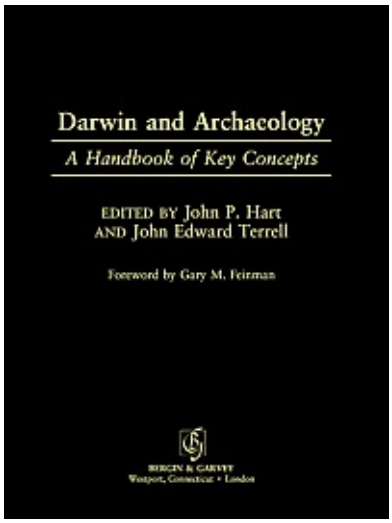
Cover



title:	Darwin and Archaeology : A Handbook of Key Concepts
author:	Hart, John P.; Terrell, John.
publisher:	Greenwood Publishing Group
isbn10 | asin:	0897898788
print isbn13:	9780897898782
ebook isbn13:	9780313012945
language:	English
subject	Darwin, Charles,--1809-1882--Contributions in archaeology, Darwin, Charles,--1809-1882, Darwin, Charles,--1809-1882--Et l'archéologie, Human evolution, Evolution (Biology) , Social evolution, Natural selection, Anthropology, Archaeology, Ethnoarchaeology
publication date:	2002
lcc:	GN281.D39 2002eb
ddc:	930.1
subject:	Darwin, Charles,--1809-1882--Contributions in archaeology, Darwin, Charles,--1809-1882, Darwin, Charles,--1809-1882--Et l'archéologie, Human evolution, Evolution (Biology) , Social evolution, Natural selection, Anthropology, Archaeology, Ethnoarchaeology

Page i

Darwin and Archaeology

Page ii

This page intentionally left blank.

Darwin and Archaeology

A Handbook of Key Concepts

EDITED BY John P. Hart
AND John Edward Terrell

Foreword by Gary M. Feinman

BERGIN & GARVEY
Westport, Connecticut • London

Library of Congress Cataloging-in-Publication Data

Darwin and archaeology : a handbook of key concepts / edited by John P. Hart and John
Edward Terrell ; foreword by Gary M. Feinman.
p. cm.
Includes bibliographical references and index.
ISBN 0–89789–878–8 (alk. paper)—ISBN 0–89789–879–6 (pbk. : alk. paper)
1. Human evolution. 2. Evolution (Biology) 3. Social evolution. 4. Natural selection. 5. Anthropology. 6. Archaeology. 7. Ethnoarchaeology. 8. Darwin, Charles, 1809–1882—Contributions in archaeology. I. Hart, John P. II. Terrell, John.
GN281.D39 2002
930.1—dc21 2001043975

British Library Cataloguing in Publication Data is available.

Library of Congress Catalog Card Number: 2001043975

ISBN: 0-89789-878-8

0-89789-879-6 (pbk.)

First published in 2002
Bergin & Garvey, 88 Post Road West, Westport, CT 06881

An imprint of Greenwood Publishing Group, Inc.
www.greenwood.com

Printed in the United States of America

The paper used in this book complies with the Permanent Paper Standard issued by the National Information Standards Organization (Z39.48–1984).

10 9 8 7 6 5 4 3 2 1

Contents

Page vii

Foreword

Gary M. Feinman

In the anglophile scholarly world, the intellectual roots of evolutionary studies (including Darwinian approaches), anthropology, and archaeology are closely intertwined, extending back in their academic heritage for roughly a century and a half. Nevertheless, the appropriate and most scientifically productive relationships between these intellectual domains and the future agendas for them remain unresolved and a matter of significant current discussion and debate (e.g., Barton and Clark 1997; Gould 1997a, 1997b; Maschner 1996; Sanderson 1990; Spencer 1997; Wilson 1998). In this encyclopedic volume, key evolutionary constructs and concepts are explored to reflect on and clarify the potential for Darwinian evolutionary perspectives to inform and help chart a more synthetic course for contemporary anthropological archaeology.

