate treating them as instanciations of supposedly *universal* (timeless-placeless) categories of things and processes.

Notable too is the supposed ontic gap that arises from the assumption that we can assume a priori that there are no empirical means whereby particular human actions and general long-term processes can be linked to one another, suggesting that we can likewise assume a-priori that it is impossible to illuminate radical historical ruptures and transformations without involkinf some sort of metaphysical link between these finite particulars and the scale on which history supposedly operates.

There are many famous examples of this situation. The one, which had significant impact on the works of Hegel ([1831] 1975), Marx and Engels ([1846] 1975), Morgan ([1877] 1963) Durkheim ([1914] 1960), Weber ([1904] 1958), as well as of many other contributors to the current state of debates over dualist paradigms for the human sciences and humanities, is Immanuel Kant's account of the histories of nature and culture. Kant entitled this account, an "Idea of a Universal History from a Cosmopolitan Point of View" ([1784] 1963). Prior to Kant, the relationship between these histories (as well as between human beings' natural and cultural dimensions) was conceptualised as a problem that impeded the scientific (epistemic) status of the human sciences and historiography (Cassirer 1960). Kant's ([1784] 1963) "universal history" addressed this supposed problem in a new way. It (a) lifted the methodological difficulties of integrating nature and culture to the metaphysical level of an antitheses, and (b) applied the resulting notion of a *dialectic* to a theory about the unity of nature and culture's history. In Kant's solution to the problem of the scientific status of historical and anthropological knowledge (a) culture is the necessary outcome of the history of nature (indeed the means whereby 'nature's hidden plan' would be realized) and (b) nature-culture and subject-object antitheses constitute the necessary and sufficient conditions (i.e., the essential causal forces) of human history (cf. Collingwood [1949] 1956).

Kant's narrative centers on an ontic division of 'things in themselves' (out there) from the capacities of the mind for 'phenomena'. It envisages history as a unilinear series of stages in the evolution of nature, human capacities for 'reason' and 'moral freedom', and the range of 'phenomena' that constitute culture. The series begins with nature's introducing into infinite time-space particles governed by Newtonian principles of Matter and Motion (cf. Kant [1755] 1963). It emphasises the emergence of 'primitive' forms of human consciousness and social life, and of the rational modes of consciousness that made possible what Kant referred to as the 'Copernican Revolution'. The ultimate purpose (or cause) of history is the unification of social ideals and realities in an ideal 'civic order' (Kant [1784] 1963).

In the 19th century aspects of Kant's work were opened to a variety of interpretations. Several centred on highly problematic generalisations about supposed universal stages in the evolution of symbolic systems and a pan-human maturation of consciousness. These generalisations envisaged 'social progress' as a natural and inevitable process, which has improved the human condition through the elimination of ignorance, passion and superstition, and the exercise of rational thought (Collingwood [1949] 1956). Images of supposed universal stages in the evolution of symbolic systems played essential roles. In these meta-narratives, pre-modern symbolic systems were based on superstitions and other modes of understanding the world, which characterised the cognitions of children. Collingwood ([1949] 1956:76) noted that a key implication was that supposed "primitive forms of mental activity [were] destined to perish when the mind arrives at maturity."

Generalised images of the human mind have played decisive roles too. A very important image may be that noted by Richard Rorty (1979) of the mind as a sort of 'mirror' of the object world. In such a view the supposed 'maturation' of the mind might be envisaged a process moving from 'mirrors' that are clouded by 'primitive' beliefs towards the supposed 'true' picture of the object world revealed by modern science. Notable here too is something of the ways in which the symbolic has been envisaged as clouding, even obscuring the capacities of the mind to produce knowledge which transparently mirrors nature.

