rather than following a single universal or unilinear path. And as we shall see in Chapter 3, archaeology is going beyond evolutionary questions and exploring questions of meaning and symbolism that can be gained from the archaeological record.

SUMMARY

Like many other branches of science, archaeology has its roots in the work of amateur collectors of long ago. As the number of antiquities collected grew, attempts were made to bring order to collections by classification. This search for meaning led to the first attempts at understanding the prehistoric past, but such explanations were largely speculative. In the Old World prehistoric archaeology emerged from attempts to understand human origins and evolution, while in America, the central issue was the antiquity of human populations in the New World.

The emergence of archaeology as a professional, scientific discipline was marked by the rise of full-time specialists committed to understanding the patterns and diversity in the physical remains from the past. This commitment to understanding required adopting models or interpretive frameworks that could be tested against the evidence. Models developed in the Old World, such as the three-age system, were initially derived mainly from history. In the New World, where most native cultures lacked written histories, archaeology became closely allied with anthropology. For both areas at the time the dominant framework was unilinear cultural evolution, defining the same broad stages for all societies. In the early 20th century the weaknesses in this scheme led to more rigorous descriptive approaches. More recently multilinear evolutionary models have emerged, focusing research on the process of culture change and the individual developmental career of each society.

FOR FURTHER READING

THE ORIGINS OF ARCHAEOLOGY

THE EMERGENCE OF MODERN ARCHAEOLOGY
Brew 1966; Harris 1968; Trigger 1989; Willey and Sabloff 1980

ADDITIONAL SOURCES

Archaeology in this century has developed increasingly diverse and sophisticated approaches. The earliest of these, the cultural history approach, is based on a description of the archaeological record and the ordering of past events in time and space. The emphasis in cultural history is what, when, and where events took place in the past. In the 1960s, the cultural process approach emerged, seeking to explain the events of the past and identify the general processes of cultural change. Cultural process focuses on how and why past events took place. A third approach that emerged in the 1980s, contextual archaeology, attempts to understand the meaning of the past. Contextual archaeologists also aim at the why of past events, but emphasize the perspective of the ancient people involved—to gain an insider’s understanding, rather than an outsider’s explanation, of the past.

Taken together, these approaches address all four of the basic goals of archaeology outlined in Chapter 1—the form, function, process, and meaning of the past. Thus they all contribute to the field of archaeology as practiced today. But each approach also asks different questions, and doing so, uses different definitions of culture, distinct ways of conducting research, and different frameworks for reconstructing the past. We will consider each of these topics separately, but we should remember that many archaeologists combine various aspects from all of these approaches to best suit their particular needs.
THE CULTURAL HISTORY APPROACH

The cultural history approach dominated archaeology during the first half of the 20th century. Its aims of defining the sequence and spatial distribution of past events by studying patterns of material remains is still the foundation for most archaeology done today. Because it leads to an outline of the general trends of both cultural change and continuity, it often serves as the starting point for all other kinds of research.

The Normative Model of Culture

The cultural history approach reconstructs the past by using a normative model of culture. The normative model holds that a culture is a set of rules or norms that govern behavior in a particular society. These rules are passed from one generation to the next; each new generation learns the norms of behavior within the family (parent to child), schools (teacher to student), occupations (master to apprentice), peer groups, and similar situations. Because the learning of rules of behavior is not perfect, a degree of change in the normative system is inevitable. Some behavior, of course, is idiosyncratic—unique to the individual—and may not be perpetuated. In any given culture, a range of behaviors is tolerated for each situation; what the norms specify are the ranges and their limits.

The archaeologist often makes use of this model of culture to describe and reconstruct behavior in the past. Those who take this view assume that the material remains of ancient cultures represent past behavioral norms. For instance, pottery is a good indicator of culturally controlled behavior. Although the methods for making and decorating pottery are many and varied, each society uses only a few of these techniques, learned by each potter as an apprentice. Departures from these manufacturing norms are usually discouraged by social and economic sanctions. Archaeologists, therefore, can infer the ancient rules governing pottery making by studying shared characteristics in the surviving ceramics.

