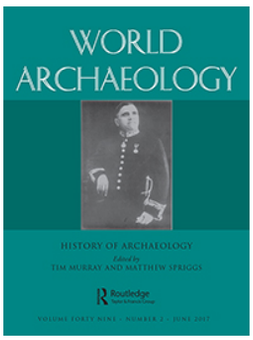

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Bridging the gap in archaeological theory: an alternative account of scientific 'progress' in archaeology

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ABSTRACT

In recent years, a number of authors have commented on the current diversification of archaeological theory into different paradigms defined by diverse epistemologies and methods. One of the main consequences of this process has been the closure of the theoretical debate in archaeology, i.e. the fragmentation of archaeological theory into separate non-communicating paradigms. In this setting, several archaeologists have argued that there is a need for new theoretical discussions that promote dialogue among archaeologists belonging to different schools of thought. I suggest that a reflection on scientific progress, if executed properly, can fulfil this goal. In particular, I examine the conception establishing that science progresses by discarding incorrect prejudices and assumptions rather than by accumulating new facts and evidence. I argue that this view may be of particular relevance for different groups of archaeologists because it is compatible with the main philosophies that have oriented archaeological research since the 1980s. I illustrate this point with a number of examples drawn from the history of archaeology.

KEYWORDS

History of science; history of archaeology; scientific progress; archaeological theory

1. Introduction: archaeological theory today

In recent years, a number of authors have commented on a contemporary divide in archaeological theory (e.g. Cochrane and Gardner 2011; Hodder 2001; Kristiansen 2004; Murray 2013). These scholars have argued that since the 1980s, archaeologists have become increasingly separated into different communities that support dissimilar, if not opposed, discourses on the nature, the methods, and the scope of archaeology (see also Johnson 2006). At that time, processual and postprocessual archaeologists defined two ways of understanding archaeological research. Processual archaeologists on the one hand adopted a positivist philosophy of knowledge and suggested archaeology's main objective is to produce an interpretation of the past that is as 'objective' as possible. Postprocessual archaeologists on the other hand supported a relativistic philosophy of knowledge and argued that archaeology was not a value-free science but a social discipline influenced by a number of non-epistemological factors.

The processual/postprocessual debate transformed English-speaking archaeology in many ways. In particular, since the 1990s, the controversy has separated archaeologists into disparate communities defined by diverse epistemologies, methods, and interests. While there is a considerable variety of 'schools' in archaeology, it seems to me that, for the sake of brevity, two main

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groups can be distinguished on the basis of the philosophy of knowledge they support. In the first group, the sometimes-called 'evolutionary archaeologists' (Kristiansen 2004; Shennan 2011) are persuaded that, in order to attain scientific legitimacy, archaeology should be modeled on the concepts, values, and practices of the so-called 'hard sciences'. Papers published in journals such as the *Journal of Human Evolution* and the *Journal of Archaeological Science* reflect this approach. In the second group, the so-called 'interpretive archaeologists' (Johnson [1999] 2010, 102) seem to believe that archaeology, like history and anthropology, is an integral part of humanities and, therefore, archaeologists should look for their models in the social sciences. Research published in the *Journal of Social Archaeology* and *Archaeological Dialogues* is illustrative of this approach. Three decades after the beginnings of the processual/postprocessual debate, archaeologists working within these two camps have achieved a sort of peaceful coexistence based on both mutual recognition and reciprocal indifference.

The divide in archaeological theory has generated a number of effects and consequences in archaeological research. Among the positive ones, archaeology is today a much more diverse science than it was 30 years ago. In fact, during most of the twentieth century, the discipline was oriented by a positivist epistemology that strictly defined good (and bad) archaeological practices. While positivism is still the dominant paradigm in archaeology (Murray 2013, 25), beginning in the 1990s, relativism emerged as an alternative paradigm in the field of social and human sciences. A number of innovative views and perspectives resulted and have been fully incorporated into archaeological research. For instance, the perspectives of traditionally excluded groups (such as aboriginal people) have been more readily assimilated into archaeological research. Archaeology as a field has thus greatly benefited from the emergence of an alternative approach to the until-then unquestioned positivist epistemology.

