

Part III

Middle-Range Theory

Relating Form and Cause

Part III shifts our attention from the broad array of factors that can cause material style, and that were inventoried previously, to the various ways in which those factors can be expressed materially. The chapters in Part III build, test, and illustrate a coherent middle-range theory that bridges causal factors to resultant forms. The theory answers the question, “Which specific determinants of an artifact’s form are reflected in which of its specific attributes, and under what contextual conditions?”

Chapter 6, by Carr, begins by reviewing the history of ideas and practices in archaeology that have discouraged the building of middle-range theory about style and that have led to current uncertainty about the mapping of causal processes to resultant forms. Philosophical, theoretical, and analytical circumstances for the uncertainty are described. For example, most high theories of style have been developed without appropriate boundary conditions stipulating the kinds of formal attributes to which the theories, and the causal processes that they evoke, apply. This has led to the posturing of alternative theories as competitive when, in fact, some of them (e.g., the information exchange and social interaction theories) complement each other in the spectra of attributes to which they pertain. Another blockage to middle-range theory building has been the definition of style in terms of its causes, which are not archaeologically observable, rather than its observable material and contextual characteristics. Carr’s review of these and other issues in middle-range theory-building contrasts with other, recent archaeological reviews of style (Plog 1980; Roe 1980; Hodder 1982a; Sackett 1982; Braun and Plog 1982; Wiessner 1983; Conkey 1990). These have focused, instead, on high theory about the factors that determine style and epistemology.

Carr goes on to propose that because artifact forms reflect multiple processes of varying phenomenological levels, it is not possible to build any *single*, high theory of “the cause” of style (see also Conkey and Hastorf 1990:2–3). However, *integration* of diverse, high theories concerned with different processes is possible at the level of middle-range theory. Integration can be achieved by modeling how the different processes tend to be expressed in different ranges of formal attributes in given contexts.

Carr then outlines six tactics that are essential to both building middle-range theory on material style and analyzing material style. Each tactic is a response to one of the philosophical, theoretical, or analytical circumstances that has previously discouraged the building of middle-range stylistic theory. Three of the tactics are especially important. One is to widen the range of formal attributes that are considered so as to include all material traits that comprise an artifact, as opposed to only those attributes that are thought a priori to be stylistic. This total corpus of traits Carr terms the “design” of an artifact. This corpus sets the most basic limitations on form–process relationships, because the traits are organized in the context of each other as a system and constrain each other technologically.

A second important tactic is to order both attributes and potential causal factors hierarchically,

according to certain of their characteristics, in preparation for mapping the relationships between the attributes and their possible causes. Attributes can be ordered by their relative visibility, their relative placement in a hierarchy of manufacturing decisions, and their relative position in a sequence of production steps. This ordering is helpful because attributes that vary in these ways systematically have different physical and technological potentials for reflecting given processes. Processes can be ordered by their scale, intensity, whether they are active or passive, whether they are conscious or unconscious, and their cultural value (if any) for expression. This ordering is helpful because processes that vary in these ways differ in their potential material effects.

A third essential tactic is to use technological relationships among attributes—specifically, their decision order and production order—in addition to their visibility, to organize them hierarchically. This is necessary because the material style of an artifact is intrinsically embedded in its technologically constrained form, and because the processes that determine its style are manifested through technological processes (Sackett 1985).

Considering the various historical and tactical issues raised, Carr ends Chapter 6 with a definition of “material style” that is bent toward developing middle-range theory. Material style is defined in archaeologically observable, material, and contextual terms, following the art-historical tradition (Shapiro 1953). The definition is narrower than the one for “style” given by Roe (Chapter 2), which combines material and processual characteristics.

In Chapter 7, by Carr, a middle-range theory is built that bridges the formal attributes of artifacts of a class to the various possible causes of those attributes. The theory predicts the kinds of attributes that are most likely to be determined by and reflect certain causal factors. The theory is “middle range” in nature because it maps, via explicit empirical criteria, statics (material attributes) to causal dynamics (processes), allowing the former to be “identified” or “defined” with the latter (Binford 1977).

The theory specifies how to define a hierarchy of attributes and a hierarchy of potential causes using the several criteria mentioned above. The causal factors that are considered range widely, from technological through sociocultural to social-psychological, personal behavioral, personal psychological, personal physiological, panhuman depth-psychological, and panhuman physiological factors. Next, through a large number of bridging arguments, formal attributes at different hierarchical levels are associated with different, sometimes overlapping ranges of factors that might determine those attributes. Ethnographic and archaeological case studies that encompass many media are used to build and support the bridging arguments.