Within this conceptual framework, the cultural history approach emphasizes the goal of outlining the sequence (time dimension) and geographical distribution (space dimension) of past cultural norms. Once this is done, interpretation proceeds to apply descriptive models, usually drawn from ethnohistory and history, that describe the mechanisms most likely to have been involved in stability and change. The culmination of the interpretive process is thus a chronicle of events and general trends of cultural change and continuity in the prehistoric past. In fact, a cultural history approach is well suited to outlining the temporal, spatial, and even functional dimensions of prehistory. It is less suitable, however, for analyzing the causal factors operating in cultural development and change.

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cific techniques used to collect, process, and analyze archaeological data will be discussed later on. Here we will briefly describe how archaeological research leads to the application of cultural history frameworks for reconstructing the past.

The choice of an area of archaeological research is made by weighing a variety of factors (discussed in Chapter 4). In most cases, a reconnaissance program identifies archaeological sites, and a surface survey provides the initial round of data collection. The archaeologist selects the material cultural traits that seem most sensitive to temporal change and that will therefore best allow a collection to be arranged in a tentative chronological sequence. Depending on the kind of archaeological site being investigated, these chronologies may be based on traits seen in stone tools, pottery, architecture, or other remains.

Once the preliminary chronological scheme is proposed, excavations are undertaken to test the sequence and to provide further data to refine the sequences. Other goals may also be pursued in excavation, but the first goal in the cultural history approach is usually the discovery and investigation of stratified deposits that enable the archaeologist to perfect or further document the tentative time scheme.

Cultural History Frameworks

Cultural history begins with chronology. By correlating all of the sequences of data, the archaeologist defines chronological periods or phases for the site as a whole. The next step in the procedure is to expand the chronology beyond the individual site to encompass wider geographical areas. This enlargement of scope is accomplished by investigating sites adjacent to those already studied. Newly acquired data can be compared to extant sequences. In this way, not only is the cultural chronology refined, but the archaeologist can also begin to plot the spatial distributions of data. As more and more sites are investigated and the number of known prehistoric cultural sequences grows, the temporal and spatial coverage expands over ever widening areas. These larger temporal and spatial frameworks are called time-space grids (Fig. 3.1).

As a rule, the largest time-space grid used in cultural history research is the culture area, a geographical region based on ethnographically defined cultural similarities (Fig. 3.2). Archaeologists working within a given culture area usually help their investigations by using common terminology and concepts to make information from different sites comparable. The first cultural history synthesis of an entire culture area in the Americas was defined for the American Southwest. Since that time, other prehistoric culture area syntheses have been worked out, both in the Old World and throughout the Americas.

As cultural history research began to create broader and more general syntheses in the Americas, it became increasingly obvious that some kind of over-riding interpretive model would be necessary. Such a framework was worked out in the mid-20th century; it represents a temporal-spatial synthesis for all the Americas (Fig. 3.3). The terminology is distinct from that used in the Old World, where such frameworks were usually based on unilinear cultural evolution (Chapter 2). Yet the resulting framework in the Americas does suggest

**FIGURE 3.2**
Cultural attributes combined with geographical factors are used to define culture areas, in this case, those of North America.
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THE CULTURAL PROCESS APPROACH

The second major approach to reconstructing the past is by using cultural process interpretation. Cultural process refers both to how the component parts of a culture function as a system at one point in time and to how cultures change through time. It seeks to explain the processes of culture by discovering the causes of change at both points—within the internal workings of specific cultures, and from the broader perspectives of cross-cultural interaction in space and cultural change through time.

Ecological and Materialist Models of Culture

The cultural process (or simply processual) approach is based on two complementary models of culture. The ecological model emphasizes a synchronic view of culture; the materialist model emphasizes a diachronic or evolutionary view of culture.

The ecological model portrays culture, and especially technology, as the primary means by which human societies adapt to their environment. Whereas the normative model emphasizes regularities and rules, the ecological model highlights the variation evident in cultural forms (for example, spearpoints used in hunting or horticultural implements used to cultivate different crops), seeing the range and variety as potential clues to how the society in question dealt with its environment as a whole. Change stems from alteration of this adaptive relationship between culture and environment, as reflected archeologically in new forms or new frequencies of particular material remains.