Theoretical diversification, however, has also come with a price. In fact, the abovementioned communities have consolidated 'two separate non-communicating discourses' (Hodder 2001, 11). In this setting, 'theoretical dialogue has been replaced by theoretical closure' (Kristiansen 2004, 77; see also Bintliff and Pearce 2011; Kristiansen, Šmejda, and Turek 2015). This theoretical closure should not, however, be equated to an impoverishment of archaeological theory. As a matter of fact, during the last 20 years we have witnessed passionate controversies on both sides of the archaeological spectrum. This rigour has not translated into better communication as archaeologists belonging to different camps continue to ignore one another. This absence of communication generates a number of problems. First, there is 'the risk of separating archaeological research into mutually incompatible traditions' (Kristiansen 2004, 77; see also Bintliff and Pearce 2011). In other words, if archaeologists continue to be polarized into two irreconcilable approaches, any unity in the field may fracture. Second, because of the current theoretical divide, archaeologists tend to interact with those who share their views rather than with those who might challenge it. This theoretical isolation promotes the consolidation of stereotypes about the work of those who support a paradigm different to one's own, and further hinders potentially beneficial communication.

In this paper, I suggest that an extensive discussion on the nature of scientific progress may be an efficient way to promote dialogue in archaeological theory. This notion is particularly important in the history of archaeological theory because debates on progress (and other related questions, such as scientific objectivity and truth) were at the heart of the dispute that resulted in the split of archaeological theory into two irreconcilable paradigms. On the one hand, 'positivist' or 'evolutionary' archaeologists assumed that archaeologists faithfully describe scientific facts and, therefore, that they make factual progress in the knowledge of the past. On the other hand, 'relativist' or

'interpretive' archaeologists suggested that particular perspectives and personal biases influence archaeological theories and, therefore, there is no 'real' progress in archaeological science. These incompatible positions led archaeological theory to an impasse. I suggest in this paper that this stalemate is somewhat related to the fact that archaeologists have only explored one conceptualization of scientific progress: the positivist one. In other words, despite their differences, positivists and relativists have taken for granted the conception according to which scientific progress refers to the increasing accumulation of knowledge. However, since the 1950s, a number of authors have elaborated a number of alternative views on scientific progress. In particular, some philosophers and historians of science have proposed that science progresses by its self-criticism – that is, by calling into question long-established beliefs and theories. For instance, Tim Murray has suggested that the main role of a critical historiography of archaeology is to promote 'critical self-reflection about the "taken-for-granted" of archaeological approaches and practices' (Murray 2013, 29). I suggest that this conception may help to bridge the current gap in archaeological theory because it offers an alternative account of scientific progress that, without fully reaffirming the prevalent views on scientific development (i.e. the positivist belief in the cumulative nature of science and the relativist refusal of any kind of progress), it is at least compatible with the main axioms and ideas about the nature of archaeological research that are at the core of these paradigms. In this setting, I illustrate how this concept of progress may be acceptable for both positivist and relativist archaeologists, with a number of examples taken from the history of archaeology. Finally, I conclude by suggesting the importance of a critical historiography of the discipline in order to revitalize the debate on archaeological theory.

2. The concept of scientific progress: dominant and alternative views

During most of the twentieth century, philosophers and historians of science subscribed to the 'development-by-accumulation' model. This model suggested that science progressed by the continuous accumulation of facts, theories, and methods resulting from the activities of scientists. During the 1960s and the 1970s, however, a number of authors called this narrative into question. Firstly, some historians proposed an alternative account for scientific development according to which science does not grow by adding new facts to old ones (Hanson 1958; Laudan 1977; Popper 1963). Rather, scientific development undergoes periods of change during which old scientific theories and practices are replaced by new ones (Kuhn 1962). Secondly, some philosophers suggested that a number of alternative explanations are possible for any given body of data and, therefore, science does not serve the advancement of truth (Feyerabend 1962). Debates in the field of the history of science paralleled similar controversies in archaeology. With the emergence of postmodernism in the 1980s, archaeologists were divided into those who believed in the progress of archaeological science and those who assumed that archaeological knowledge does not develop in a linear fashion because it is conditioned by a number of subjective and contextual factors. Thirty years after the processual/postprocessual debate, these two positions concerning scientific advancement remain firmly rooted in archaeological research.