The bridging arguments that link causal factors and resultant forms in essence comprise boundary conditions for the various high theories of style that evoke those factors. The bridging arguments especially clarify how the social interaction and information exchange theories of style are complementary, rather than competitive as Braun and Plog (1982) drew them. Specifically, the two theories pertain to different but overlapping levels of formal attributes, which reflect the different causal processes of enculturation and communication that are respectively evoked by the two theories.

Finally, the middle-range theory suggests how various kinds of contextual information can be used to refine the potential processual meanings assigned to attributes. Some examples of these kinds of information include the scale and form of the spatial distribution of the alternative states taken by attributes; rates of attribute change through time; patterns of covariation among attributes through time; the differing distributions of different artifact classes; visual and other characteristics of the contexts of production, use, display, and deposition of the artifact class; and the culture-historical and adaptive milieux.

In considering such contextual factors, the proposed middle-range theory goes beyond the decontextualized uses of style in traditional normative archaeology and the New Archaeology, where styles were seen as “indicators” or “correlates” of social units (Conkey 1990:9–10). The theory bridges attributes to social units *through* both the dynamic processes that define and maintain those units and the contextual constraints that, in turn, define those processes. Moreover, the criteria that are used to define the hierarchy of attributes of a class of artifacts have contextual, case-specific dimensions as well

as universal dimensions. For example, the visibility of an attribute is defined not only in regard to its absolute physical properties, but also in relation to contextual parameters such as the viewing distances, spatial density, and use-life of the artifact of which the attribute is a part, and culturally learned patterns of perception.

Chapter 7 makes five additional contributions to style theory. First, it clarifies specifically how the decision order and production order of an attribute can constrain the range of processes it may reflect. Previous middle-range theoretic work has focused on bridging attributes to the processes that cause them via only the visibility of the attributes (e.g., Wobst 1977). In this way, the theory reinforces Sackett's (1982) contention that technology is the framework within which style manifests itself. At the same time, the theory goes beyond his lament (Sackett 1985) that style is "ubiquitous," "wherever the potential for isochrestic variation is to be found," and that particular interpretations of stylistic patterns are not implicit in them. Moreover, by considering the decision order and production order of attributes, as well as their visibility, the theory is capable of bridging attributes to a wider spectrum of processes, which include those pertinent to the artifact maker, alone (e.g., habitual methods of manufacture, personal preferences), as well as to the maker-viewer dyad (e.g., enculturation, communication, negotiation, projection). Later chapters by Carr and Maslowski, and Pryor and Carr, illustrate in detail how the decision order and production order of an attribute constrain the range of processes it may reflect.

A second way in which Chapter 7 contributes to style theory is by describing and citing evidence for an empirical, cross-cultural tendency for messages of social units of decreasing scale to be expressed—if they are expressed materially—in attributes of decreasing visibility. The units might include the regional interaction network, language group, society, social segments, the community, the family–artisan network, and/or the person.

Third, the chapter elucidates several reasons for this cross-cultural regularity. One significant reason hinges on an ecological–evolutionary argument. The relative "importance" of essential social units and their messages to the survival of a social system, and thus the relative value given to expressing those messages in more visible attributes, depends on the vulnerability of those units to external or internal stresses. In turn, in evolving human ecosystems, larger units are often more vulnerable in that they lay closer to the "edge" of the social system's adaptive organization, yet, having evolved more recently, may be structurally simpler and less well buffered from stresses. Thus, the messages of larger units commonly are given priority for expression in more visible attributes.

Fourth, the chapter introduces the concept of "message priorities." The many possible messages that an artisan might wish to express in an artifact must be ordered by their priority for expression. This is so because artifacts have a limited number of highly visible attributes that are effective for expressing messages. The priority given to various messages for expression in highly visible attributes depends on (1) culturally uniform values, world view assumptions, beliefs, and themes that form the "fabric" of a culture and that do not vary with the social situation in which the artifact class is used; (2) culturally uniform but situationally dependent values; (3) the artisan's personal values, preferences, motives, and strategies that are situationally dependent; and (4) the nature of the social situation in which the artifact is to be used or displayed (see also Wiessner 1988; Rosenthal, Chapter 10). Some characteristics of social situations that can influence the priority given to stylistically expressed messages include the situation's purpose, cultural nature (e.g., sacred, profane, liminal), the composition and number of its participants (e.g., males, females, elders, elite), and its tone in relation to personal or group motives, emotions, or conditions (e.g., fear, interpersonal or intergroup competition or cooperation, affluence).