The ecological model has an analog in biology, where scientists study how each species adapts to a set of environmental conditions, but archaeologists must take into account additional factors. Animal species adapt to both a physical environment (geography, climate, and so on) and a biological environment (other species of plant and animal life). Human societies adapt to these same environments but also to a cultural environment (neighboring groups or
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same environments but also to a cultural environment (neighboring groups or
societies). Moreover, in biology physical and behavioral traits are transmitted genetically, from parent to offspring, leaving the ability of a species to adapt to environmental change relatively limited and inflexible. Human societies, however, also have culture as a mechanism for the transmission of behavior (see the discussion of the normative model of culture on page 36). Because culture is learned, changes need not wait for new generations to be born before they spread. This does not mean that all cultures are constantly undergoing rapid changes. But culture gives human societies the potential for speedy and flexible responses when a change in the environment occurs.

It must be stressed that this ecological model does not imply that the environment determines the form of a culture. Indeed, the contrary is true; through time and on a global scale, our physical and biological environments have become increasingly determined by human culture. We need only look around us to see the changes our culture has wrought—altering the landscape and the very composition of the water we drink, the food we eat, and the air we breathe.

The ecological model does see the culture's mode of adapting to the environment as significant, though. The environment provides the opportunities for human exploitation. Each technology exploits a different part of the environment. Since each technology is different, the organizational and ideological unique. Also, certain environments offer more alternatives—and more fruitful choices—than others. Finally, in another parallel with biology, societies that are less specialized in their environmental adaptations tend to be less vulnerable to changes in their environment than more specialized societies.

One benefit of the cultural process approach is an increased understanding of causality. By viewing the archaeological record from an ecological perspective, the archaeologist may detect shifts in adaptation that suggest causes and consequences of change, rather than merely describing changes in norms.

As mentioned, the processual approach also relies on a materialist model of culture. Cultural materialism holds that there are biological and psychological needs common to all humans, such as hunger, sex, protection, and so forth. How these shared needs are met in different societies provides a means for evaluating each society's adaptive efficiency by measuring input, output, costs, and benefits. Human needs are satisfied most directly by a culture's infrastructure, composed of technology, economy, and demography (the size and composition of its human population). The infrastructure is the main focus of change as it responds to changing human needs and environmental conditions by optimizing benefits relative to costs for each society. Changes in the infrastructure also foster change in the culture's social, political, and ideological systems.

These factors are illustrated in one of the most basic materialist models, advanced by anthropologist Leslie White and his students. It focuses on increases in harnessing energy and organizing human labor as the key to the relative efficiency of evolving human societies. Critical changes occurred when people increased their productive potential by increasing their energy output, at first by using animals to serve as beasts of burden. This allowed the same number of people to do more work and increase production while using less time. Other transitions took place with the advent of water, steam, and oil as energy sources.

**Cultural Process Research**

How does the processual approach attempt to identify the causes of change and thereby explain cultural processes? It begins with hypotheses that specify, at the outset of research, the working model of change (or interaction) and the kinds of data that will support or refute each hypothesis. Competing hypotheses are then tested against the archaeological data in order to eliminate those not supported by the evidence. Hypotheses that are supported in the first test are retested and refined by further research in order to isolate the factors involved in a given situation of prehistoric cultural change. An example of this is David Hurst Thomas's tests of Steward's model of Great Basin culture, discussed in Chapter 1. In the processual approach, then, interpretation refers to the selection and refinement of hypotheses that best delineate cultural processes.

Of course the processual approach is rooted, either directly or indirectly, in cultural history reconstructions. A direct link may be apparent when the hypotheses have been derived from cultural history research. In an indirect way, however, all processual interpretation is built on a cultural history foundation, since cultural history provides the temporal and spatial frameworks of prehistory. These frameworks furnish the foundations without which cultural processes cannot be discerned.

For example, in studying the ancient society of the Ulu Valley around Santa Bárbara, in west-central Honduras, initial cultural history research suggested that two adjacent valley pockets had quite different developmental sequences. Gualquito supported a small local capital between about A.D. 200 and 900, but seemed to lack earlier or later evidence of localized leaders. Tencoa yielded a comparable center, but one that pertained to an earlier period, probably 400 B.C.-A.D. 200. Tencoa has better agricultural resources, but Gualquito occupies an obvious crossroad position (which Tencoa does not). Also, Gualquito's period of peak development seemed to coincide with the florescence of the major Maya city of Copán, to the southwest along one of the routes linked by the crossroads.