While these conceptions appear to be opposed, they are indeed two sides of the same coin. Archaeologists have long discussed progress in terms of the 'development-by-accumulation' model. Put differently, despite extensive discussion regarding whether knowledge may (or may not) be accumulated, whether scientific development is (or is not) progressive, and whether the history of archaeology can (or cannot) be described as a long journey towards the discovery of the past, archaeologists have never seriously considered an alternative account of scientific

development. In other words, even if archaeologists have passionately discussed whether their work contributes to the growth of the archaeological edifice, they have rarely debated about the nature of progress. The hegemony of the cumulative model has thus impoverished theoretical debate. For this reason, I suggest there is a need to develop a much broader (and more explicit) discussion on what constitutes scientific progress in archaeology, one that may lead us to new perspectives on scientific development.

The dominance of the 'development-by-accumulation' model is not exclusive to archaeology; it is a recurrent trait in the history and philosophy of science, especially in the English-speaking world. Indeed, under the influence of positivism (in its different forms), philosophers and historians of science have traditionally discussed progress in terms of the acquisition and systematization of positive knowledge. Even authors who sought to dismantle this view (such as Kuhn or Popper) remained somewhat trapped in this normative interpretation. However, a number of twentieth-century philosophers, historians, and social scientists have conceptualized scientific advancement in a different manner. These authors (Continental philosophers in most cases) propose that science does not progress only by amassing new facts, but that it mainly advances by discarding false knowledge. In this view, scientific progress is not assimilated to the addition of new truths to the stock of old ones but, rather, to the process though which we unmask the misconceptions, prejudices, and myths that, during a period of time, guided and oriented scientific research. While we can trace the origins of this view back to Karl Marx and Friedrich Nietzsche, the French philosopher Gaston Bachelard was the first to systematically elaborate this conception of scientific development. In *La formation de l'esprit scientifique*, Bachelard suggests that the problem of scientific knowledge must be posed in terms of *epistemological obstacles*, i.e. in terms of those ideas that were once taken for granted in scientific research, but that have ultimately been revealed as false. According to Bachelard,

reflecting on a past of errors, the truth is found in a real intellectual repentance. Indeed, we know in contrast to previous knowledge, when we destroy knowledge that was badly made and surmount all those obstacles to spiritualization that lie in the mind itself. (Bachelard [1938] 2004, 15–16)

Bachelard's concept of an 'epistemological obstacle' highly influenced the work of a number of twentieth-century French philosophers, including George Canguilhem and Michel Foucault.

The idea that we 'know against previous knowledge' is also at the heart of Hans G. Gadamer's philosophy. Gadamer was a key figure in the development of philosophical hermeneutics, a theory also developed by philosophers such as Martin Heidegger and Paul Ricœur. Gadamer presented his theory in *Wahrheit und Methode* (Gadamer [1960] 2006). The concept of 'prejudice' is at the core of Gadamer's philosophy (Moro Abadía 2011). For Gadamer, interpretation is always conditioned by what he called 'the fore-structure of understanding' (Gadamer [1960] 2006, 268). According to him,

a person who is trying to understand a text is always projecting. One projects a meaning for the text as a whole as soon as some initial meaning begins to emerge from the text. The initial meaning emerges only because one is reading the text with particular expectations in regard to a certain meaning. (269)

In other words, for Gadamer, all understanding inevitably involves a number of prejudices, whether we are conscious of them or not (272). For instance, historical and scientific explanations are prejudiced by the tradition in which they occur and the language in which they are formulated. However, in Gadamer's view, the concept of prejudice does not have a negative connotation. Rather, prejudice is more neutrally 'a judgment that is rendered before all the elements that

determine a situation have been finally examined' (273). If 'prejudice' can have either a positive or a negative value, we need therefore 'to distinguish between the *true* prejudices, by which we *understand*, from the *false* ones, by which we *misunderstand*' (Gadamer [1960] 2006, 298). In order to 'grant the text the opportunity to manifest its own truth' (Gadamer [1963] 1979, 152), Gadamer suggests that, *first and foremost*, readers should identify those 'false prejudices' that distort interpretation. In sum, genuine understanding starts with the knowledge of the interpreter's own prejudices. For this reason, Gadamer stresses the need for self-understanding: 'The important thing is to be aware of one's own bias' (Gadamer [1960] 2006, 271).