Although these generalisations are no longer accepted in mainstream human sciences and humanities, certain features have been very resistant to change, including (a) dualist categories (b) unilinear images of human history and (c) essentialist options for the conditions of historical knowledge and theorising the diversity of human ways of life. There is a huge number of relevant examples, given the roles these features played in the replacement of so-called 'classical' by 'modern' paradigms for research, and recently by 'post-modern' programmes. I will only mention one recent example, namely a programme that centers on a supposed dichotomy of *reason and nature* versus *symbolic systems and culture*. Tim Ingold's essay, "The Optimal Forager and Economic Man" (1996) suggests that the persistence of dualist modes of reasoning is especially evident in studies in "evolutionary ecology" that apply "optimal foraging theory" to interpretations of the activities of hunting and gathering populations. The theory is derived from principles of neo-Darwinian biology and neo-classical microeconomics (for instance, Winterhalder 1981:16). A paradoxical combination of concepts of *reason and nature* has often been used to characterise the "optimal forager" as the bearer of evolved (i.e., *naturally selected*) behavioral propensities, which are treated by the investigator as an (economic) optima. In consequence, discrepancies between the forager's behavior and the researcher's modeled optima are attributed by the latter to failure of the forager's *symbolic systems and culture* to meet the standards of 'economic rationality' of neo-classical microeconomics (Ingold 1996:31).

1.3 Dualist Paradigms and the Status of Ethics in Contemporary Epistemology and Ontology

It is important for considerations of patterns of continuity not to overshadow features of contemporary dualist paradigms that lack modern precedents. Notable examples include: (a) the explanatory roles they give to the dichotomies, nature-culture, subject-object, and individual-society, and (b) a radically transformed notion of a 'subject', one which made possible the a-historical conception of a human 'self' (subject), which has become a key focus of the recent critical literatures in the archaeology on agency, and the human sciences and philosophy, in general (e.g., Barnes 2000; Geertz 2000).

These features did not develop in a vacuum. They are rooted in responses to the need of new social structures and modes of solidarity, which developed in the wake of the Thirty Years War (1618-1648). Social changes had counterparts in intellectual culture. An example was the notion that one could develop new *social* ideals and institutions on the basis of principles that the emerging physical sciences were using to investigate (and manipulate) *nature*. The key question was that of whether one could model both universally valid explanations of the physical world and new foundations of social order on mathematics and logic (e.g., Hobbes [1651] 1962; see, for example, Shapin and Schaffer 1985).

In the views of a number of Enlightenment scholars, Descartes' epistemology and Newton's [1642-1727] mathematical laws of Matter and Motion suggested that the answer to this question could be yes (Descartes 1984-91; Newton [1687] 1934). Descartes' (1984-1991) epistemology hinged on an ontic distinction between the *rational freedom of moral intellectual decision in the human world* and the *causal necessity of mechanical processes in nature*. One consequence was the radical transformation of traditional notions of the 'subject', with profound implications for the status of ethics in modern epistemology. While the subject had hitherto been an ontic principle, which referred to the underlying essence of things (specifically, God or an ideal Nature), modern dualist paradigms eventually forced the individual human subject became forced to function as the primary source of all meaning and value (cf. Blumenberg 1983; Dupré (1993).

It was, however, not until Kant's philosophy of the histories of nature and of culture that modern moral philosophy divided a supposed inner realm of 'mental substance' ontologically from the causal network of the social and physical universe. The withdrawal of moral freedom from the material physical and social order ('out there') to the inward domain of individual mental states may have promoted some of the most problematic aspects of modernity, namely:

(a)the treatment of an individual subject as the source of all meaning and value,

(b)the reduction of social life to inter-individual contractual structures.

(c)the removal of ethics from its traditional status at the centre of epistemology and ontology.

Here, we may glimpse some of the most problematical aspects of the a-historical conceptions of the individual (self), around which much of the current cross-disciplinary discussion of agency, material culture, and historical memory are structured.

2 Some Possible Requirements of an Ontology of the Historicity of Human Agency and the Symbolic which Gives Ethics Central Roles

One of the questions, which is posed by aspects of the 'critique of meta-narratives' relating to efforts to "probe the implicit criteria used by archaeologists for determining whether artifacts are symbolic or not" (Bouissac 2003), is whether it is likely that satisfactory approaches to the 'problem' can be designed on the basis of conceptions of 'the symbolic' that hinges on its opposition to 'the pragmatic' or 'functional'. This issue arises in some of the most sophisticated approaches to the symbolic since Kant, including Ernst Cassirer's influential three volume work, *Philosophy of Symbolic Forms* (1957). Among other things, Cassirer's work aims to provide an alternative theory of knowledge (epistemology) to that of Kant. Several core theses are presented in the third volume, entitled, *Phenomenology of Knowledge* (*Erkenntnis*). Here, Cassirer argues that scientific (or theoretical) thought, which hinges on the conceptual functioning of conscious-

ness (*Bedeutungsfunktion*), arises from and is grounded in the expressive-representation function of consciousness (*Ausdrucksfunktion*). For Cassirer, these functions are the major means whereby experience is given form in the development of the mind. They constitute the relationships between subject and object, which motivate all of the particular forms that human culture has taken. Each function is a fundamental means whereby symbols give form to experience.