From these data, several models were proposed to be tested against new data. One linked Gualquito's rise and fall to the importance of external alliances, specifically to ties with Copán. Since the valley pockets are small, the model included the further hypothesis that, when the crossroads was not in active use, the pocket with more natural subsistence resources (Tencoa) would be the seat of local power. If the model were correct, further survey should reveal no further elite centers in the two periods cited, and should yield evidence of a return to power in Tencoa after A.D. 900. Survey and excavation...
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should also turn up more imports, especially those likely to be owned by society's leaders, in Gualdoquito, and the homes and possessions of those same leaders should show strong links with the culture and styles of Copán.

The next step in the processual approach involves assembling all the data relevant to rigorous testing of hypotheses under consideration. Hypothesis testing in archaeology, as in any scientific discipline, must follow an explicit, fully documented procedure. As discussed in Chapter 1, many sciences test hypotheses by conducting controlled and repeatable experiments. For example, the hypothesis that explains how a barometer works holds that the weight of the earth's atmosphere— atmospheric pressure— supports the column of mercury. An experiment to test this hypothesis would involve moving one barometer to a new altitude while a second remained at the first altitude, as a check against change in weather conditions. This experiment is controlled, in that it rules out interference by other factors (in this case, weather). It is also repeatable, as the experiment can be performed any number of times.

In some cases, as in the experimental archaeology examples discussed later in Chapter 8, archaeologists do use controlled experiments to test specific findings. But generally archaeologists cannot rely upon controlled, repeatable experiments to test hypotheses. The archaeological record already exists, and those who study it cannot return to the past to manipulate situations to test their reconstructions. This observation highlights a fundamental distinction between the physical sciences (such as physics and chemistry) and the historical sciences (evolutionary biology, geology, and archaeology). In the words of Stephen Jay Gould, "historical sciences are different, not lesser. Their methods are comparative, not always experimental; they explain, but do not usually try to predict; they recognize the irreducible quirkiness that history entails" (1985:18). Archaeologists and other historical scientists can, however, test their reconstructions by explicitly and clearly stating the conditions and expectations of their hypotheses and then collecting and analyzing the data specified by the expectations.

The testing procedure for archaeological hypotheses actually begins at the outset of research, with the formulation of multiple hypotheses that make mutually exclusive predictions about the data. The use of multiple working hypotheses means that as many explanatory alternatives as possible are considered. This minimizes the opportunity for explanatory bias on the part of the investigator and maximizes the chance of finding the best available explanation. In the example cited earlier, archaeologists working in the Santa Bárbara area set forth at least two mutually exclusive hypotheses. If Copán and the crossroads were the key to Gualdoquito's prosperity, the predictions outlined above should be met. If, however, other resources underlay its leaders' successes, the data would match predictions from models other than the one described here. Three years of subsequent data collection and analysis supported the link to Copán.

In this and other situations, the goal is to invalidate all but one hypothesis. The surviving hypothesis may then be advanced, not as proven, but as the best possible explanation given the present state of knowledge. All science involves the assumption that contemporary explanations will eventually be modified or replaced as new data become available.

**Cultural Process Frameworks**

Two interrelated frameworks underlie most process research: cultural systems and multilinear cultural evolution. Following from the ecological model, cultural process research is concerned with reconstructing past societies as integrated cultural systems. A system is a complex entity made up of interrelated components. The relationships among these components are as important as the components themselves. Each human society is actually composed of many subsystems that function together. For example, all societies have a means for acquiring food (see Fig. 3.4), a subsystem composed of all the activities involved in ensuring that members of the society have enough to eat. The components of this subsystem include the ways of collecting or growing food and of processing, storing, distributing, and preparing food. Changes in one component would create changes in other components because all are interrelated.

As a result of one change, therefore, the entire system would change. Archaeologists use the ecological model of culture to identify as many components of a past cultural system as possible. If the system can be reconstructed and a change in one of its components identified, then the consequences of that change for other components can be traced. For instance, a change in weapons technology may lead to successes against enemy societies, increased wealth, and perhaps an increase in population. This might then change the economic and political system, perhaps resulting in a more authoritarian power structure. Eventually, changes in the belief system could follow, such as increased importance of worship of deities for war and political authority.

By viewing the archaeological record this way, the archaeologist can move from a well established synchronic base to a diachronic perspective. Thus, the ecological culture model and a systems framework lead together to finding the causes and consequences of change instead of merely describing the appearance of new weapons, new status goods, and new images of deities. In other words, rather than merely describing what has changed, the archaeologist begins to unravel the process of change.

