

Archaeology

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My own career in archaeology does not quite span the period in question – 1941-1991 – but it does cover several of those decades, so what I say here is significantly colored by personal experience. This essay is not a comprehensive account of the recent history of archaeology. For that the reader can turn to Bruce Trigger's History of Archaeological Thought (1989), Gordon Willey and Jeremy Sabloff's History of American Archaeology (third edition, in press), or Marek Zvevibel's translation of Jaroslav Malina and Zdanek Vasíček's Archaeology Yesterday and Today (1990), as well as older works such as Glyn Daniel's A Hundred and Fifty Years of Archaeology (1975) and more current brief summaries like those of Albert Glock and Albert Spaulding in the Fiftieth Anniversary issue of American Antiquity (1985). The presentation offered here is an overview loosely organized under three headings: 1) techniques, methods, and funding; 2) research on three fundamental issues of perennial anthropological concern (human origins and spread throughout the Old and New Worlds and Oceania, the origins of food-production, the rise of the state); and 3) theoretical and sociopolitical trends characterizing Euroamerican archaeology.

The influence of the Wenner-Gren Foundation is noted at various points throughout the discussion. Although it was not my charge to chart the history of Wenner-Gren's contributions to world archaeology, those contributions are very considerable and are highlighted wherever appropriate.

Techniques, Methods, and Funding. There has been rapid and undreamed of (fifty years ago) progress in the hardware, procedures, and techniques available to archaeologists. These are systematically reviewed in any recent archaeology textbook. They range from radiocarbon dating (including now Accelerator Mass Spectrometer "direct" dating of very small samples) and dendrochronology to computerized laser transits; satellite imagery (of sites and settlement patterns, water control systems, ancient landscapes); Scanning Electron Microscopy (of seeds, bones, and artifacts); DNA analyses (of ancient human and non-human organic remains); and, of course, the world of personal computers with its manifold machines and ever-changing array of software enabling three-dimensional color displays of sites and artifacts, as well as ample data storage and highly complex statistical manipulation, tables, and graphs.

Archaeological field research is now a large, complicated, expensive affair, by definition extravagantly interdisciplinary. Whole new subdisciplines and sub-subdisciplines have arisen where, fifty years ago, stood the lone archaeologist supposedly equally or at least adequately skilled in site survey and mapping; excavation and recording; photography; artifact, faunal, and floral analyses; interpretation of results and report-writing; keeping track of expenditures; and maintaining good personal relationships with and among all the field and laboratory assistants.

Among the most vigorous of the new subdisciplines are geoarchaeology, paleoethnobotany, and zooarchaeology. These are now autonomous enterprises with their own journals, major and minor conferences, theoretical and methodological debates, and all the other attributes of scholarship focused on a specific portion of the empirical

evidence about the human past. There are similar foci of research clustered around human osteological remains (bioarchaeology), specific artifact types or categories (especially ceramic and lithic artifacts, but also textiles), underwater archaeology, and general theoretical or interpretive approaches such as central place theory (currently not in favor), optimal foraging theory (very popular in some circles), symbolic-structuralism, eco-utilitarianism, and various marxist approaches.

In the United States, the money for all this comes from three major source categories: the National Science Foundation; Cultural Resource Management; and state and private colleges, universities, foundations, and individuals. During the 1950s, the National Science Foundation began providing funding for interdisciplinary field and laboratory archaeology, and has continued to do so to the present time. NSF rarely funds publication, however, or conferences and symposia, as do some of the other sources, such as Wenner-Gren, which has an illustrious history of generous support for all three endeavors. Besides the well-known Viking Fund Publication series, of which ten of the total of fifty-seven volumes are archaeological, Wenner-Gren has furnished numerous subventions for many other publications in archaeology and for dozens of archaeological conferences and symposia. The Foundation has also been generous in supporting dissertation research by graduate students in archaeology.

Although there were premonitions and preludes of Cultural Resource Management at least as far back as the 1930s (see the summary articles on pre-World War II federally financed archaeology by William Haag and Jesse Jennings in *American Antiquity*, 1985), the universe of CRM archaeology began to develop rapidly in 1974 when the U.S. Congress passed the Archaeological Conservation Act (earlier known as the Moss-Bennett Bill). This act mandated inclusion of cultural resources (prehistoric and historic) in environmental impact procedures, introducing archaeologists to competitive bidding and legally binding contracts on archaeological work (including meaningful deadlines for completion of that work). Archaeology became much more formally professionalized, and many archaeologists entered the business world as free-lance contractors, hiring out their expertise to government and state agencies and to big construction firms. By the mid-1980s, non-CRM, "ivory-tower" archaeology had become (and remains) a minority pursuit, often more difficult to fund adequately than CRM archaeology.