The varying importance among cultures of the first three factors in governing artifact manufacture, and the situation-dependent nature of the second and third factors, are causes for exception to the cross-cultural tendency for the messages of social units of decreasing scale to be expressed in attributes of decreasing visibility. This understanding moves beyond Braun's (Chapter 5) argument that irregularities in cross-cultural relationships between artifact forms and processes result simply

from “serendipity” within “history.” Also, the idea that a social message can vary situationally in the priority and visibility of its expression is essential to any communication theory of style; however, it was not an aspect of Wobst’s (1977) seminal middle-range framework. Examples of how message priorities shift with the social situation are presented by Carr (Chapter 7), Rosenthal (Chapter 10), and Morris (Chapter 13).

The final way in which Chapter 7 contributes to style theory is by explicitly defining and distinguishing a number of concepts. First, the visibility of an attribute is defined in relation to physical, perceptual, cognitive, and contextual factors. Second, manufacturing decisions, production steps, and design grammars that employ tree diagrams are each distinguished. Third, a wide variety of decision hierarchies of various structures are defined. Their distinction is significant because decision hierarchies of different structure vary in the spontaneity and creativity that they admit in artifact production, and influence the degree of determinacy in form-process relationships. Fourth, active and passive stylistic processes, which vary in the degree of artisan control, are distinguished from conscious and unconscious processes, which vary in the degree of artisan awareness. Fifth, the distinction between additive and subtractive crafting processes is shown to be simplistic and misleading in characterizing media with respect to how causal processes map to resultant attributes.

Chapters 8, 9, and 10 (by Pryor and Carr, Carr and Maslowski, and Rosenthal, respectively), each illustrate and test certain aspects of the middle-range theory built in Chapter 7. Diverse media, including basketry, cordage, fabric, and wood carving, are explored. The chapters illustrate how the attributes of a population of artifacts can be arranged hierarchically in three ways, using the three criteria of attribute visibility, decision order, and production step. A solid understanding of manufacturing procedures and materials is shown to be essential to defining such arrangements. The chapters also document the predictable, moderate to strong correlation between attribute hierarchies arranged separately by the three criteria and how using all three criteria to construct one hierarchy allows a more refined and insightful ordering than relying on attribute visibility, alone. Specifically, the different criteria pertain to different constraints on form–process relationships (e.g., communication potential, message priorities, and artisan spontaneity and expression of the personal self).

The media chosen to explore these issues challenge our understanding of form–process relationships beyond what archaeologists have learned from ceramics, which have been a focus of past archaeological theory-building about style. This is so because basketry, cordage, fabrics, and wood carving differ fundamentally from ceramics and each other in the structure and direction of correlation of their attribute visibility, manufacturing decision, and production step hierarchies.

Pryor and Carr document the many processes that together determine the design of California Pomo baskets. They follow a seldom-used but insightful research design developed by Wobst (1977) and Wiessner (1983), whereby attributes of several levels of visibility are studied for their differing patterns of variation at several social scales. Different processes that operate at those different scales and their effects on basket design are thus revealed. The processes include personal preference, inspiration, and motor skills at the level of the individual; enculturation, life history, student–teacher power relations, and passive interactions at the family and interacting artisan levels; and shared culture history and passive interactions at the community and sublanguage group scales. The visibility levels of basketry attributes that are found to reflect these processes agree with predictions made by the middle-range theory built in Chapter 7.

Pryor and Carr’s chapter also explores three other topics that are essential to stylistic theory. The first is how contextual limitations on artifact visibility can affect the kinds of processes that attributes of varying visibility reflect. Pryor and Carr show how visible attributes of Pomo mush boilers distribute spatially as if they were, instead, physically obscure attributes because the boilers are used in the private domestic context. Similar examples of contextually limited visibility can be found in Braun’s (1977) analysis of prehistoric Woodland cooking pots and Hodder’s (1982b:54–56) study of hearths within huts of the Baringo.