In the spirit of full disclosure, I confess that I have never really considered myself a Darwinian archaeologist, nor has a reading of this set of papers caused me to have a midnight conversion. Yet as an anthropological archaeologist working in a natural history museum, who has interests in evolution, history, and change, it is impossible to remain dispassionate in regard to the central issues and questions raised in this text. After all, one day recently, the popular media trumpeted “academic warfare” (Shulevitz 2001) between scientific and humanistic intellectual streams in American anthropology, while practically the next day it speculated on the relationship between a simpler-than-expected human genetic code and the diversity that we recognize in our species (Karow 2001). With such pivotal and contemporary debates at stake, my aim here is to provide a somewhat critical commentary on the diverse range of theoretical perspectives offered in this compendium, while endeavoring to define a productive common

ground. At the same time I stress, in voice with the vision of the editors, why a concern with language and effective terminology is so central to framing a more holistic twenty-first century investigation of the human career.

SETTING AN AGENDA

Although evolution and archaeology have had a long and close relationship, they still have not arrived at a satisfactory marriage. For example, the contributors to one recent collection that was aimed at reintroducing Darwinian thought to archaeology open their article by noting: “an unfortunate parallel between evolutionary archaeology and the weather: everyone *talks* about it but no one *does* anything about it” (Bettinger and Eerkens 1997:177; emphasis in original). In large part, this discrepancy stems from the fact that in archaeology there is precious little current agreement about what an evolutionary approach should constitute, and what its principal theoretical aims should be. This lack of focus and consensus in regard to overarching questions and research goals is unfortunate; for as the renowned biologist Ernst Mayr (1999:373) opined wisely: “The most memorable lesson I have learned from Darwin is that the most important thing in scientific research is not to add to the accumulation of facts, but to ask challenging questions and to try to answer them.”

In this regard, there seems little convincing reason to shrink from or reduce the central scientific mission that anthropological archaeology, particularly in the United States, long has had. In his classic article, “The Aims of Anthropological Research,” Franz Boas (1932:606) wrote,

we may…best define our objective as the attempt to understand the steps by which man has come to be what he is biologically, psychologically, and culturally. Thus it appears…at our material must necessarily be historical material, historical in the widest sense of the term.

Given its fundamental attributes, especially time depth, contemporary archaeology remains pivotal to the investigation of Boas’ still-vital and valid scientific mission, that is, the comparative study of human behavior and diversity, and how cultural and biological diversity has come to be. Archaeology is particularly vital to the investigation of the latter necessarily diachronic agenda, although an approach with just the proper balance between the history, comparison, and the systematics of science has remained elusive (see Feinman 1994; Johnson 1999; Trigger 1989).

Given Boas’ unfinished agenda and the centrality that his broad mission gives to the enterprise of most contemporary archaeologists, why has a unified approach and a sense of mission been so difficult to achieve? In part, the problem may stem from changes in the way we are trained as

professionals and the lack of constructive communication and dialogue between the increasingly balkanized subdisciplines of anthropology and even segmented schools within archaeology (e.g., Givens and Skomal 1993). Yet the lack of constructive intercourse between different intellectual schools often has been amplified by the philosophical view that there is only one truly valid or scientific approach or paradigm to address evolutionary questions in our field. To paraphrase Matthew Johnson (1999:187; see also Feinman 1994), the way that our core literature in archaeology has frequently been polarized in this way often has fostered the impression that ‘‘there ain’t nothin’ in the middle of the road ’cept white lines and dead armadillos.”

CONSTRUCTING A SYNTHESIS

The mission outlined for diachronic investigation by Boas involves a suite of “big messy” questions regarding the human career. By definition, to account for the biological and cultural diversity that we see in peoples today, we must concern ourselves with both the distinct historical pathways (Terrell 1986) that different members of our species traveled and empirically observable, broader directional trends that are neither unilineal, progressive, nor necessary (Gould 1988). The latter trends, which cross-cut specific historical contexts, include (among other phenomena) aspects of demographic growth and expansion, the increasing size of human groups and groupings, and generally expanded degrees of differential wealth and power.

As seen in this collection, the investigation of such issues requires the interlocking consideration of diverse theoretical domains. These conceptual domains must range from (but are by no means limited to) human biological capacities and the interplay between learned behavior and natural selection, to different strategies of social reproduction and cultural transmission, and the definition of selective forces that may account for the emergence of hierarchical forms of human organization.