Despite the significant advantages of Cassirer's theses, it bears stressing that the questions they are intended to address are epistemic not ontic. His theses seek to go beyond both rationalist and empiricist answers to the question of how the mind functions in relation to the object world to produce knowledge. They do not address the question of how whatever it is that we refer to as the mind comes to have something before it in the first place. It takes as 'given' an ontic gap between the mind and the world, on premises that we can know *a priori* that no empirical inquiry can illuminate relations between these.

One of the most interesting attempts to address this question in early modern times is presented in Giambattista Vico's *New Science of the Common Nature of the Nations* ([1725, 1733, 1744] 1948). For Vico, the two main methodological postulates necessary to the realization of a science of humanity were that:

(a)"philosophy undertakes to examine philology" on the basis of the *verum et factum convertuntur* principle (NS/7, 331); and

(b)scientific "doctrines must take their beginnings from that of the matters which they treat" (NS/314).

In the former postulate, the condition of being able to know anything, to understand it, as opposed to merely perceiving it, is that the knower should have made it. Humans can achieve "certain knowledge" (i.e., maker's knowledge) of the human world, because human nature and history are products of human beings's own making. The later postulate is part of Vico's argument that while knowledge concerning the physical world must be limited to epistemology (human did not create it), a satisfactory science of humanity can and should offer an ontology of human ways of life and culture. Essential to this argument is Vico's ontology of what he termed "poetic wisdom," that is the earliest means whereby human beings metaphorically objectified relationships between (a) their perceptions of the world and (b) the causes they for the first time attributed to that world. Importantly, Vico does not treat the individual subject as the source of meaning and value. His approach concerns the creation (through poetic objectification) of what I refer to below as an ethical field in which others (humans as well as non-humans are experienced as sources of meaning and value.

Vico's paradigm-exemplar of "poetic wisdom" is the god Jove (the sky god) whose thunder and lightning crystallized in minds not yet human the idea that the sky is a giant body animated with forms of intentionality, which the *primi uomini* did not know that yet they themselves possessed. Vico refers to this wisdom as a "concrete image" generated by the primi uomini's *interpretations* of perceptions of their embodied and material realities. Poetic wisdom thus constitutes a field, which not only links the coming into being of human consciousness with that of the phenomenal world, but challenges the premiss that we can know *a priori* that no empirical inquiry can illuminate relations between these. It forms the conditions of possibility for the historicity of human agency and culture.

Notable too is the central role given to ethics by Vico's ontology. The "poetic mind" imposed order on the flux of particular experiential phenomena by imagining ethical relations of mutual susceptibility and accountability between them (for instance, NS/34, 209).

What follows is inspired by research into Vico's work, but centers for the heuristic purposes on ideas of contemporary archaeologists and philosophers. I will attempt to use these to argue for the relevance to challenges facing attempts to 'go beyond' dualist paradigms' of an ontology of the historicity of human agency and symbolic discursive fields.

A useful way to illustrate the range of issues involved is to take ones departure from two influential responses in archaeology to the meta-narratives critique, namely: (a) arguments against the notion of a human self, which is prior to its embodied and material preconditions, and (b) concerns to focus attention on discrepant experiences. I admire much of the epistemic work that has been motivated by objections to traditional notions of a timeless, placeless disembodied agent. But I worry that, if we come to close to reducing agency to embodied material preconditions, we are unlikely to be able to address issues posed by studies seeking to focus on discrepant experiences.