Second, the chapter considers the nature of perception, complementing Washburn’s chapter in Part II. Some evidence is presented that Pomo Indians perceive basket styles in both a Gestalt and

partitive–analytical manner. Apparently, a Pomo viewer breaks a basket image down into discriminating attributes, but these are also perceived and given meaning in the context of each other as a whole constellation. New Guinea Maring appear to perceive the painted designs on their war shields in a similar manner (Lowman and Alland 1973:29,33).

Such evidence for partitive–analytical perception is essential to the validity of the middle-range theory presented in Chapter 7. The theory holds that different, visible attributes of an artifact may communicate different messages. This can be true and communication can be effective only if an artifact is naturally and unconsciously perceived partitively and is, thus, easily decoded into a set of constituent iconic images.

A third essential topic that Pryor and Carr discuss is the nature of enculturation. The authors point out that enculturation in a style involves more than learning, and cannot be taken out of context, as some archaeologists have done when modeling the effects of enculturation on style distributions (Wobst 1977; references in Plog 1980:115–117; Sackett 1982). The microdynamics of enculturation involve a number of processes and contextual constraints that affect the form, diversity, and spatial–temporal distribution of a style, and that should be considered in an integrated approach to style. Pryor and Carr, along with Roe (Chapter 2), Rosenthal (Chapter 10), and Lathrap (1983), have enumerated and illustrated these factors in detail. They include: (1) kinship, marriage, residence, and adoption patterns; (2) whether direct or hidden criticisms of artistic creations is the cultural etiquette; (3) the degree to which protective domains or “realms of protected deviation” exist (e.g., hidden places, receptive audiences, segregated or quarantined components of culture such as play or tourist art) where creative inspirations can be worked out before being unveiled to the public; (4) the relative prestige and power relations between teacher and student; (5) the relative prestige and power relations among coresiding blood and affine potential teachers; (6) age of learning; (7) the number of years of learning, as affected by cultural norms and circumstance; (8) sexual segregation and complementarity during the planning and production of artifacts; (9) subcultural differences between the sexes in their world views; (10) family life-cycle, history, and mobility, which affect learning continuity; (11) the personal history and sedentism of the artisan; (12) whether prototypes of various styles are archived for student reference after the teacher’s death; and (13) whether manufacturing procedures can be inferred after an artifact’s production, or only observed during production. In a stylistic analysis, many of these factors can be either the primary goal of reconstruction or an auxiliary parameter to be considered for its effects.

The chapter by Carr and Maslowski delves into more specific processes that can be indicated by various spatial and temporal patterns in cordage and fabric traits. Patterning in the initial direction of twist of cordage threads is shown to be useful for reconstructing learning pools, patterns of recruitment between societies, population migrations or stability, population replacements, and the spatial overlap of settlement systems. These reconstructions are possible because cordage twist direction is a poorly visible trait that usually reflects passive aspects of enculturation rather than active processes, and because the trait, once learned, tends to be retained by a craftsperson habitually through life. The chapter also shows how contrasting spatial patterns of a hierarchy of traits of mortuary fabrics can indicate several things, including the spatial organization of social units and the nature of alliances between them. The setting for both the cordage and fabric studies is the prehistoric Ohio drainage.

As a foundation for these studies, Carr and Maslowski review two of the most common taxonomic systems for describing cordage (Hurley 1979) and fabrics (Emery 1980). They also critique the systems for their relevance to research aimed at reconstructing past processes. This is done by comparing the structure and attributes of these systems to the decision structure and attributes involved in manufacturing cordage and fabrics. Good concordance is found for Hurley’s system, but not Emery’s, which was explicitly constructed as a formal–structural rather than processual system of classification. Carr and Maslowski go on to offer the beginnings of an alternative system for describing fabrics in more process-relevant terms.

Rosenthal’s chapter further extends our understanding of the range of factors that determine

material style beyond those frequently considered by archaeologists. She explores the effects of religious and mythological themes, personal dreams, and acculturation on the visible formal attributes of masks of the Iroquois ethnomedical False Face societies. Rosenthal makes several important contributions to theory. First, she outlines several strategies for narrowing the range of interpretations that might be given to visible, iconological attributes. These are: (1) beginning with the broad possibilities predicted by the middle-range theory presented in Chapter 7; (2) noting the cultural context(s) in which the artifact class was used and considering the priorities that various kinds of messages would likely be given in that domain; (3) considering how the geographic and temporal distributions of the artifact class's attributes change as cultural context varies; and (4) extending the third strategy to the attributes of multiple artifact classes. Studying multiple classes, each in multiple contexts, allows repetitive themes of a culture, termed its "fabric" or "pattern" or "configuration," to be revealed.