If our overarching explanatory framework is to be truly evolutionary, then it also must concern itself with both scientific meanings of that term (Rambo 1991:26–28). That is, the term “evolution” generally has been used to refer to both the succession of forms that have evolved over time and to the process of evolution, which includes the contextual circumstances and causal mechanisms that lead to such changes in form. This dual usage applies whether one is speaking of the neo-Darwinian synthesis in biological evolution or a more colloquial concern with the evolution of information-processing technologies. In both instances, an understanding of the historical sequence of forms and a concern with the causal mechanisms and selective forces that account for these changes are requisite.

We see in this collection that a broad agenda has been outlined for ev-

olutionary archaeology, along with a wide array of complex issues that could be encompassed by such an overarching theoretical approach. How do we proceed? I would propose that the current, rather unbridled plurality of approaches and philosophies is not the most productive direction, because it tends to hinder effective communication and interchange across scholarly cells that ascribe to their own distinctive and specialized languages and underpinning assumptions.

In this volume and more broadly in the discipline, two other alternatives are evident. One is to strive for paradigmatic theoretical unity, which in some contributions here is (but does not necessarily have to be) based on Darwinian reductionism. This analytical approach endeavors to construct a single theory that relies largely, if not entirely, on Darwin's central principle of natural selection (O'Brien and Holland 1995:181). From this atomizing perspective, the

incorporation of archaeological materials into a Darwinian framework rests on the key tenet that those items were parts of previous phenotypes. Without this tenet the application of evolutionary theory to the understanding of how things found in the archaeological record came to be the way they are makes absolutely no sense. (O'Brien and Lyman 2000:141)

A second approach (ascribed to by the volume's editors in the Introduction, and many other scholars) calls for a more synthetic approach to theory construction (Preucel 1999). Such an approach would require the nesting or bootstrapping of a series of smaller theories, including aspects of Darwinian evolutionary theory, into a potentially much more recursive framework that endeavored to account for the complexity of human history.

In this regard, it is worth considering recent theoretical discussions in two of anthropology's academic neighbors, biology and geography. Historians of the former have charted the failed effort to reduce all of life's diversity and history to the supposedly more scientific constructs of chemistry and physics (Mayr 1982, 1988). At the same time, the recognition of this failure of reductionism has necessitated an expansion of the definition of science to account for the importance of both history and contingency (Gould 1986, 1987; Mayr 1988).

This point has been driven home all the more dramatically with the aforementioned decipherment of the human genome (Pennisi 2001). This long-awaited development has prompted scientific and public surprise both in the relatively small number of human genes (roughly 30,000) and in the degree of genetic similarity that was found between humans and other similarly deciphered species (Wade 2001a, 2001b). Furthermore, these discoveries have led some to suggest that the surrounding context and architecture of specific genes may affect how these genes act under particular circumstances (Reuters 2001). Although still early, clearly these preliminary find-

ings have struck a serious blow against a narrowly reductionist mode of thought within biology itself. As Stephen Jay Gould (2001) has remarked in response to these recent announcements, “the failure of reductionism doesn’t mark the failure of science, but only the replacement of an ultimately unworkable set of assumptions by more appropriate styles of explanation that study complexity at its own level.”

In geography, a recent presidential address (Gober 2000) focuses on an intellectual dilemma that is painfully parallel to the increasing fragmentation and compartmentalization that we see in contemporary anthropology. Like anthropology and archaeology, modern geography includes disparate intellectual elements that range from the humanistic to the scientific, often with little communication between the cultural and physical segments. Over the last decades, this segmentation (and the subsequently diminished or fractured voice of the field) has been sufficiently serious to allow for the dissolution of a number of prominent departments of geography.

Gober’s (2000) address recognizes that geography’s central concerns with space and place cannot be reduced to any uniform, narrow analytical program or theory. She further notices that its standing in the academy and beyond is diminished by its disparate sections and fractured message. Following the ecologist Steward Pickett (1999), she calls for the development of new “habits of the mind” or a reconsideration of the practices and training associated with ways of thinking. Training should be more effectively geared to a synthetic set of ideas, concepts, and theories that are appropriate and suitable for the study of large-scale and complex phenomena. In other words, Gober (2000:8) calls for the continuance of pluralistic perspectives in geography, but ones shaped by a more clearly elucidated and synthetic agenda and fostered by the definition of a common language to facilitate communication between the different segments that make up her field.