Fortunately the last decades have seen several pertinent developments in archaeology and philosophy. In archaeology, the works of John Barrett (1994, 2000) and Christopher Gosden (1994) provide good examples. Both authors reject essentialist perspectives on the conditions of archaeological knowledge (an archaeological 'record') and related a-historical notions of agency. Barrett's (200) approach centers on the terms "structuring conditions" and "structuring principles". The former are envisaged as the historically contingent embodied and materialised conditions of possibility for human agency. Structuring principles are defined as the means whereby human beings inhabit structural conditions: "they are expressed in the agents' abilities to work on those conditions in the reproduction and transformation of their own identities and conditions of existence" (Barrett 2000: 65).

Gosden's (1994) approach stresses the 'materiality' and 'mutuality' of human ways of life. In *Social Being and Time* (1994), Gosden writes that:

...the term 'materiality' refers to human relations with the world, 'mutuality' looks at human-interrelationships. Materiality and mutuality are linked here for the simple reason that they are inseparable. Full social relations can only be set up though making and using things; full relations with the world only come about through people working together (Gosden 1994: 82).

These approaches have important advantages for avoiding:

(a) the generalisations about human nature, history and the conditions of historical (archaeological) knowledge outlined in Part 1;

(b) conceptions of the past as a fixed reality 'hidden' somewhere behind its fossilised 'record';

(c) a dichotomy between mental states, locked into the minds of individual subjects, and a world of objects (including society) 'out there'.

Avoiding these problems may put in a position develop more satisfactory approaches to processes of perception and modes of objectification that occur in a wide range of historically contingent implicit and explicit scales and modes. A critical issue is that while there is no such thing as a timeless placeless 'self' that can be understood apart from its embodied and material preconditions, it would be a mistake to

reducing thought to practice (cf. Foucault 1980) or abandon notions of human selves and intentionality altogether.

Robert Brandom's work, *Making it Explicit. Reasoning, Representing and Discursive Commitment* (1994), is relevant to these issues. Brandom argues for replacing traditional dualist notions of *representation* by the open-ended concept, *expression*. The latter enables us to replace the opposition between (a) *internal* and *external* representations (on which treatments of history as either a product of *perceiving* things or as an *extended* thing hinge) with (b) a range of *implicit* and *explicit* socially situated processes of objectification, which carry the materiality and mutuality of human relationships forward over time. This enable us to pursue some of the promising implications of notions of 'social agency' *without abandoning concerns with intentionality and processes of individuation*, which are crucial for understanding how humans can have discrepant experiences and even interact (Arendt [1958] 1989). These issues have bearing upon questions of how 'structuring principles' articulate with 'structuring conditions' (Barrett 2000) and how 'materiality and mutuality' (Gosden 1994) are linked. They bring into relief the importance of ethics to an ontology of these linkages, which does not resort to teleological meta-narratives structured around dichotomies of mind - body, symbol - function, western - non wester, as well as between how concrete embodied human beings *are* and how rational 'mental states' *ought to be*.

Your and my experience informs us that human beings are mutually accountable and mutually susceptible social creatures (Barnes 2000). As Barry Barnes (2000) points out, our interaction is informed by our experience that human beings are creatures that act voluntarily. Focusing on ethics enables us to understand the ways in which human beings freely chose and freely act as mutually accountable and mutually susceptible creatures, and that they do so while affecting and being affected by each other as creatures of this kind. Our interaction as human agents is always situated in contingent ethical relationships (commitments), which make self-understanding possible. Our relationships to the world (ontic. epistemic, social, material, historical commitments) are created through our ethical relationships to one another as mutually susceptible, mutually accountable, (intentional) beings (Brandom 1994; Barnes 2000; McGuire and Tuchanska 2001). Such a view takes us beyond a-historical dichotomies of *agency* and *structure*, and suggests alternatives to images of agents that reduce human beings to "timeless, featureless, interchangeable and atomistic individuals, untethered to time or space" (Gero 2000: 38). It rejects the very dichotomies of *being* and of *acting*, of the *self* and the acting for *others* in history on which metaphysics hinges.