While there are other authors that could be included in this tradition (such as those Marxist philosophers working on the notion of 'ideology'), Gadamer and Bachelard are pivotal figures in the alternative way of thinking about knowledge and progress that I seek to sketch in the next section of this paper. This tradition, and its emphasis on the critical dimension of knowledge, may be relevant to elaborate an alternative conception of scientific progress in archaeology.

3. Thinking about progress in the history of archaeology

This section draws on examples from the history of archaeology to illustrate how the above-mentioned view of scientific progress may be of interest for archaeologists of very different backgrounds. To do so, I focus on the history of Paleolithic art, my own field of research. In the first place, I analyse some instances that show how certain prejudices have historically distorted our interpretation of prehistoric art. These cases may be particularly interesting for archaeologists adopting sociological perspectives. In the second place, I examine technical developments that have contributed to the questioning of long-established ideas about Paleolithic art. These examples aim to be pertinent for scholars adopting a scientific approach to archaeology.

3.1. *Historical and social prejudices in the interpretation of Paleolithic rock art*

Paleolithic rock art was authenticated at the turn of the twentieth century, when archaeologists recognized the prehistoric antiquity of the paintings decorating the walls of a number of caves in Northern Spain and Southwest France. Since then, a number of interpretations have been proposed about the making, the value, and the meaning of these images. From the vantage point of the present, we can recognize a number of preconceptions that have historically oriented these interpretations. For instance, gender prejudices played an important role in the (mis)understanding of Paleolithic art. In 1997, Margaret Conkey published a study on the ways in which Paleolithic artists were represented in archaeological literature. From Breuil's illustrations in *Beyond the Bounds of the History* (1949) to images in more recent children's books on prehistory (Monnier 1992), prehistoric painters in these publications are invariably male artists represented as though they were modern artists (with easels, palettes, and paintbrushes). These images have promoted a view of prehistoric art from which women are either excluded or in which they perform 'minor' or secondary tasks, such as grinding pigments or holding a lamp for the adult male painter (Conkey 1997, 177). Gender prejudices have not only influenced modern representations of Paleolithic artists but have also guided how archaeologists have interpreted the archaeological record. For instance, archaeologists often use the term 'Venus' to refer to a number of statuettes and figurines discovered across Europe and Asia. In addition to how this label obviously reduces hundreds of different images into one single category, this concept has contributed to the promotion of a narrow and highly sexualized view of prehistoric women. In particular, a number of favoured

morphological features of these 'Venuses', such as exaggerated breasts and buttocks, have been interpreted as the evidence of the supposed leading role of motherhood and fecundity in the lives of prehistoric women. Needless to say, this interpretation has contributed to the reinforcement of conservative ideologies on the role of women in contemporary societies.

Modern ideas about art have also oriented archaeological research on Paleolithic images. In particular, the 'modern system of arts' has influenced Western European understandings of Paleolithic images in different ways. This system originated in the eighteenth century when the traditional concept of 'art' split into the categories of 'the fine arts' – poetry, painting, sculpture, architecture, and music – and 'crafts' or 'popular arts' – including jewelry, pottery, and embroidery. During the nineteenth century, the modern system of arts engendered divergent conceptualizations of 'artists' and 'artisans'. If artists were praised for their imagination and inventiveness in the creation of original artwork, artisans were denigrated for it was said that their work depended on the mechanical and repetitive reproduction of models. As we have argued, the 'modern system of arts' was somewhat projected onto the modern understanding of prehistoric art (Moro Abadía and González Morales 2012, 2013). In particular, the modern distinction between 'arts' and 'crafts' influenced the parietal/portable division that became the most popular way of classifying Paleolithic images in the first decade of the twentieth century. In fact, there are important analogies between the Western conceptualizations of (a) fine arts and rock art, and (b) crafts and mobiliary art. For instance, if the paintings and sculptures exhibited in art museums were considered of the highest value in the hierarchy of the arts of the nineteenth century, the lively and realistic images on the walls of the prehistoric caves were situated at the top of the prehistoric artistic scale. Similarly, if members of the academy denigrated crafts and decorative arts, archaeologists overlooked the importance of thousands of prehistoric portable pieces. Significantly, this double standard in the conceptualization of Paleolithic images remained unchallenged for almost a century.