LOOKING FORWARD

As evolutionary archaeologists, where do we go from here? Can we learn from these parallel discussions that are taking place in cognate disciplines? To tackle the complex historical agenda that we have long set for ourselves, and in concert with recent developments in biology and geography, a synthetic approach (as opposed to the simple melding of extant approaches) clearly is in order. Perhaps there is no need to join the armadillos in the middle of the road. But I do stand with the editors of this volume in calling for the hard critical work necessary to bridge the diverse perspectives that must be interlocked under a large theoretical umbrella in order to understand human diversity and how it came to be.

As Pickett (1999) and Gober (2000) likewise have surmised for their respective fields, such an approach in anthropology also will require new

‘‘habits of the mind” as well as practices that foster communication and tolerance rather than competition and polarization between differing perspectives and “isms” that share our discipline. The necessary bridging efforts and new ways of training required to interdigitate perspectives may sound easy to implement until one realizes that we have grown up in a field whose key ideas and approaches have been repeatedly introduced and then juxtaposed in a rather different manner (e.g., Binford 1972; Dunnell 1980; Harris 1980; Hodder 1985).

Despite the obvious challenges ahead, I remain optimistic about the contemporary archaeological endeavor. Scholars in the discipline and related fields have started to accept and digest new views of science that are more synthetic than analytic. At the same time, the appropriateness of Kuhnian notions of science, which in recent decades has tended to foster an expectation of broad paradigmatic swings and theoretical reversals, has been challenged (e.g., Blanton 1990).

These important changes in our philosophical landscape provide a strong basis for this volume’s important, yet still unfinished, effort to establish a plain and workable language that cross-cuts theoretical streams in evolutionary archaeology. The meaningful completion of such efforts along with a concerted willingness to rephrase and reframe our questions in a way that allows them to be informative and interesting to a broader range of archaeologists operating within interlocked but distinct evolutionary perspectives represent key next steps. If we are able to meet these synthetic challenges and forge a more holistic evolutionary approach, then we can reverse the centrifugal and cacophonous tendencies of the past 20 years and finally make long overdue strides necessary to tackle the significant agenda outlined by Boas seven decades ago.

REFERENCES

Barton, C. M., and G. A. Clark (eds.). (1997). *Rediscovering Darwin: Evolutionary Theory and Archeological Explanation*. Archeological Papers No. 7. Arlington, VA: American Anthropological Association.

Bettinger, R., and J. Eerkens. (1997). Evolutionary implications of metrical variation in Great Basin projectile points. In C. M. Barton and G. A. Clark (eds.), *Rediscovering Darwin: Evolutionary Theory and Archeological Explanation*. Archeological Papers No. 7. Arlington, VA: American Anthropological Association, pp. 177–191.

Binford, L. R. (1972). *An Archaeological Perspective*. New York: Seminar Press.

Blanton, R. E. (1990). Theory and practice in Mesoamerican archaeology: A comparison of two modes of scientific inquiry. In J. Marcus and J. F. Zeitlin (eds.), *Caciques and Their People: A Volume in Honor of Ronald Spores*. Anthropological Paper No. 89. Ann Arbor: Museum of Anthropology, University of Michigan, pp. 1–16.

Boas, F. (1932). The aims of anthropological research. *Science* 76: 605–613.

Dunnell, R. C. (1980). Evolutionary theory and archaeology. In M. Schiffer (ed.), *Advances in Archaeological Method and Theory*, vol. 3. New York: Academic Press, pp. 35–99.

Feinman, G. M. (1994). Toward an archaeology without polarization: Comments on contemporary theory. In J. Marcus and J. F. Zeitlin (eds.), *Caciques and Their People: A Volume in Honor of Ronald Spores*. Anthropological Paper No. 89. Ann Arbor: Museum of Anthropology, University of Michigan, pp. 13–43.

Givens, D. B., and S. N. Skomal. (1993). The four fields: Myth and reality. *Anthropology Newsletter* 34(5): 1, 19.

Gober, P. (2000). Presidential address: In search of synthesis. *Annals of the Association of American Geographers* 90: 1–11.

Gould, S. J. (1986). Evolution and the triumph of homology, or why history matters. *American Scientist* 74: 60–69.