This brings us to the second framework of processual archaeology, multilinear cultural evolution. This framework is actually based on both ecological and cultural materialist models of culture. The ecological model shows that cultural systems do not evolve according to a single uniform sequence. Rather, cultural evolution is a many-channeled process, governed by each society's ecological adaptation within its own environmental setting. The materialist model holds that each human society adapts to its environment primarily via its technology and secondarily through its organizational and ideational subsystems. When viewed over the long term, changes in each individual culture result
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In this and other situations, the goal is to invalidate all but one hypothesis. The surviving hypothesis may then be advanced, not as proven, but as the best possible explanation given the present state of knowledge. All science involves the assumption that contemporary explanations will eventually be modified or replaced as new data become available.

Cultural Process Frameworks

Two interrelated frameworks underlie most process research: cultural systems and multilinear cultural evolution. Following from the ecological model, cultural process research is concerned with reconstructing past societies as integrated cultural systems. A system is a complex entity made up of interrelated components. The relationships among these components are as important as the components themselves. Each human society is actually composed of many subsystems that function together. For example, all societies have a means for acquiring food (see Fig. 3.4), a subsystem composed of all of the activities involved in ensuring that members of the society have enough to eat. The components of this subsystem include the ways of collecting or growing food and of processing, storing, distributing, and preparing food. Changes in one component would create changes in other components because all are interrelated.

As a result of one change, therefore, the entire system would change. Archaeologists use the ecological model of culture to identify as many components of a past cultural system as possible. If the system can be recon- constructed and a change in one of its components identified, then the consequences of that change for other components can be traced. For instance, a change in weapons technology may lead to successes against enemy societies, increased wealth, and perhaps an increase in population. This might then change the economic and political system, perhaps resulting in a more authoritarian power structure. Eventually, changes in the belief system could follow, such as increased importance of worship of deities for war and political authority.

By viewing the archaeological record this way, the archaeologist can move from a well established synchronic base to a diachronic perspective. Thus, the ecological culture model and a systems framework lead together to finding the causes and consequences of change instead of merely describing the appearance of new weapons, new status goods, and new images of deities. In other words, rather than merely describing what has changed, the archaeologist begins to unravel the process of change.

This brings us to the second framework of processual archaeology, multilinear cultural evolution. This framework is actually based on both ecological and cultural materialist models of culture. The ecological model shows that cultural systems do not evolve according to a single uniform sequence. Rather, cultural evolution is a many-channeled process, governed by each society's ecological adaptation within its own environmental setting. The materialist model holds that each human society adapts to its environment primarily via its technology and secondarily through its organizational and ideational subsystems. When viewed over the long term, changes in each individual culture result
from the accumulation of all of its specific adaptive responses. What suits one society to one environment won't necessarily be adaptive elsewhere.

Beyond the particular instances of adaptation and change stressed by the ecological model, multilineal evolution emphasizes the degree of success or efficiency of each system from a materialist perspective. This leads to the measurement of the efficiency of cultural development by how it survives over time or, if appropriate, how it becomes extinct. A particular society may be well adapted to its environment so that it achieves a stable balance or equilibrium, in which change is minimal and survival is the measure of adaptive efficiency. In other cases, human societies become involved in growth cycles. For example, changes originating either from the environment or from within the society may trigger changes in the technological system—and as a result in the organizational and ideational systems. If these technological changes result in increases in food production and if the organizational and ideational changes allow for increases in population size, a process of growth may begin. Continued growth will eventually place new strains on technology (the amount of food produced), organization (management of people), and ideology (beliefs justifying the other two systems). This pressure may trigger further changes in the society—technological innovations to increase food production further or new forms of social and political organization to mobilize the population—and the cycle may continue. Such a growth spiral is evident in the archaeological record of the development of civilization in both the Old and New Worlds.

The frameworks of cultural systems and multilineal evolution allow prehistoric archaeologists to explore the patterns and dynamics of growth within human societies. While cultural history reconstruction emphasizes identification of cultural interaction and change through description of a sequence of events, cultural process reconstruction is concerned with discovering the causes of interactions and change. That is, the processual approach seeks not only to identify and describe similarities and differences across time and space, but also to explain the observed distributions.