The questioning of gender prejudices and modern ideas about the nature and value of art in the last 30 years have opened new avenues of research in the study of Paleolithic representations. Since the 1980s, a number of archaeologists have criticized the hegemony of rock images in archaeological interpretations of prehistoric imagery (Conkey 2010; Moro Abadía and González Morales 2013; Nowell 2006; White 2003). In this setting, a great deal of research has insisted that the traditionally underestimated portable art might be technically and conceptually as complex as any rock painting. These findings have assured that rock and portable images are equally important within Paleolithic systems of representation. As this example demonstrates, the reexamination of long-established assumptions may contribute to new forays in archaeological research.

3.2. *Technical advances and scientific development*

In history of science, 'prejudices' are typically associated with non-epistemological assumptions that have their origins in the sociological nature of science. For instance, when archaeologists examine the biases that have influenced the interpretation of the past, they often refer to a number of examples – namely the Myth of the Moundbuilders and Gustaff Kossina's interpretations of the German past – in which sociological and historical factors impregnated research agendas. There are, however, a number of prejudices that, like Bachelard's obstacles, are related to epistemological, non-contextual factors. For instance, in the case of Paleolithic art, twentieth-century archaeologists took for granted the idea that rock images evolved from simple forms to highly realistic representations throughout

the Paleolithic. This notion was partly the product of a number of epistemological conditions, including the scope of the archaeological record and the methods available to archaeologists for dating prehistoric art during most part of the twentieth century. In fact, until the 1980s, archaeologists only had at their disposal a handful of relative dating methods for estimating the age of prehistoric paintings and engravings. Using those methods, Henri Breuil was the first to establish a chronological framework for Paleolithic art. To be brief, he suggested the existence of two artistic cycles: the 'Aurignaco–Perigordian' (c. 35,000–20,000 BC) and the 'Solutreo–Magdalenian' (20,000–10,000 BC). Some years later, André Leroi-Gourhan reexamined the evidence undergirding Breuil's findings and suggested that Paleolithic art had 'progressed over 20,000 years on a trajectory leading from the elementary synthetic figurative towards a more and more precise analysis of forms' (Leroi-Gourhan [1981] 1982, 17–18). This idea oriented Paleolithic art research until the 1980s when accelerator mass spectrometer radiocarbon dating (AMS) was first applied to the dating of prehistoric art. Although the first AMS dates did not essentially contradict Leroi-Gourhan's chronology, the discovery of the Chauvet cave provoked a revolution in the field. Discovered in 1994, the cave contains a number of black paintings that, based on stylistic criteria, were initially assigned to the Mousterian (17,000–21,000 years ago). However, the dating of two rhinoceros (32410 ± 720 BP – GifA 95,132 and 30940 ± 610 BP – GifA 95126) and a bison (30340 ± 570 – GifA 95128) suggested a much older chronology (Clottes 1996; Cuzange et al. 2007). Twenty years after the discovery of the cave, the numerous AMS radiocarbon dates published from Chauvet cave seem to indicate that Paleolithic arts were able to create very realistic images since the very beginnings of the Upper Paleolithic.

The case of the Chauvet cave illustrates how a technical advancement (AMS radiocarbon date) can contribute to archaeological knowledge by calling into question assumptions and prejudices that have oriented the history of research. In fact, if the Chauvet cave provoked a veritable shock among rock art specialists, this was related to the fact that the dating of the cave questioned a normative preconception that was so entrenched in the field of rock art research that it was not even perceived as such by its practitioners.