Gould, S. J. (1987). Preface. In *An Urchin in the Storm: Essays about Books and Ideas*. New York: Norton, pp. 9–16.

Gould, S. J. (1988). On replacing the idea of progress with an operational notion of directionality. In H. Nitecki (ed.), *Evolutionary Progress*. Berkeley: University of California Press.

Gould, S. J. (1997a). Darwinian fundamentalism. *New York Review of Books* 44(10): 34–37.

Gould, S. J. (1997b). Evolution: The pleasures of pluralism. *New York Review of Books* 44(11): 47–52.

Gould, S. J. (2001). Humbled by the genome’s mysteries. *New York Times*, February 19 (http://www.nytimes.com/2001/02/19/opinion/19GOUL.html).

Harris, M. (1980). *Cultural Materialism: The Struggle for a Science of Culture*. New York: Random House.

Hodder, I. (1985). Postprocessual archaeology. In M. B. Schiffer (ed.), *Advances in Archaeological Method and Theory*, vol. 8. New York: Academic Press, pp. 1–26.

Johnson, M. (1999). *Archaeological Theory: An Introduction*. Oxford: Blackwell.

Karow, J. (2001). Reading the book of life. *Scientific American* (February) (http://www.sciam.com/explorations/2001/021201humangenome/).

Maschner, H.D.G. (ed.). (1996). *Darwinian Archaeologies*. New York: Plenum.

Mayr, E. (1982). *The Growth of Biological Thought*. Cambridge, MA: Harvard University Press.

Mayr, E. (1988). *Toward a New Philosophy of Biology: Observations of an Evolutionist*. Cambridge, MA: Harvard University Press.

Mayr, E. (1999). Understanding evolution. *Trends in Ecological Evolution* 14: 372–373.

O'Brien, M. J., and T. D. Holland. (1995). The nature and premise of a selection-based archaeology. In P. Teltser (ed.), *Evolutionary Archaeology: Methodological Principles*. Tucson: University of Arizona Press, pp. 175–200.

O'Brien, M. J., and R. L. Lyman. (2000). Evolutionary archaeology: Reconstructing and explaining historical lineages. In M. B. Schiffer (ed.), *Social Theory in Archaeology*. Salt Lake City: University of Utah Press, pp. 126–142.

Pennisi, E. (2001). The human genome. *Science* 291: 1177–1180.

Pickett, S.T.A. (1999). The culture of synthesis: Habits of mind in novel ecological integration. *Oikos* 87: 479–487.

Preucel, R. W. (1999). Review of *Evolutionary Archaeology: Theory and Application* (ed. M. J. O'Brien). *Journal of Field Archaeology* 26: 93–99.

Rambo, A. T. (1991). The study of cultural evolution. In A. T. Rambo and K. Gillogly (eds.), *Profiles in Cultural Evolution: Papers in Honor of Elman R. Service*. Anthropological Papers No. 85. Ann Arbor: Museum of Anthropology, University of Michigan, pp. 23–109.

Reuters. (2001). Corrected: Junk DNA may not be such junk. *New York Times*, February 13 (http://www.nytimes.com/reuters/science/science-genome-junkd.html).

Sanderson, S. K. (1990). *Social Evolutionism: A Critical History*. Cambridge: Blackwell.

Shulevitz, J. (2001). Academic warfare. *New York Times*, February 11 (http://www.nytimes.com/books/01/02/11/bookend/bookend.html).

Spencer, C. S. (1997). Evolutionary approaches in archaeology. *Journal of Archaeological Research* 5: 209–264.

Terrell, J. (1986). Causal pathways and causal processes: Studying the evolutionary prehistory of human diversity in language, customs, and biology. *Journal of Anthropological Archaeology* 5: 187–198.

Trigger, B. G. (1989). *A History of Archaeological Thought*. Cambridge: Cambridge University Press.

Wade, N. (2001a). Genome's riddle: Few genes, much complexity. *New York Times*, February 13 (http://www.nytimes.com/2001/02/13/health/13HUMA.html).

Wade, N. (2001b). Genome analysis shows humans survive on low number of genes. *New York Times*, February 11 (http://www.nytimes.com/2001/02/11/health/11GENO.html).

Wilson, E. O. (1998). *Consilience: The Unity of Knowledge*. Cambridge: Cambridge University Press.

Table of Key Words