These observations would seem to have bearing upon the concerns that are motivating current discussions of the 'problem' of the symbolic, as well as wider questions mentioned as the onset concerning human agency and history. Expressed in summary form, within an ontology on the historicity of human agency and of the symbolic, which gives ethics central roles:

-human beings are not atomistic, interchangeable nodes through which social systems or cultural histories operate

-human life-world can be envisaged as a *prism* of diverse fields of experience, including ethical fields in which *others* human beings are apprehended as centers of meaning and value

-ethical fields cannot emerge without the (embodied and materialised) others - but they are prior to and constitutive of them.

The implications for the historical significance of human agency are considerable. Such a view suggests that:

-single discrepant experiences and single ethical acts can 'irradiate' other fields of human experience since they can take on a paradigmatic quality (as in the arts)

-they can render explicit experiences of discrepancies between how things are and ought to be *on the very scales on which human meanings and values are generated*

-insofar as they attest the existence of an ethical field, single ethical acts can transform life-worlds

It suggests that:

-it may be ethics (principles the structure human experiences of meanings and values) that contribute decisively to major historical thresholds, ruptures, and the emergence of new symbolic discourses or conditions of possibility for human agency.

In such a view the answer to the question mentioned at the onset - "If agency is important for understanding particular human activities, must it be included explanations of long-term socio-cultural change?" - is, of course, yes.

Summing Up and Issues for Discussion

One of the questions that runs through this paper is that of whether satisfactory approaches to the 'problem' can be designed on the basis of conceptions of 'the symbolic' that hinge on its opposition to 'the pragmatic' or 'functional'. The various examples mentioned would seem to suggest that it is unlikely that such dualist conceptions will offer much help in this regard. To use Descola and Pálssen's (1996: 12) terms, going beyond dualism means replacing categories of timeless placeless states and substances with approaches that concern historically contingent processes, relations, and conditions of possibility for human lifeways.

What I have tried to show is something of the relevance to the issues posed of an ontology of the historicity of human agency and the symbolic, in which ethics has central roles to play. Such a view implies an argument for change in the status of ethics in contemporary epistemology and ontology. Future discussion might centre on the potential bearing this argument has upon questions like: "What enables us to isolate the unities (epistemic entities) with which our research deals?" "How do we decide on levels of formalisation, scales of analysis and interpretation, and/or attribute causality to successive events?" "Is it possible to illuminate fundamental historical thresholds, ruptures, transformations, without resorting to teleological notions of progress or purpose?"

References in this paper to some of the ways in which these questions relate to one another may suggest some new directions in the discussion of "criteria of symbolicity" (Bouissac 2003).

V. GORDON CHILDE AMONG THE 'VULGAR COGNITIVISTS'

Michael Chazan
University of Toronto
August 22, 2003

IN THE 1980'S A NUMBER OF ARCHAEOLOGISTS began to advance a bold hypothesis linking the origin of human symbolic behavior with an event in cognitive evolution (Mellars 1989, Klein , Noble and Davidson 1996, Mithen 1996). In this discussion I would like to set aside the empirical evidence which either supports or contradicts this hypothesis and focus instead on the structure of the hypothesis and its implications from a historical perspective.

The first question is whether the hypothesis developed in the 1980's is novel. The idea that the capacity for language was an evolutionary event occurring late in the hominid lineage is found beginning in the mid-Nineteenth century (Chazan 1995). In the writing of authors including Gabriel de Mortillet and Marcelin Boule the capacity for language was associated with specific cranial features (de Mortillet 1869, Boule 1923). These discussions often took place within a racist context in which races were ranked in terms of degree of advancement on the basis of an anatomical feature such as the prominence of the chin. Human evolution for de Mortillet and Boule was a process of progress towards fully modern human cognitive capacity and in this they share some similarity to recent discussions of the origin of symbolic behavior. However, the similarities end here. The nineteenth century discussions are beholden to racist theory and phrenology in a manner that is absent from contemporary debate. Rather than beginning with anatomical traits, the recent debate looks at evidence for symbolic behavior. The only sense of continuity is found in ongoing attention to anatomical features related to speech (Lieberman 1984).

There is an additional distinction between Nineteenth century and contemporary debates which is, I believe, very significant. De Mortillet and Boule considered human cognitive evolution as a gradual process with many gradations along a scale. Contemporary theories are very different in that they identify the origin of symbolic behavior as a radical event in human evolution. For contemporary archaeologists humans crossed a symbolic rubicon as members of a single lineage. Clearly this is the antithesis of the racist theories of the 19th and early 20th century.