Among private money sources, the Wenner-Gren Foundation is unique in its dedication to anthropology alone, and to all facets of anthropology. For fifty years the organization has nurtured the whole anthropological spectrum via grants for research, publications, conferences, and symposia. The 45th Anniversary Report, with a list more than two hundred pages long of research projects to which Wenner-Gren accorded grants between 1961 and 1985, is vivid testimonial to the Foundation's broadly based activity. The diversity of work supported within archaeology alone is impressive: archaeological survey in Pakistan, India, the Philippines, and Uganda; excavation at Chatal Hüyük, Turkey, at Beth Shan, Israel, in Macedonia, and in several regions of northern, eastern, and southern Africa; experimental archaeology on earthworks in England; publication of Maltese prehistory; dating of bone from Krapina; research on the prehistory of Queensland, Australia; a seminar comparing East European and Near Eastern cultural history; dissertation research in Hong Kong and South China. These represent just a few research trajectories benefiting from Wenner-Gren funding both to investigations by senior archaeologists and to graduate student projects in archaeology. The amount of

money expended is in the millions. Multiply all that by two to approximate the activity of the full fifty years of the Foundation's history, and one gets some indication of the enormous positive impact our field has enjoyed from Axel Leonard Wenner-Gren's original gift of two million dollars' worth of Electrolux Corporation stock, in combination with the astute directorship of Paul Fejos, then Lita Osmundsen, and now Sydel Silverman.

With particular reference to archaeological techniques, methods, and funding, one should note how significant the Wenner-Gren Foundation's role was in encouraging the development of radiocarbon as a practical dating means. In May, 1947, the discovery of radioactive carbon (^{14}C) in all living organisms was made public; on November 5, 1947, Willard Libby and the Institute of Nuclear Studies at the University of Chicago received \$13,000 from Wenner-Gren (then the Viking Fund), to be followed by more money from the same source, totalling more than \$35,000 by 1950. Moreover, Libby's 1948 lecture in the Foundation's famous Supper Conference series was one of the first public announcements of the dating technique that is now so central to archaeological research everywhere in the world. The vicissitudes of establishing that central position by overcoming a long series of problems and difficulties and the present status of the radiocarbon dating technique are detailed by R. E. Taylor in two recent accounts (a 1985 article in American Antiquity and his 1987 book, Radiocarbon Dating).

A different sort of archaeological support relevant to techniques and methods was provided by Wenner-Gren funding in aid of the University of Arizona's archaeological field school at Point of Pines, Arizona. Under Emil Haury's direction, the Point of Pines field school was an annual event for many years (see Haury's summary volume, Point of Pines, Arizona, 1989), educating hundreds of aspiring archaeologists in basic field techniques while acting as a model for the dozens of other archaeological field schools now operating in North America and elsewhere. (Carol Gifford and Elizabeth Morris describe the early days of archaeological field schools in the Southwest in their article "Digging for Credit," American Antiquity, 1985.)

Great Anthropological Themes in Archaeology. These were listed and explicated by Robert J. Braidwood several decades ago in an entry for "Archaeology" he contributed to the 1967 Encyclopedia Britannica, and attention to them has been unflagging since the early days of archaeology or anthropology. Braidwood set forth three major "origins" issues: human origins, origins of food-producing economies, and origins of the state. Human origins is a research focus supported by Wenner-Gren since the early 1950s. This support has included funds for fieldwork, publications, and also for conferences. The two landmark conferences, "The Origin of Man" (1965) and "Man the Hunter" (1966), for example, were both underwritten by the Wenner-Gren Foundation.

Wenner-Gren, together with NSF, also helped fund Braidwood's research on the origins of agriculture and animal pastoralism in the Near East. When he began this work, there was very little empirical evidence for the appearance of the earliest domestic plants and animals in western Asia, components in an economy directly ancestral to our own in so far as it includes wheat, barley, legumes, cattle, pig, sheep, and goat. Where, when, how, and why were these species domesticated, and what effect did the new economy have on the societies and cultures of the most ancient farmers and herders? Braidwood and his collaborators set out to answer these questions in the years following

World War II.