Second, following Durkheim, Rosenthal theorizes how message priorities and their expression in visible attributes should shift as the context of use of an artifact class changes from sacred to profane domains. In sacred contexts, social and religious messages can be expected to be emphasized over personal ones. In profane contexts, a broad variety of messages, ranging from personal through social, political, or economic messages, might be expressed. Rosenthal documents such shifts in message priorities and their stylistic manifestations in False Face masks as their contexts of use changed through time from profane to sacred and vice versa. She calls the two kinds of shifts "veneration" and "degeneration," respectively. Examples of these two processes are the institutionalization of nontraditional masks, which were originally intended as jokes, within the Iroquois Acculturation Rite, and commercialization.

Third, Rosenthal considers some of the psychological processes that generate stylistic novelty and produce change through selection, in Braun's (Chapter 5) terms. These processes include dreams of the client as sources of inspiration of mask images, the selective memory of the dreamer, and the carver of the mask visualizing the dream image in his mind, based on the client's description of the image. Each of these internal psychological processes interfaces with, is constrained by, and/or modifies external cultural factors, such as extant myths and cultural themes that provide prototypes for dream images, or the limitations of wood carving technology. Thus, Rosenthal calls our attention to the fact that human beings and their stylistic products interface and are affected by both the inner psychological and outer material-cultural worlds (see also Carr and Neitzel, Chapter 14).

Plog's chapter augments the middle-range theory built in Chapter 7 by generalizing how three broad categories of processes are reflected in the contextual as opposed to the formal-technological qualities of attributes of artifacts. These processes are: (1) enculturation reflected in "isochrestic variation"; (2) the communication of social or personal identities through "symbolic variation" or "nonrepresentational art"; and (3) the communication of specific spoken messages through "iconographic variation" or "representational art." The distinctions highlight ones drawn earlier by Wiessner (1983, 1985) and Sackett (1982, 1985). Plog then clarifies some insights of Wiessner (1985), that the three categories of processes can be distinguished archaeologically by the rates of change of attribute state frequencies through time, the synchronic strength of association among attributes, and the form of the regional and local spatial distributions of attribute states. The attributes reflecting the processes could pertain to the same or different artifact classes. Plog's chapter, like Chapter 6, emphasizes that the design of an artifact is not a unitary phenomenon.

Plog goes on to critique various approaches to artifact classification and style analysis, in light of the several processes that an artifact's design may express. In particular, he evaluates well-established, hierarchical, multivariate systems of attributes for describing ceramics relative to Jernigan's (1986) nonhierarchical, schemata-based system. Plog finds hierarchical systems more appropriate to processual research because they are open-ended, explicit, and concord better with linguistic models of stylistic structure. They also allow sherds to be studied, rather than requiring whole vessels, and thus permit larger samples.

Plog ends his chapter by applying the distinctions he makes between isochrestic, symbolic, and iconographic variation to ceramic stylistic changes in the northern Southwest United States. Plog poses that ceramic styles shifted between A.D. 700 and 1100 from isochrestic to symbolic to perhaps iconographic in nature, based on the rates of change, the strength of association, and the spatial distributions of ceramic attributes. The proposed shifts are expectable, given demographic, residential, sociopolitical, and subsistence changes in the northern Southwest over this time.

In conclusion, the attempts made in Part III to build and test middle-range theory that bridges specific kinds of artifact attributes and classes to specific ranges of causal processes stand apart from the recent trend in archaeology to focus primarily on processes. Most debates about style during the 1980s centered on paradigmatic differences over which factors determine style, rather than the kinds of attributes and classes that reflect certain factors (e.g., Braun and Plog 1982; Hodder 1982b; Conkey 1984; Sackett 1985; Wiessner 1985). These debates did not continue the seminal beginnings to the development of middle-range theory that were made by Hardin (Friedrich 1970) and Wobst (1977). It is hoped that Part III helps to redirect archaeology to the question of the material, stylistic reflections of past processes and conditions.

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Style, Society, and Person

Archaeological and Ethnological Perspectives

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On file

Cover design: "The Mask." The left half of the cover design is an adaptation of a set of overlaid human and animal images apparently representing one or more masks worn by an elite member of Ohio Hopewell Society (150 B.C.–A.D. 350) and rendered on a bone. From the Hopewell site (Chicago Field Museum of Natural History catalog number 56369).

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