The emphasis of contemporary theories of the origins of symbolic behavior on a radical transformative event is critical in assessing the position of these theories in the history of archaeological thought. The emphasis on radical transformative events is characteristic of cultural evolution from Lewis Henry Morgan to V. Gordon Childe (Trigger 1998). These events are what Childe referred to as 'revolutions'. For cultural evolutionists, it is these revolutions that make up the structure of the history of humanity.

The novelty and power of the recent theories on symbolic origins is that they integrate biological evolution into a cultural evolutionary framework. Before the Urban Revolution and the Neolithic Revolution there was a Symbolic Revolution. The Symbolic Revolution was unique in that it is explained by the evolution of a novel cognitive capacity rather than a combination of social and technological forces.

It is fascinating that this synthesis of biological and cultural evolution took place at this particular point in time. The 1980's saw the blurring of the lines between biology and technology with rapid developments in applied genetics. Clearly in this context the idea of biology as an engine of change is relevant. It is also not surprising that archaeologists who experienced the explosion in the power of personal computers recognized the transformative potential of coginitive change.

There is little evidence that an integration of cognitive evolution and cultural evolution had any attraction for cultural evolutionists. Notably Childe explained the Middle to Upper Paleolithic transition on the basis of "their methods and equipment [having] undergone an almost revolutionary improvement (Childe 1942: 37)." For Childe, technology meant engines not genomes.

The novelty of the contemporary theories of symbolic origins is undeniable but there is strong reason to see these theories as an extension of theories of cultural evolution. As such the contemporary theories share some of the weaknesses characteristic of cultural evolutionary theory. The first of these is that both sets of theories place a strong emphasis on progressive trends in a manner which is inconsistent with biological evolutionary theory (Trigger 1998). Discussions of progress raise difficult issues including the relation of progress to teleology and ranking which I prefer to set aside here.

Rather than focusing on progress, I would like to emphasize the way both sets of theory conceive of causality. When a radical transformative event is identified there is a strong inclination to find a single underlying cause. In cultural evolution this has led to what is known as vulgar materialism. Trigger characterizes vulgar materialism as theories which "view human behaviour as shaped more or less exclusively by non-human constraints" (Trigger 1989: 292). Such constraints have included technology, ecology, and economy.

The insistence that the transformation of material culture and human adaptation was the result of a change in neuroanatomy fits within such a framework. To the extent that what we have today is a theory based on 'vulgar mentalism' it might be productive to look at works which question vulgar materialism to see whether they have relevance.

The riches source of thought on the causes of revolutionary change in human societies remains the work of Childe. In his writing Childe developed Marxist ideas on the dialectic between technology and society. In 1956, the year before his death by suicide, Childe wrote a remarkable book which bears directly on symbolic behavior. *Society and Knowledge* was written for the series "World Perspec-

tives" which included books by Walter Gropius and Konrad Adenauer and whose editorial board included Niels Bohr and J. Robert Oppenheimer. Not a usual place to find archaeology! The goal of the series was "to help quicken the 'unshaken heart of well-rounded truth' and interpret the significant elements of the World Age now taking shape out of the core of that undimmed continuity of the creative process which restores man to mankind while deepening and enhancing his communion with the universe" (Anshen 1956: 17).

Childe's ultimate aim in this book was to develop a theory of epistemology based on a knowledge of human evolution and prehistory. While very much within a Marxist framework some of his ideas anticipate the pragmatism of Richard Rorty and more recently the moral philosophy of Daniel Dennett (Denett 2003). Childe does not directly address the origin of symbolic behavior but rather the nature of symbolic behavior. It is this discussion which I find of relevance to the theories I have labeled "vulgar mentalist".

Childe begins his discussion with a simple story. He contrasts the experience of two people attempting to find their way to a friend's house in the London suburbs for dinner. Both 'know' the way to their friend's house but the way they know this is very different. The first visitor has been there before and is able to use a series of visual cues to remind himself of the correct route. The second visitor has not been there before and therefore uses a map to guide his path. For Childe only the second visitor can be said to have based his actions on knowledge. The first visitor worked entirely on the basis of remembered private experience. The second visitor was guided by other people's experience and can was thus social. For Childe 'knowledge' is first and foremost social or public.