Braidwood's field teams carried out research first in Iraq, then in Iran and Turkey. By now there are third- and fourth-generation archaeologists (i.e., students of the students of Braidwood and of his collaborators and colleagues; and even some students of those who were themselves third-generation participants in this intellectual tradition) who work on the origins of food production in the Near East. A considerable body of empirical evidence has been amassed, and a wide array of interpretations is available. Clear consensus is not yet achieved at any level, but we have learned a great deal in the past fifty years. Recent summaries include Joy McCarrison and Frank Hole's article in the American Anthropologist (1991), Naomi Miller's chapter on the Near East and other articles in a book now in press entitled Origins of Agriculture: An International Perspective (edited by C.W. Cowan and P.J. Watson), my article on the origins of food production in western Asia and eastern North America in Quaternary Landscapes (L. Shane and E. Cushing, eds., 1991), Daniel Zohary and Maria Hopf's 1988 book, Domestication of Plants in the Old World, and relevant papers in Foraging and Farming, edited by David Harris and Gordon Hillman (1989).

We know that the first domesticated plants were present in the Levant by 10,000 years ago (in the Pre-Pottery Neolithic A period) and that these included wheat, barley, peas, and lentils. During the succeeding archaeological period (PPN B), 500 years later, there is good evidence for continuing reliance on domestic plants, for the first appearance of domestic food animals in Iran, Turkey, and the Levant (sheep and goats), and for increase in number and size of human settlements. Thus, by that time the stage was set for the development of complex, state-based, urbanized societies. That is, the potential was present for dense populations, internally differentiated according to occupation and socioeconomic status, and dominated by small groups of powerful elite.

It should be obvious that research of this kind requires close cooperation among archaeologists and natural scientists of all types. Another early example of Wenner-Gren funded, interdisciplinary research in Old World archaeology is the collaboration among Hallam Movius (archaeologist) and Kirk Bryan, Sheldon Judson, and Richard Flint (all three geologists) in their work on Upper Paleolithic sites in southern France immediately after World War II.

It was, in part, just such collaboration that fostered the growth of the latter-day subdisciplines already referred to (zooarchaeology, paleoethnobotany, and geoarchaeology), none of which existed when Braidwood began his Iraqi fieldwork during the late 1940s and the early 1950s (although they *were* dreamed of by the mid-1950s at least). The Wenner-Gren Foundation supported various aspects of this pioneer multidisciplinary research, including several conferences of the archaeologists and natural scientists cooperating on the Iraq-Jarmo and Iranian Prehistoric Projects.

Besides the substantive results, Braidwood's research in the Near East provided a strong impetus to similar interdisciplinary, paleoenvironmental, and paleoecological attacks on the same question – the origins of agriculture and pastoralism – in many other parts of the world. Again, the Wenner-Gren Foundation supported some significant early work on this issue in both Old and New Worlds, as well as funding a landmark conference in 1960 ("From 15,000 B.C. to the Thresholds of Urban Civilization: A World-Wide Consideration of the Cultural Alternatives"), which was the basis for an extremely influential book edited by Braidwood and Gordon Willey, Courses Toward

Urban Life (Viking Fund Publication no. 32, 1962). That volume, in turn, was a very significant contribution to thinking about the third major theme listed above: origins of the state. This theme, like the other two, is the focus of persistent attention by many archaeologists and interdisciplinary teams in several parts of both the Old and New Worlds. See, for example, Robert McC. Adams's books, The Evolution of Urban Society (1966) and Heartland of Cities (1981), Ronald Cohen and Elman Service's edited volume, Origins of the State (1978), David Keightley's edited book, The Origins of Chinese Civilization (1983), and Charles Maisels's recent volume, The Emergence of Civilization (1990).

Theoretical and Sociopolitical Trends in Archaeology. Besides the rapid and diverse developments over the past fifty years in archaeological techniques and methods, and in the accumulation of information concerning the entire span of the human past, there have been lively controversies about theory in archaeology that have, at times, affected the whole field. These debates, their significance, and their results have been and are being discussed widely. Good examples of such discussions are contained in Lewis Binford's Debating Archaeology (1989); Robert C. Dunnell's article "Five Decades of American Archaeology" and my chapter on "Archaeological Interpretation, 1985" in D. Meltzer et al., eds., American Archaeology, Past and Future (1986); Guy Gibbon's 1989 book, Archaeological Explanation; various publications by Ian Hodder including "Postprocessualist Archaeology" in M. Schiffer, ed., Advances in Archaeological Method and Theory (1985) and his Reading the Past (1991); Jane Kelley and Marsha Hanen's Archaeology and the Methodology of Science (1988); Valerie Pinsky and Alison Wylie's edited volume, Critical Approaches to Archaeology (1989); Robert Preucel's edited book, Processualist and Postprocessualist Archaeologies: Multiple Ways of Knowing the Past (1991); Richard Watson's recent American Antiquity article, "Ozymandias, King of Kings: Postprocessual Radical Archaeology as Critique" (1990); and Alison Wylie's book, Conceptual Tensions in the New Archaeology (in press). A detailed exposition of all this is well beyond the scope of this essay, but I offer an informal, nutshell summary.