THE CONTEXTUAL APPROACH

The contextual approach emerged from the perceived shortcomings of processual archaeology. Whereas cultural process archaeologists treat culture as adaptation and portray cultural change as a response to shifts in one or another aspect of the environment, some archaeologists began to argue for a more humanistic approach that would recognize the importance of nonmaterialist factors in people's lives. These archaeologists contend that changes in behavior have to be understood in the context of each culture's particular values, attitudes, and other beliefs that give the world meaning. Thus the name contextual archaeology—a view of the past that is dependent on the specific conditions and perspectives of the society being investigated.

FIGURE 3.4
An example of a cultural system, in this case made up of the related activities (components) of food acquisition used by the Shoshonean people of the Great Basin in the western U.S. (After Thomas, reproduced by permission of The Society for American Archaeology; adapted from American Antiquity 38:159, 1973.)
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More broadly, there are at least four ways in which the contextual approach complements both the cultural history and cultural process perspectives. First, believing that the normative, ecological, and materialist cultural models present people as passive, contextual archaeologists call for a more active or dynamic model of culture. This model focuses on the human ability to create and modify ide systems as an important source of how societies operate and change. Second, rather than dealing with time in large undivided blocks, contextual archaeologists treat time more like the continuous flow in which people actually live their lives. Third, where both cultural history and cultural process are concerned with collective behavior at the level of entire societies, contextual archaeologists attempt to get at the smallest-scale behaviors, such as those of the individual, family, or ethnic groups. Fourth, while cultural history and cultural process interpret the archaeological record from an outside scientist's point of view, contextual archaeologists aim at an insider's perspective, trying to see how the people who created the material remains saw their own world. This goal of achieving an internal perspective reflects changes in studies of human culture, a cycle alternating between knowledge gained from formal objective science and from subjective insight. For process archaeologists, the goal of objective science is explanation—the definition of components, relationships, and points of change within past cultural systems. For contextual archaeologists, the goal of subjective insight is understanding—determining the meaning of past events within their own cultural contexts. This has brought the fourth goal of archaeology, the determination of meaning (see Chapter 1) to the forefront.

The Cognitive Model of Culture

As we have seen, the models for culture used in the cultural history and process approaches emphasize people as collective and passive participants rather than individual and active agents. For contextual archaeologists, the key characteristic of culture is that it is the vehicle for each person to define and interpret his or her world. This is a cognitive model of culture, one that sees culture as the set of meanings (categories and relationships) people construct for making sense of their lives. People, therefore, are active agents, individually reworking learned norms and traditions to fit the contexts of their own lives. Because culture is seen as perpetually changing, even on a short-term basis, this model of culture is diachronic. Contextual archaeologists try to address spans of time between the moment and the long term, which they feel earlier archaeologists have ignored.

The cognitive model incorporates notions of culture as a set of durable systems of norms. Here we authors have deliberately adopted terms from the other models of culture to suggest common ground. But with the cognitive model, norms do not determine human behavior; instead, they define options available to each individual to use and adapt to suit their needs. In this way, culture is seen as constantly in flux and as redefined in each situation. Also, the available norms within each culture are seen as variant and unique expressions of deep-seated and highly structured patterns that underlie all cultures. Material remains are to be read as if they were texts, expressing these unique patterns based on common and familiar themes. In another major difference, where traditional cultural history and cultural process archaeology often assumed a male-oriented perspective, contextual archaeology also seeks to discover the particular aspects of the archaeological record that reflect female activities to provide a more balanced view of the past.

Let us contrast how the three approaches view pottery. Cultural historians see pottery decorations as idealized traits that allow identification of cultures and their variations in time or space. Processual archaeologists see the same decorations as a means of defining social groups and changing through time in response to shifts in those boundaries. Contextual archaeologists look at not only the decoration, but the context in which it occurs, to see how it relates to other expressions within the specific culture. In many (but not all) cases potters are women, so that pottery may reflect a particular gender-related outlook within the ancient society. This can be done by attempting to decipher the message being conveyed by the choice of particular pottery styles and by the choice of pottery vessels as the medium for their expression.

Contextual Research

As we have mentioned, a central tenet in contextual archaeology is to gain meaning from the archaeological record by using material culture to reconstruct an internal view of an ancient symbol system. While ethnographers may interact with living people of other cultures to gain this insider's view, doing so with an extinct prehistoric society is obviously much more difficult. Under some circumstances, historical or ethnohistoric documentation may provide clues. Archaeologists must rely on the deep common themes that underlie all human societies to reconstruct the meanings of specific aspects of the archaeological record.