This story raises three questions for Childe (1956: 17):
1. How did London ever get "into the head" of the map maker?
2. How did the map maker get this knowledge from "his head into yours"?
3. What does it mean to say that a two dimensional map *corresponds* to a three-dimensional city?

Childe first tackles the third question He emphasizes that correspondence refers to the recognition of patterns rather than formal qualities. Thus triangles of differing size can still be recognized as corresponding. The pattern "consists *in the relations between …parts or elements*" (Childe 1956: 25). An important feature of correspondence is abstraction which involves omitting information deemed to be superfluous. Here again the nature of what is abstracted is due to social factors of what is thought of as functional rather than something inherent in the material world or the human mind. Childe does recognize that in addition to a pattern of roads his map also includes symbols. In his discussion of symbols it is notable that he does not emphasize the arbitrary nature of symbols but rather that they are based on convention and thus also social. He writes that "Map makers have agreed among themselves to use these marks to stand for stations, churches, bus routes. In buying the map you tacitly became a party to the agreement and assented to the convention" (Childe 1956: 31). He also emphasizes that symbols only have meaning in a context and that as such they are not independent of patterns.

This discussion leads easily into an answer to the second question: How did the information in the map "get in your head". It is a member of a society that you understand the referents of symbols. For Childe symbols serve to objectify elements of the world, however the agent of this act is not the individual but society. He writes that "Naming objectifies the named in the sense that society believes in its existence and acts as if it existed. In this lies the crative power of names: *in the beginning*

was the word. Words to create what they mean, but only for the society that uses them" (Childe 1956: 39). The word emanates not from god or the mind but from society. However, even members of a society are able to understand symbols, words, and characters only in context as elements in a pattern.

Taking this idea further Childe argues that there are "no ideas apart from the symbols expressing or embodying them" (Childe 1956: 39). Thus, because symbols acquire their meaning by social convention the same must be true for meaning and ideas. To give a sense of the complexity of this idea Childe considers the Indus Valley script from the Harrapan civilization. He asserts that "the characters of the Indus script…have no meanings, because no one can decipher them. We believe they had meanings once—to the nameless Indus people who invested them with conventional meanings and used them for communicating ideas. But that society has perished, and the tradition which maintained their conventions has been broken. The idea, expressed by a symbol, exists only in the heads of those privy to the convention that made the symbol a symbol" (Childe 1956: 46-47). Although he does not address consciousness directly the implication of Childe's argument is that consciousness is a characteristic of people living in society.

Finally, Childe turns to his first question of how London got into the head of the map maker. His answer to this question is to begin with the social aspect of the construction of knowledge. In this regard the map serves as a useful metaphor in that it was produced not by one person working in isolation but through cooperation between different specialists and on the basis of pre-existing maps. Thus again the social nature of the construction of knowledge is emphasized. However, the social aspect of knowledge for Childe is mediated by the reality of the material world. For Childe knowledge is a socially constructed tool for adapting to the world. By pooling their perceptions of the patterns of the external world, societies form ideas. The danger for Childe is that because not all of the patterns that make up the reality of the external world are accessible to human perception societies use imagination to fill in gaps in the pattern. He writes that "to act successfully on the external world men have to anticipate the pattern in imagination. In so far as mankind has survived and multiplied, men must be able to do precisely this. Their many failures show that they do not always anticipate correctly" (Childe 1956: 68). Trigger has connected this aspect of Childe's thought with the Marxist concept of false consciousness (Trigger 1989: 262).

Childe views the symbol as a tool at the nexus between the individual, society, and the external world. Humans have this tool because "man is the only animal that can communicate knowledge acquired by experience to other members of the species" (Childe 1956:7). *Society and Knowledge* is a creative and original work which unfortunately had little impact because of Childe's death. It is ironic and tragic that Childe justified his suicide by claiming he had nothing left to offer the archaeological community. Applying Childe's conception of the symbol raises three significant issues relevant to contemporary discussions of the origin of symbolic behavior.