A few alarm calls about archaeological theory in the Americanist anthropological arena were published in the 1930s and 1940s, the most comprehensive and closely reasoned being Walter W. Taylor's A Study of Archeology (1948). Taylor forcefully urged a functionalist and explicitly cultural anthropological orientation for Americanist archaeology, an orientation he found to be almost entirely lacking in the research of the day, to its serious detriment. He charged that archaeologists were obsessed with basic chronology and with sterile distributional studies of a limited array of artifacts (mainly pottery and projectile points), to the exclusion of concern with the function and cultural meanings of archaeological remains.

It was not until the early 1960s that the issues raised by Taylor were confronted and debated by archaeologists. The discussions of the 1960s and 1970s were sparked by Lewis Binford, who inspired a self-consciously revolutionary generation of "new archaeologists" to formulate hypotheses about cultural processes and to try to test them by means of archaeological, ethnoarchaeological, and ethnographic data. Binford's exhortations to archaeologists were more successful than Taylor's, but by the mid-1970s counter-revolutionary tendencies were apparent, perhaps the most interesting being concern with paleocognition and similar subtle issues. Approaches embodying such

concerns were at first referred to as "ideational" or "cognitive archaeology," but they are now usually grouped under the rubric used by Ian Hodder, "postprocessual archaeology." Some of these approaches were pursued by individuals outside the swirl of debate about archaeological theory, such as Alexander Marshack in his 1972 book The Roots of Civilization (an innovative work on Upper Paleolithic notational systems and world view that was supported in part by Wenner-Gren). Others were advocated in direct reaction to the overwhelmingly materialistic, narrowly economic, paleoenvironmental/paleoecological focus of Binfordian new archaeology, e.g., Robert Hall's 1977 article in American Antiquity, "An Anthropocentric Perspective for Eastern United States Prehistory."

Other sources of the diverse postprocessualist orientations were various forms of symbolic-structuralist approaches in general anthropology, such as those discussed by Margaret Conkey in her 1989 article "The Structural Analysis of Paleolithic Art" (in the volume Archaeological Thought in America, edited by C. Lamberg-Karlovsky) and by Ian Hodder and others in a book he edited in 1982, Symbolic and Structural Archaeology. Still other sources were the post-modernist, deconstructionist movements in literature, architecture, and the fine arts generally (see Richard Watson's "Ozymandias, King of Kings," and the two 1987 books by Michael Shanks and Christopher Tilley, Re-Constructing Archaeology and Social Theory and Archaeology), as well as a variety of marxist and neo-marxist configurations (e.g., Stephen Shennan's article "Towards a Critical Archaeology?" in Proceedings of the Prehistoric Society, 1986, and a 1984 book edited by Matthew Spriggs, Marxist Perspectives in Archaeology).

At present, there is considerable diversity among Euroamerican archaeologists in theoretical approaches to archaeology, and there is also a considerable amount of polemical debate. But the controversies are now carried on among a rather small group of scholars, contrary to the situation in the 1960s and 1970s when virtually the entire field was actively engaged. The majority of actual archaeological fieldwork today continues to be empirical, materialistic, economically oriented, and interdisciplinary.

Beyond the current theoretical tempests are a number of very important, global sociopolitical developments, some of which are reflected in the theoretical debates and some not.

The most widespread and most powerful forces affecting the practice of archaeology everywhere today are destructive. The most extreme recent example of this globally threatening problem is the 1990-1991 Gulf War. Thousands and thousands of pounds of explosives were detonated in what is, archaeologically and historically, per unit area probably the richest region in the world. The human story in Mesopotamia begins some two million years ago and continues through one of the best-known cases of a food-producing revolution currently available (as noted above in my discussion of Braidwood's work). That revolution was succeeded by what is arguably the earliest known transition to urbanized, literate, state-based civilization; and the region also includes the archaeological and historic documentation for the rise of three of the world's great religions. It will take some time yet to ascertain just how much of that precious documentation was blown to oblivion, and how much was "only" severely damaged, but the toll must be horrendous.