4. Some concluding thoughts

In this paper, I examined two different conceptualizations of scientific progress. To begin, I analysed the *positivist* view that has largely dominated the English-speaking philosophy of science and which posits that scientific advancement is marked by the accumulation of facts. This view reflects the standard conception of scientific progress in England and the United States until the 1960s. However, at that time, a number of philosophers and historians suggested that science does not progress by accretion but, rather, advances through a number of ruptures and revolutions. Critiques of the 'development-by-accumulation' model set the stage for new perspectives on scientific development. In this setting, I examined a *critical* view of progress that is largely based on the work of Continental philosophers and social scientists. According to this view, science progresses by criticism – that is, by discarding incorrect prejudices and assumptions. In other words, scientists do not move towards a definitive truth, but they move away from error. This view echoes Karl Popper's idea that 'it is not the accumulation of observations which I have in mind when I speak of the growth of scientific knowledge, but the repeated overthrow of scientific theories and their replacement by better or more satisfactory ones' (Popper 1963, 292).

This alternative conception of scientific development is relevant for the history of archaeology because it is compatible with the two main philosophies that have oriented archaeological research during the last century: positivism and relativism. On the one hand, this conception

does not contradict the positivist claim that archaeology promotes a deeper knowledge about the past throughout time. On the other hand, this view does not refute the relativist claim that archaeologists cannot achieve an 'objective' understanding of human behaviour because they cannot disentangle themselves from their prejudices and interest. In other words, this conception is adequate for discussing scientific development in terms that are acceptable for most archaeologists. This is particularly important since the concept of progress has been one of the most divisive ideas in archaeological theory since the 1970s. Namely, as we have seen in this article, the positivist concept of progress was at the heart of the processual/postprocessual debate that divided archaeological theory into two irreconcilable paradigms. In this setting, the alternative conception of progress that I have sketched in this paper can contribute to overcoming the current theoretical divide by promoting a constructive debate on archaeological development among archaeologists from very different backgrounds.

There are a number of issues that need to be attended to to elaborate a more complex and adequate conceptualization of scientific development. In particular, archaeologists need to evaluate the relationships between the two conceptions of progress that I have examined in this paper in order to better understand the multiple dimensions involved in scientific development. As a matter of fact, advances in archaeological knowledge are usually related to a combination of factors, including new discoveries, technical developments, and a good dose of criticism related to the current state of knowledge. For instance, the discovery of new evidence on the origins of modern human behaviour in Africa, such as the engraved ochre from Blombos Cave in South Africa, was the result of (a) the calling into question of the Eurocentric bias in Western archaeology (which took for granted that modern human behaviour originated in Europe), and (b) the development of new techniques and methods of analysis and excavation. As this instance illustrates, there is no single unified theoretical framework from which we can explore archaeological development but, rather, there are a number of different perspectives on scientific development that can help us to consider how archaeology evolves throughout time. The development of such a plural approach (an approach that can only be elaborated in the context of a disciplinary dialogue between archaeologists belonging to different schools of thought) can contribute to bridge the gap in archaeology theory.

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References

Bachelard, G. [1938] 2004. *La formation de l'esprit scientifique. Contribution à une psychanalyse de la connaissance*. Paris: Vrin.

Bintliff, J. L., and M. Pearce, eds. 2011. *The Death of Archaeological Theory?* Oxford: Oxbow.

Breuil, H. 1949. *Beyond the Bounds of History*. London: P. R. Gawthorn.

Clottes, J. 1996. "Thematic Changes in Upper Palaeolithic Art: A View from the Grotte Chauvet." *Antiquity* 70: 276–288. doi:10.1017/S0003598X00083277.

Cochrane, E. E., and A. Gardner, eds. 2011. *Evolutionary and Interpretive Archaeologies. A Dialogue*. California: Walnut Creek.

Conkey, M. W. 1997. "Mobilizing Ideologies. Paleolithic "Art", Gender Trouble and Thinking about Alternatives." In *Woman in Human Evolution*, edited by L. D. Hager, 173–207. London: Routledge.