1. Childe's conception of symbols as social tools calls into question the stark distinction between 'symbolic behavior' and tool manufacture. Early in his book Childe writes that "any tool, however, simple, even the stone knife of mammoth-hunters in the Ice Age, is an expression of knowledge—knowledge of the most suitable stone, of the properties of that stone, of how to strike it to produce a usable flake and of how to use the flake produced. But once more of public knowledge, for the knife is a type. Unless it were the first of its kind ever made, the maker did not have to find out for himself the proper shape, still less how and from what to make it. The society into which he was born through

the words and example of his elders taught him what stone to select, how to make a knife from it and ho to use it when made. All the requisite information was stored up in a social tradition of public knowledge" (Childe 1956: 4). Recent research on stone tool technology strongly supports this characterization (Chazan 1997).

2. Contemporary discussions of the origins of symbolic behavior stress symbols as the expression of the human mind. Childe's ideas offer an important balance in stressing the social and material aspects of symbols. The idea of abstraction seems particularly well suited to discussions of Upper Paleolithic material culture.

3. Lacking from Childe's discussion is any discussion of human cognition. The question left is whether it is possible to integrate a social conception of symbolic behavior with the insights archaeologists have begun to bring from cognitive science. As I have discussed elsewhere (Chazan nd) I believe that such a link can be found in the writing of cognitive scientists including Clark, Deacon, and Hutchins. The value of creating such an integration is that it allows cognitive archaeology beyond a focus on a single point of origin for 'modern human behavior' to a broader attempt to include cognition along with social organization and technology as a major factor in the long term diversification and development of human societies.

While preparing this paper I came across a magazine article which once again announced that when we arrive at the Upper Paleolithic "they are us". While this is a laudable sentiment in that it promotes an appreciation of the unity of humanity it also has the effect of crushing any appreciation of human diversity. 'They' were not 'us' any more than Neanderthals were us. Both Neanderthals and Aurginacians lived in social worlds, in a world of meanings that are lost and which as prehistorians we work to recover. They are only us to the extent that humans are defined by their biology and we deny any reality to the social construction of knowledge. I am certain that if Childe were able to read the work of the 'vulgar cognitivists' he would provide an important critique of the emphasis on cognition as the engine of change. I think he would also realize the importance of integrating cognitive science with prehistory.

REFERENCES

— Anshen, R.
1956   World perspective. Introduction to *Society and Knowledge* by V.G. Childe. New York: Harper.
— Boule, M.
1923   Les Hommes Fossiles. Paris: Masson.
— Childe, V.G.
1942   *What Happened In History*. Hammondsworth: Penguin
1956   Society and Knowledge. New York: Harper.
— Chazan, M.
1995   The meaning of *Homo sapiens*. In *Ape, Man, Apeman: Changing Views Since 1600*, edited by R. Corbey and B. Theunissen. Leiden: Department of Prehistory, pp. 229-240.
1997   Redefining Levallois. *Journal of Human Evolution* 33: 719-735.
nd   Paleolithic technology and the role of culture in human evolution. In press in *Culture and Meanings Among Apes, Ancient Humans and Modern Humans*, edited by F. Joulien.
— Dennett, D.
2003 *Freedom Evolves*. New York: Viking.
— Klein, R. G.

1995   Anatomy, behaviour, and modern human origins. *Journal of World Prehistory* 9: 167–198.
— Lieberman, P.
1984 *The Biology and Evolution of Language*. Cambridge: Harvard University Press.
— Mellars, P.
1989   Major issues in the emergence of modern humans. *Current Anthropology* 30: 349- 385.
— Mithen, S.
1996   *The Prehistory of the Mind : a search for the origins of art, religion and science*. Thames and Hudson, London.
— De Mortillet, G.
1869   Notice sur l'origine du langage. *Congrès International d'Anthropologie et de Archéologie* 4: 285-286.
— Noble, W. and I. Davidson
1996   Human Evolution, Language, and Mind: A Psychological and Archaeological Inquiry. Cambridge University Press, Cambridge.
— Trigger, B.
1989   *A History of Archaeological Thought*. Cambridge: Cambridge University Press.
1998   *Sociocultural Evolution*. Oxford: Blackwell.