Less extreme but more persistent and more widespread is the partial and total destruction of archaeological sites as a result of modern surface and sub-surface construction of all sorts, only a portion of which falls under the Rescue Archaeology,

Salvage Archaeology, or Cultural Resource Management regulations in modern nation-states. Volunteer efforts and collaborative arrangements among developers, archaeologists, historians, and interested citizens are not unknown – in fact, there are some resounding successes – but these are drops in the ocean.

A more insidious but equally destructive force is the international art market, apparently insatiable, where artifacts from all over the world are traded, sold, and resold among private individuals and variously sized institutions for sums ranging from a few dollars for a late prehistoric arrowhead to several hundred or a few thousand dollars for a Paleoindian projectile point or a prehistoric human figurine from Turkey, to five-, six-, and seven-figure prices for Mayan stelae, Mimbres bowls, Shang and Benin bronzes, Greek vases and Roman sculptures. There is a UNESCO convention prohibiting traffic in illegally obtained antiquities, but it is not easy to enforce. In the United States, antiquities picked up or dug up on private property can usually be disposed of at will by the property owner completely legally, although a few enlightened states and municipalities have passed protective cultural resource legislation.

The effects of these destructive forces, together with the complex political realities of the modern world, have resulted in much greater emphasis on curation, conservation and scholarly study of extant collections, both ethnographic and archaeological, in museums everywhere. This is a very wholesome response, as is a second development: increased emphasis on nurturing indigenous involvement through cultural resource management agencies, institutes, and directives concerning antiquities in many parts of the world where this emphasis was previously lacking or languishing.

Another promising recent development is taking place in the Far East. The People's Republic of China has begun active collaboration with European and American archaeologists, historians, art historians, and other scholars of ancient China to effect a rapprochement that will facilitate exchange not only of substantive knowledge, techniques and methods, but also access to research opportunities for a part of the world long off-limits to Westerners.

Conclusions. What can be said, then, about the course of archaeology over the past five decades?

The most obvious change is technological. Computers and other hardware, as well as chronological and analytical means borrowed or contracted from the physical and biological sciences have made an overwhelming difference in the way archaeology is practised in the field and in the laboratory. And, of course, those radical practical and logistical innovations have a major impact not only on the specifics of interpretation but also on the kinds of problems archaeologists can investigate. Data storage, retrieval, and manipulation that were unthinkable forty or fifty years ago even at the institutional level are now routinely carried out by individual researchers with personal computers. With the appropriate software, such a researcher can also single-handedly publish the resulting hefty report.

The theoretical ferment that characterized Euroamerican archaeology in the 1960s and 1970s was certainly due in part to enthusiasm engendered by those powerful techniques and methods. Equally important was the commitment of Americanist archaeologists to anthropology as an intellectual context and a central locus for their work. Beginning with Taylor and Binford (in the 1940s and 1950s, respectively),

anthropology American-style dominated the theoretical scene, just as the best and most elaborate machines and techniques exported around the world were American in the two decades following World War II. By the mid-1980s, however, American supremacy was severely challenged and curtailed in archaeological theory as in portions of the technological realm. The major source of computer hardware today is the Far East, whence also come the most widely used four-wheel drive vehicles, cameras, binoculars, and much other archaeological paraphernalia. In archaeological theory, the British Isles together with northern and western Europe have captured the attention of archaeological theorists everywhere, who no longer depend so heavily on American archaeological techniques and who in many cases do not view archaeology as a part of anthropology. Approaches to archaeological theory have been internationalized, as have many of the practical aspects of field archaeology. There have been vast increases in archaeological knowledge all over the world at the same time as site destruction has increased enormously across the globe. Sociopolitical complexities of the 1990s have shut down or severely constrained access to many world regions for all non-nationals, including archaeologists.

In sum, the field of archaeology is now very much a part of the modern world, as is every individual archaeologist who uses a computer, a telephone, or a credit card. The discipline is not the rather arcane, academic pursuit it was fifty years ago. Archaeologists are still to be found in academia, but they are now also in the marketplace, in governments, and in posts with considerable real-world responsibility in both public and private sectors.

Both archaeology and anthropology have changed a great deal and are still changing at a rapid rate. In the midst of all this diversification and reorientation, the role of the Wenner-Gren Foundation is more crucial than at any time in the past because it is the only funding organization in the world that is dedicated wholly to aiding anthropological research of all kinds. Hence, it is in an excellent position to help counter the stresses and strains within that discipline as it expands here, contracts there, and undergoes swiftly shifting permutations and combinations everywhere. Wenner-Gren's comprehensive support is a vital anchoring point for the fundamental integrity and identity of archaeology as anthropology.

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