The means for generating and testing propositions used by contextual archaeologists differ little from those used by other archaeologists. For example, the archaeological record is examined for regularities and patterns, and these patterns are interpreted by propositions that can be tested by data from subsequent research. Archaeologists schooled in the hypothesis-testing procedures of the scientific method wonder how to derive and test a proposition describing an ancient symbol system that once existed in the minds of long-dead people. Contextual archaeologists do not deny the difficulty or even impossibility of using the formal scientific method to this end; rather, they conclude that traditional science is simply inappropriate for the task, since it represents a perspective inherently bound to a Western cultural tradition. Instead, when archaeological data are linked by cultural continuity to specific and known ethnic groups, meanings of specific cultural values, gained from ethnographic or ethnohistoric accounts, may be used as the basis for understanding similar patterns in past situations.
More broadly, there are at least four ways in which the contextual approach complements both the cultural history and cultural process perspectives. First, believing that the normative, ecological, and materialist cultural models present people as passive, contextual archaeologists call for a more active or dynamic model of culture. This model focuses on the human ability to create and modify ideas systems as an important source of how societies operate and change. Second, rather than dealing with time in large undivided blocks, contextual archaeologists treat time more like the continuous flow in which people actually live their lives. Third, while both cultural history and cultural process are concerned with collective behavior at the level of entire societies, contextual archaeologists attempt to get at the smallest-scale behaviors, such as those of the individual, family, or ethnic groups. Fourth, while cultural history and cultural process interpret the archaeological record from an outside scientist's point of view, contextual archaeologists aim at an insider's perspective, trying to see how the people who created the material remains saw their own world. This goal of achieving an internal perspective reflects changes in studies of human culture, a cycle alternating between knowledge gained from formal objective science and from subjective insight. For process archaeologists, the goal of objective science is explanation—the definition of components, relationships, and points of change within past cultural systems. For contextual archaeologists, the goal of subjective insight is understanding—determining the meaning of past events within their own cultural contexts. This has brought the fourth goal of archaeology, the determination of meaning (see Chapter 1) to the forefront.

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In cases without such links to the past, a far more speculative method has been suggested. This is aimed at reconstructing ancient meanings of material remains using the so-called reenactment method. This attempts to place the archaeologist in the role of a person in the past society being studied. To do so, the archaeologist must obtain as much information as possible about conditions, motives, techniques, and other aspects of the study subject. The goal is to use this information to determine the most consistent proposition describing the past situation. A proposition derived from this method could even be tested by more rigorous scientific procedures, as in the use of multiple hypotheses.

**Contextual Frameworks**

Contextual archaeologists seek meaning beyond the technological, environmental, and social dimensions on which archaeologists have traditionally relied. A basic framework of contextual archaeology is that the archaeological record should be viewed from multiple perspectives and seen as possessing multiple meanings. These multiple levels of meaning should not be seen as mutually exclusive. Although these multiple dimensions may be difficult to reconstruct, it is important to attempt to understand as many aspects of past human behavior as possible.

These multiple levels of meaning can be seen in specific artifacts and features known from the archaeological record. For example, an implement such as the atlatl, or spear thrower, is usually seen as a weapon, but it also has social and ideological meanings in native North American societies. In North America the atlatl was replaced by a more efficient weapon, the bow and arrow, by about A.D. 500. Instead of disappearing, the ancient atlatl continued to survive, transformed over time into the calumet or "peace pipe," thus becoming an important social and religious symbol (Fig. 3.5). Socially it became an emblem for kin groups, such as clans. Ritually, it became a symbol of peace or friendship celebrated between adversaries. In this way, a former weapon evolved into a symbol used in meetings between potential enemies, much as our handshake derives from a gesture to demonstrate that no weapon is being held in the hand.