Conkey, M. W. 2010. "Images without Words: The Construction of Prehistoric Imaginaries for Definitions of 'Us'." *Journal of Visual Culture* 9 (3): 272–283. doi:10.1177/1470412910380341.

Cuzange, M. T., E. Delqué-Količ, T. Goslar, P. M. Grootes, T. Higham, E. Kaltnecker, M. J. Nadeau, et al. 2007. "Radiocarbon Intercomparison Program for Chauvet Cave." *Radiocarbon* 49: 339–347. doi:10.1017/S0033822200042272.

Feyerabend, P. 1962. "Explanation, Reduction, and Empiricism." In *Minnesota Studies in the Philosophy of Science*, edited by H. Feigl and G. Maxwell, 28–97. Minneapolis: University of Minnesota Press.

Gadamer, H. G. [1960] 2006. *Truth and Method*. New York: Continuum.

Gadamer, H. G. [1963] 1979. "The Problem of Historical Consciousness." In *Interpretive Social Science: A Reader*, edited by P. Rabinow and W. M. Sullivan, 103–160. Berkeley: University of California Press.

Hanson, N. R. 1958. *Patterns of Discovery*. Cambridge: Cambridge University Press.

Hodder, I. 2001. *Archaeological Theory Today*. Cambridge: Polity Press.

Johnson, M. 2006. "On the Nature of Theoretical Archaeology and Archaeological Theory." *Archaeological Dialogues* 13 (2): 117–132. doi:10.1017/S138020380621208X.

Johnson, M. [1999] 2010. *Archaeological Theory. An Introduction*. London: Wiley-Blackwell.

Kristiansen, K. 2004. "Genes versus Agents. A Discussion of the Widening Theoretical Gap in Archaeology." *Archaeological Dialogues* 11 (2): 77–99. doi:10.1017/S1380203805211509.

Kristiansen, K., L. Šmejda, and J. Turek, eds. 2015. *Paradigm Found. Archaeological Theory: Present, past and Future. Essays in Honour of Evžen Neustupný*. Oxford: Oxbow.

Kuhn, T. S. 1962. *The Structure of Scientific Revolutions*. Chicago: Chicago University Press.

Laudan, L. 1977. *Progress and Its Problems: Toward a Theory of Scientific Growth*. London: Routledge.

Leroi-Gourhan, A. [1981] 1982. *The Dawn of European Art. An Introduction to Palaeolithic Cave Painting*. Cambridge: Cambridge University Press.

Monnier, J. L. 1992. *Les hommes de la préhistoire*. Rennes: Éditions Ouest-France.

Moro Abadía, O. 2011. "Hermeneutical Contributions to the History of Science: Gadamer on 'Presentism'." *Studies in History and Philosophy of Science Part A* 42 (2): 372–380. doi:10.1016/j.shpsa.2010.12.003.

Moro Abadía, O., and M. R. González Morales. 2012. "Understanding Pleistocene Art: An Hermeneutics of Meaning." In *A Companion to Rock Art*, edited by J. McDonald and P. Veth, 263–275. Chichester: Wiley-Blackwell.

Moro Abadía, O., and M. R. González Morales. 2013. "Paleolithic Art: A Cultural History." *Journal of Archaeological Research* 21: 269–306. doi:10.1007/s10814-012-9063-8.

Murray, T. 2013. "Why the History of Archaeology is Essential to Archaeological Theory." *Complutum* 24 (2): 21–31.

Nowell, A. 2006. "From A Paleolithic Art to Pleistocene Visual Cultures (Introduction to Two Special Issues on 'Advances in the Study of Pleistocene Imagery and Symbol Use')." *Journal of Archaeological Method and Theory* 13: 239–249. doi:10.1007/s10816-006-9020-2.

Popper, K. 1963. *Conjectures and Refutations. The Growth of Scientific Knowledge*. New York: Hutchinson.

Shennan, S. 2011. "An Evolutionary Perspective on the Goals of Archaeology." In *Evolutionary and Interpretive Archaeologies*, edited by E. Cochrane and A. Gardner, 325–344. California: Walnut Creek.

White, R. 2003. *Prehistoric Art: The Symbolic Journey of Humankind*. New York: Harry Abrams.