Historical archaeology has produced some of the best examples of learning multiple meanings of artifacts. Studies in American historical archaeology have traced changes in the form and decoration of houses, cooking and serving pots, gravestones, and other items of everyday life over the last 200 years. These changes reflect trends away from an emphasis on communal social behavior toward the more individualistic and anonymous way of life typical of America today. Whereas two centuries ago people ate stews from a common pot, they now use individual plates and bowls. Where houses had been asymmetrical in layout and built to encourage entry into the living quarters (Fig. 3.6), they have changed to today's more symmetrical layout with entry halls to buffer or prevent the entry of visitors into the family's living space.
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**Figure 3.5**

Historic (b–d, g) and prehistoric (e, f) materials illustrate similarities in form between spear-throwers (d, e) and calumet and other Native American pipes (b, c, g), as well as their co-occurrence sometimes in the same item (f). The arrow (a) is shown for scale. (After Hall, reproduced by permission of Robert L. Hall and the Society for American Archaeology from *American Antiquity* 42:4, 1977.)
As these examples show, contextual archaeology has to be tied to specific cultural traditions to be able to reach levels of meaning not even attempted by other archaeological approaches. But this could make it less useful for the more general view of the past, beyond the confines of a particular cultural tradition. Because it is such a recent development, the ultimate contributions of the contextual approach have yet to be realized. It is already clear, however, that the impact of contextual archaeology will be in realizing how the archaeological record represents many levels of meaning, and how the diversity and patterns in that record represent how past peoples actively used and interpreted their world—a world that was often very different from our own.

SUMMARY

Archaeology today has a variety of means to reconstruct the past by applying a series of useful cultural models and interpretive frameworks. Following the general tenets of the scientific method, the cultural history approach gathers data and tests propositions, primarily to order the past into ever-larger temporal and spatial frameworks. Its descriptions are usually broad and general, founded in a normative concept of culture. The results of cultural history archaeology usually provide the essential foundations for the other two approaches.

The second major approach emphasizes identification and explanation of cultural processes—how cultures operate at any one point in time and why they change through time, sometimes relatively rapidly, or in other cases, almost imperceptibly. Multiple hypothesis-testing research is used to reveal the causal factors operating in specific cases. The approach is based on two complementary cultural models. The ecological model stresses the synchronic study of human culture as a means of adaptation with the physical, biological, and cultural environment. This model contributes to a cultural systems framework, which views past societies as dynamic interactions between component parts. The materialist model emphasizes the role of the technological core of culture as it responds to changing human needs and environmental conditions by optimizing benefits relative to costs for society. Both models contribute to a multilinear cultural evolution framework to establish general cross-cultural trends of human prehistory, with technology usually seen playing the leading role.

The contextual approach focuses on understanding the past by using a more active or dynamic model of culture, studying a more human time scale, and focusing on individual, family, or ethnic group behavior. In contrast to other cultural models, the cognitive cultural model places individual humans in active control by portraying culture as the set of meanings people construct for making sense of their lives. These meanings define a culture constantly in flux. Where the cultural history and processual approaches use the archaeological record in the context of objective science, the contextual approach attempts subjective insight, seeking to reconstruct the point of view of the people who
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produced that record. Historical accounts may help discern this perspective, but it is far more difficult for an extinct prehistoric society. Contextual archaeology points to the need for multiple interpretations of the archaeological record and for a greater understanding of the meaning of that record, both for ancient societies and for our own.

Although archaeologists have debated the relative merits of these approaches, it seems clear that all contribute importantly to the most complete understanding of the past.

FOR FURTHER READING

THE CULTURAL HISTORY APPROACH
Kelley and Hanen 1988; Kidder (1924) 1962; Rouse 1962; Taylor (1940) 1967; Trigger 1968, 1989; Willey and Phillips 1958; Willey and Sabloff 1980

THE CULTURAL PROCESS APPROACH
Binford 1972; Gibbon 1989; Johnson and Earle 1987; Steward 1955; Trigger 1989; Watson, LeBlanc, and Redman 1984; Willey and Sabloff 1980

THE CONTEXTUAL APPROACH

ADDITIONAL SOURCES

How Archaeology Works

In this chapter we examine the information archaeologists work with and the ways it is acquired. You may have read about archaeologists piecing together the past by studying ancient pottery, arrowheads, or other artifacts found by excavation. These artifacts represent only one of several categories of evidence that archaeologists work with, and excavation is only one of several means of collecting information about the past.

ARCHAEOLOGICAL DATA

The material remains of past human activity, from the microscopic debris produced by chipping stone tools to the most massive architectural construction, become data when the archaeologist recognizes their significance as evidence and collects and records them. The collection and recording of these material remains constitutes the acquisition of archaeological data. Here we are concerned with the three basic classes of archaeological data: artifacts, features, and ecofacts, and how they cluster into larger units. These categories are not inflexible, as there is some overlap among them, but together they illustrate the variety and range of information available.